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## The epistemological and ideological stakes of literary Darwinism

Alexandre Gefen, CNRS

### *Abstract*

*Proposing to produce “new humanities,” the literary Darwinists affirm the failure of the humanities in the face of modern scientific demands. Literary Darwinism promises to naturalize literary aesthetic practices, both poetry and narrative. It justifies the human need to produce fiction and proposes to interpret its contents. By confronting cultural studies head-on, as well as previous paradigms, from psychoanalysis to historicism, evolutionary theorists have opposed postures defending the insularity of art and the differential character of artistic practices. Such a position has been exposed to virulent criticisms (reductionism, conservatism, utilitarianism, essentialism, scientism, etc.) to which I would like to return, as they seem to me to hinder a serene examination of the disciplinary proposals put forward, in all their richness and epistemological ambitions.*

The cognitive sciences constitute a scientific domain rather than a single science. Originally organized according to a triad constituted by experimental psychology, neuroscience and information theory, they now deploy a variety of levels of analysis and fields of expertise, whether they are interested in the molecular, cellular, neuronal, behavioral, social or even anthropological supports of human cognition. Placed in a very particular position within the sociology of science, since they are characterized both by their internal heterogeneity and by the ubiquity of their questions, the cognitive sciences have been accused of various evils (positivism, dualism, formalism), and, in reaction, have recently developed in the direction of the analysis of complex phenomena and in original orientations that make them much more than a description of cerebral functioning: embodied cognition, affective sciences, social cognition or shared cognition. Starting from the idea that all the human facts, including the facts of imagination, are included in a process of evolution, the evolutionist conception of the aesthetic mechanisms consists in putting aside the metaphysical, sociological, economic, formal, psychological interpretations (in the non-evolutionist sense of the term), to wonder in what the aesthetic representations illustrate, exemplify or model the play of biological forces “*hard-wired*” (Max, 2005): the survival, the reproduction and the expansion of the species, the competition and the cooperation between the men, the families and the communities, the kinship, the social affiliation, the efforts to acquire resources and influence, the domination, the aggression, finally the need of imagination (Carroll, 2011b: 30). To think with evolutionary psychology is also to ask how the production of aesthetic objects — man, says Jonathan Gottschall, a great figure of this emerging discipline, is “a *storytelling* animal” (Gottschall, 2012a) — participates in the nature of man as a species and in his evolution, whether it is a question of explaining the aesthetic aptitudes as a parasitic biological competence,

as an elaborated aptitude of adaptation to an environment, or still, as Jean-Marie Schaeffer does, as an analogue of the mechanisms of optimization of the choice of the partner in the sexual reproduction (Schaeffer, 2009).

The evolutionary paradigm offers a theory that is both very simple and powerful in its principles, much less technical and much more powerfully heuristic than literary neuroscience; it is, moreover, and I will come back to this, very heavy with implications, as optimistic as they are troubling, as to the place of culture and artistic practice in our societies, and as to that of the humanities in the map of knowledge and the academy: conceived as an indispensable natural adaptive capacity, literature becomes inseparable from man's humanity, it acquires a function and therefore an indisputable legitimacy. If, after a 19th century marked by history, a 20th century marked by the triumph of linguistic knowledge, it is to a cognitivist 21st century that we will be confronted, and it is in my opinion first of all with evolutionary psychology that literary criticism and theory will have to dialogue.

### **Epistemological situation of evolutionary psychology**

Before returning to these theses, I would like to make a few general remarks of an epistemological nature, without which it seems difficult to understand the place of these theories and which have to do with the epistemological status of the cognitive sciences and of evolutionary psychology in general. Cognitive evolutionism is in fact part of both philosophical naturalism and scientific positivism: the ultimate substratum of mental facts is physical, natural, and the ultimate determinisms are genetic. The theoretical anchorage of understanding of our knowledge, its foundation, must be that of human cognition, as a natural phenomenon explicable *in fine* by the sciences, without recourse to external metaphysical or linguistic models: we are in the framework of what Quine calls a "naturalized epistemology", to which it would be permitted to employ "the resources of natural science" (Quine, 1969b: 90). In this total Spinozism, which refers to a form of critical materialism (which, in a sense, is the equivalent for our generation of post-war Marxism) (Guerin *et al.*, 2010: 146), there is only a strictly biological substratum to mental facts, and cerebral evolutions are determined by mechanisms proper to the augmented evolution of Mendelian theory: random individual variation, environmental pressure, genetic selection and transmission of optimal adaptive characteristics. Here, consciousness, religion as well as literature are products of neuronal evolution governed by the need to master a complex and dynamic human environment — unlike instinctual behaviors or a simple adaptation to a fixed and repeated environment, attributed to *Homo sapiens*: the characteristic of man as a species is cognitive fluidity and neuronal plasticity (Mithen, 1996).

The consequences of such a movement of "naturalization of the human being" (Lageira, 2012: 50) are considerable and it is important to specify them. First of all, we should note that this naturalization of aesthetics is not comparable to a return of "psychologism" in the traditional sense, or to the theory of an

evolution of literature in the sense of Brunetière (who, as we remember, applied the Darwinian model to the logic of literary genres [Brunetière, 1890; Compagnon]). As with Quine, whose naturalization of epistemology constitutes a major framework of analysis, we are in the framework of a psychology considered “in a non-psychological way” (Laugier, 2010: 24), that is to say an anti-intentionalist, anti-mentalistic psychology, where there is no need to “interpret” private expressions in a supposed abstract “mental language” that would have its logic, but simply to classify empirical facts according to a deductive scientific logic. If we take again an opposition posed by Wilhelm Dilthey between natural sciences (*Naturwissenschaften*), producing explanations, even predictions, with the help of experimental demonstrations or mathematizable reasonings, and human sciences (*Geisteswissenschaften*), producers of comprehension, the evolutionary psychology of the literature has vocation to be reintegrated in sciences in general and to produce not *interpretations*, but *explanations* of aesthetic facts. It is a question, when one speaks about the psychology of the art, to found it on the empirical observation, even on the experimentation, and to guard against any endogenous speech. Some hard theorists like Harold Fromm (Fromm, 2009) are in fact close to what is called “*eliminative* materialism,” represented in particular by Daniel Dennett<sup>1</sup> — who refers the mental facts to a physiological substratum beyond the reach of common sense, including the *qualia* (subjective effects of our sensations and experiences), and Richard Dawkins<sup>2</sup> — the inventor of the meme theory, that is to say of a conception of the artistic facts and of the culture in general as “foldable units, supports of formal elements or stylized contents” (Morizot, 2012: 185), subjected to the laws of the natural selection. Without going so far, the “sociobiological” thought to take back a concept very used by the “literary Darwinists”<sup>3</sup> tends to refute the interpretation (at least the internalizing interpretation), the speculation on the particular and individual value of the works or on the personality of the author, in the name of the logic of the very long duration (the starting point of the cognitivist literary history, it is not Homer, but the “‘Human Revolution,’ somewhere between 100,000 and 30,000 years ago” [Carroll, 2011b: 26]) or of the quantitative logic. For Jonathan Gottschall, “one thing literature offers is data. Fast, inexhaustible, cross-cultural and cheap” (quoted in Max, 2005). One can think here of the concept of *big data* in the digital world: the amount of empirically available data is so large that its quantitative examination would supplant any theory. It is a question, Gottschall continues, of producing “literary hypotheses that make testable predictions about empirical reality” (Gottschall, 2008a: 64). It is then a question of proposing an empirical description, if not experimental, of the art, ambition which reverberates to other disciplines and

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<sup>1</sup> Dennett is professor of philosophy at Tufts University, where he co-directs the Center for Cognitive Studies. On his theory of mental properties, see Dennett, 1991; on his adaptationist views, Dennett, 1995; on his atheism, Dennett, 2006.

<sup>2</sup> Dawkins is a biologist and ethologist and Professor Emeritus at New College, Oxford. See Dawkins, 1976; Dawkins, 1982; Dawkins, 2006.

<sup>3</sup> Expression coined by the American biologist Edward O. Wilson. See Max, 2005.

notably, if one believes Gerald Prince, to the post-classical narratology (Prince, 2008) and which leads to forms of description of the literary fact which often tend to refuse any speculation on the particular cases, private, in the name of general and massive facts or, when it is interested in singular facts, to avoid any aesthetic speculation in favor of a simple description of interactions supposedly governed by the necessities of the species and making sense in series. Hence what Carroll considers an epistemological modesty: literary texts cannot be “deciphered” in another code, because evolutionary theory assumes that texts are cultural tools that operate on ordinary behaviors with ordinary language, that they incorporate a “folk understanding of human nature” (Carroll, 2011b: 110, see 29; Guerin *et al.*, 2010: 146). If “most texts are understood reasonably well at the level of common language and common knowledge,” they must therefore be interpreted through common language (Carroll, 2011b: 29). Darwinians, unlike poststructuralists, therefore forbid the use of “prefabricated sign systems” in which they would translate the content of texts (29). In the same way that we try to avoid what we could call among the Wittgensteinians the illusion of interiority, we are going to avoid what Quine called “the museum myth” of interpretation (Quine, 1969a: 27 ff.) and the idea that meaning is part of a discourse that goes beyond the data we have to speak about language, by reinscribing on the contrary in natural behavioral determinisms the textual representations, which have neither mental substance, nor mechanics of their own (Laugier, 1992: 93).

Another consequence of this epistemological position is that there would be no more formal logic or specific historicity to symbolic productions than ontological or even functional autonomy of literature, which loses all specificity. There is no more reason to circumscribe an “empire within an empire,” and, to say it with another vocabulary, the cognitive evolutionism integrates itself to a general paradigm that Jean-Marie Schaeffer qualifies of “end of human exception.” It consists in refusing any anthropocentric, teleological or essentialist conception of man (Schaeffer, 2007: 185-200), in order to examine the so-called “humanity” “in the light of the constraints that govern it as a biological hope” (201). Let us note in passing that for Schaeffer, as for all the theorists of evolutionism, there is no opposition between cultural order and natural order, since culture is a “natural” attribute of the human species; it is on the contrary a question of admitting the existence and of showing the sense of the interactions between biological dispositions and cultural dispositions — what is called the genetic-cultural coevolution (341-343) — or between resources and collective constraints, on the one hand, and particular individual aptitudes, on the other hand (249). It should be noted here that this anti-essentialism is to be distinguished from historicism in the traditional sense of the term as well as from the philosophies of existence: if man has no essence, it is in so far as he is an animal, a biological and genetically modifiable being, constituting lineages in constant evolution, and not in so far as he transcends by his freedom his biological identity (198-199). It is thus a question of not seeking the ultimate reasons of the symbolic textual productions in the cultural standards and their determinations, but in a “human nature” of genetic order which includes the culture. One sees here the power

of disruption of these theories: it is by the natural adaptation that we must account for the ontology of the representations, it is by it that the link between literature and reality is made. Joseph Carroll, leaning on the ethologist Konrad Lorenz, thus affirms that “the human senses and the human mind have access to reality because they have evolved in adaptive relation to a physical and social environment about which the organism urgently needs to acquire information” (Carroll, 2011b: 20).

### **The debate on the adaptive function of literature**

The first and perhaps most interesting debate concerns the functions of literature conceived as a response to a need for adaptation. Several theories have been proposed in response to the paradox posed by the emergence of art among properly human activities: how is it that the human species has spent so much time on useless and altruistic activities such as fiction, instead of hunting and reproducing? According to Gottschall (2004b: 12), the will to propose a non-metaphysical explanation to the necessity of art has attracted many eminent evolutionists, who see in the production and consumption of art either an adaptive result of natural selection (Wilson, 1998; Tooby and Cosmides, 2001), or an adaptive result of sexual selection (Miller, 2000) or a non-adaptive by-product (Pinker, 1997; Buss, 1999: 407-410) of this same sexual selection. This debate between three possible explanations of the human artistic fact can be found in most of the typologies proposed by evolutionists, in Carroll (2011b: 20-29, 49-53) as well as in Brian Boyd (2005), who opposes a conception of art as *adaptive* attention, another of art as a *by-product* of evolution and a last one making art a mechanism directly derived from the processes of sexual selection (*sexually selected*).

#### *Theory of enjoyment, in other words of art as a parasitic activity*

Let's start with the theory of art as a by-product, sometimes called the theory of art as an *spandrel*.<sup>4</sup> For Steven Pinker (Pinker, 1997; Pinker, 2007; see Mellmann, 2011: 315-316), art “presses” our pleasure buttons, designed for other purposes. It would be analogous to our need to consume pornography whereas our needs are only reproductive, except that the pressed buttons are not those of the sexual activity. Hence the image of *cheesecake*, a pastry elaborated to titillate the sensitive points of our mental faculties: we like cheesecake because we have developed not a taste for it as such, but circuits that trigger in us a flow of pleasure when we experience the sweetness of a ripe fruit, the creamy sensation in the mouth of fats and

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<sup>4</sup> “Gould and Lewontin have proposed a famous analogy between Gothic architecture and evolutionary logic, both of which involve reorientation phenomena; just as the small bones of the inner ear of vertebrates have their origin in the jaw of reptilians although they fulfill a completely different function, the triangular and curvilinear spaces (pendentives or spandrels) between an ogive and a pillar or a dome cannot be avoided as soon as one adopts the gothic style, but the mosaicists of San Marco were able to transform these inconvenient areas into sumptuous decorative supports that were not originally intended,” explains [Morizot, 2012: 185](#).

oils, the freshness of water. “Cheesecake packs a sensual wallop unlike anything in the natural world because it is a brew of megadoses of agreeable stimuli which we concocted for the express purpose of pressing our pleasure buttons. Pornography is another pleasure technology. At least to some extent, art may be a third” (Pinker, 1997: 524-525; see the review by Carroll, 1998). One sees here the departure made between the necessary capacities, as the sociality and the language, and the optional capacities as the imagination. Art would be thus, like masturbation, the decoupling of a *hardware* faculty of the man in a different *software*, to borrow frequent metaphors among the cognitivists. This position, which can make one smile, has been frequently criticized, by Brian Boyd in particular (2005: 155 ff.), who alleges on the one hand that it totally neglects the public and thus the engagement in art in the form of a social pressure and, on the other hand, that it forgets to what extent art can be an effort). As debatable as it is, this archaeology of the art is implicitly summoned every time we make of a genre or an artistic practice the transposition, the autonomization or the extension of instinctual or natural pre-coded functions. One will find it, for example, in the concept of “exaptation” proposed by Morizot as a possible analogy to understand the way in which the art is born, that is to say the use of an organ for another use that the biologically determined one, theory that he calls indirect and for which “the result,” in other words the artistic fact, “is not selected for itself, but as a correlate of a more fundamental reason” (Morizot, 2012: 185).

### *The theory of expensive signals*

The conception of art as a mechanism directly derived from the processes of sexual selection is based on a concept introduced by Darwin in *The Descent of the Species* (1871), “to justify the existence of paradoxical forms of evolution which at first sight seem like handicaps (the tail of the peacock, the antlers of the deer, etc.). The idea is that these disproportionate appendages do not function for direct adaptation (like camouflage), but as a manifestation of potential reproductive superiority” (Morizot, 2012: 185). This idea, enriched by the contributions of Mendelian genetics, can be found in what is called the “theory of costly signals,” imported by Jean-Marie Schaeffer in a 1997 article and then in a 2009 book: “The central hypothesis of the theory of costly signals is that the cost or benefit (for the signaler) of this type of disabling signal depends on the *actual* qualities of the sender. The greater these qualities are, the less costly the signal is for him; the smaller they are, the greater the cost.” (Schaeffer, 2009: 35) In other words, to quote Schaeffer again, “a costly signal is a signal that cannot be simulated. If one is able to produce it, it is because one actually possesses the qualities that it signals, because it is precisely these qualities that make its production possible” (35). The analogy between costly signals and artistic processes is thus largely due to the fact that “the main stake in the communication of the costly signal is the very existence of this signal beyond anything to which it may otherwise refer” (Schaeffer, 2012: 30), we are here close to what Wittgenstein suggested when he affirmed that the work of art “does not want to transmit something else, but only itself” (Schaeffer,

2009: 47): whether it is a question of sexual selection or of works of art, costly signals have a metasignaletic function. Thus, the sex parade of the cradle bird “functions neither as a simple artifactual construction nor as a simple interaction by hetero-referential signals, but within a self-referential dynamic: the cradle is referred to itself as a decorated structure that materializes the *fitness* of the male, the dance and the calls are self-presentations that both signal and enact its value. This logic is that of the work of art” (47-48). Better, Schaeffer suggests that the contexts of emergence are similar: “What we call *art*, they are the facts of costly signaling, or rather their crystallization in the form of a certain number of typical productions related transculturally (dances, ornaments, sculptures, verbal productions, pictorial representations, etc.) which answer these situations of problematic communication. And what we call *aesthetic relation* is nothing else than a reception itself costly of these signals” (Schaeffer, 2012: 31). The art would be a possible answer to our need of reflexivity in complex or “problematic” existential or social situations, by distant derivation of functionally different adaptive mechanisms. It is undoubtedly that the recourse of Schaeffer to the animal model is worth less as an operational explanatory framework than as a reminder of the unified epistemological order in which it falls to us to think the aesthetic fact.

### *Theories of adaptive gain*

The theories that make of art an adaptive disposition with direct benefits for the human species proceed from a functionalist thought of the aesthetic defunctionalization: they share the idea that the detour of the immediate action (of enjoyment, of sexual reproduction) favors capacities of complex organization of the behaviors and the interrelations. We could, in my opinion, divide them between two big currents, which have in common to have largely reflected on the adaptive role of the fiction. To continue the analysis of Boyd who, in his thought of art as “adaptive” attention (Boyd, 2005: 151 ff.), underlines, on the one hand, a dimension of adaptation and social regulation, and on the other hand, a more general capacity of mental organization (167) offered by the fictional immersion in possible worlds, we could differentiate the theories centered on the social role and the theories centered on the cognitive role of fiction.

#### *- Literature as a behavioral adaptation capacity*

It is a question of making fiction, in a more or less directly behaviorist perspective, a tool of adaptation and regulation of social behaviors. The capacities of social adaptation induced by art are not then directly linked to the selection of the partner, but to the good functioning of the society: the education to others and more largely the simulation of “a variety of social relationship, behaviors, and consequences” (Sugiyama, 2005: 188) allowed by art allow a better knowledge of the human environment by the exercise of the anticipation and the changes of mental roles. The art and in particular the representative art, allows the species to produce and to transmit a general knowledge on itself, knowledge whose determining specificities



are to be concrete, affective, incarnated, and thus to supplement more abstract orders of knowledge. This “knowledge-how”, to use Ryle’s formula (Gefen, 2010), has not only the strength to produce regulating models of reference and to put on the table normative conflicts that are common in evolved societies (fidelity to the model of desire vs. fidelity to the idea of family, obedience to the state vs. preservation of the family unit, etc.), but also to explore new ways of thinking and acting. ), but also to explore particular cases, even atypical, amoral or traumatic situations on which it informs the group (it is the exemplarity of the in-exemplarity [Gefen, 2007]).

One cannot live without a theory of how another’s mind works, these philosophers argue, a profound knowledge that literary fiction would stimulate. Not only does literature play a role in the way literature allows us to refigure and appropriate our experience, as narrativist philosophies such as that of Paul Ricoeur have shown, but it would also participate in this fundamental aptitude that is our capacity to envisage the psychological structure of others by acquiring, at least in a summary way, a “cartography of the human mind” (*mind mapping*) and by being able to anticipate the reactions of other individuals (*mind reading*, understanding others). This form of initiation to the otherness is undoubtedly close to what the literary tradition had named according to the formula of Dorrit Cohn “interior transparency” (Cohn, 1978), that is to say the postulation of the literature to discover and to explain the psychic life by the mediation of fictional interiorities. Literature would equip us with cognitive tools of behavioral modelling that allow this form of divination by which we ordinarily interact with the minds of others. This perspective explains, among other things, why literature gives itself as a recurrent theme the psychological portrait or the biographical narrative: such is the framework of many modern plots on which evolutionary thought intends to cast an overhanging glance by likening them to a form of psychological speculation (Guerin et al.; 2010: 149-150; Nettle, 2005). Alan Palmer connects this work of *mind mapping* with the games of enunciative position in the literature which would put in scene the conscience at work in the novel (“in essence, narrative is the description of fictional mental functioning” [Palmer, 2004: 12; see 177]), to the profit of a cognition, an action and even a form of distributed identity (15): for him as for Mark Turner (1997), the human brain considered as an active and plastic system modified by experience and language conceived as an instrument used by separate brains to exert biological influence on others at a distance, to the point of creating a kind of virtual brain of the species that exerts a distributed biological influence. The hypotheses necessarily made by the readers, the conjectures, the reflections that he has to deploy to analyze the situations, the enunciative games of the literature make of the narratives devices to understand the springs of action and cognition of the mind. Lisa Zunshine continues this reflection by adapting it to the analysis of cinema (2008) and, in “Style Brings in Mental States”, refines the “theory of mind” to demonstrate that not only the enunciative effects, but the effects of style itself, participate in this work of understanding the “sociocognitive complexity” of the world of human societies (Zunshine, 2011: 350, 353). *Mutatis mutandis*, one will find

an equivalent thought in Carroll: art allows the access to a “total cognitive order” (Carroll, 2005: 87) which is an added value to the world. He produces an analysis of the “life cycle” (83) with the help of literature, allowing the construction of a “cognitive behavioral” framework of reference (92). The notion of collective intelligence seems to me to be particularly interesting: it can be found both in Palmer’s work, who thinks largely in terms of social cognition (Palmer, 2004), and in Terrence Deacon’s work, who affirms that the integration of common histories with the individual histories of individuals allows for the construction of a shared world that is essential to the species (Deacon, 1997).

### *Art as an added value*

Another theoretical option consists in underlining less the cognitive gains than the existential gains for the species and makes of the fiction a mode of resistance to the metaphysical difficulties (the man is an animal conscious of his own mortality) that social (the complexity and the fluidity of the human societies). For Ellen Dissanayake, *Homo Aestheticus* (1992), art is a result as fundamental of the evolution as nutrition, because it gives interest to the ordinary activities of the existence and allows to make the difficulties of the life more livable. Thanks to art and its capacity to instill desire and beauty in the interactions between individuals, the group becomes bearable; thanks to it, human activities are not reduced to finalities such as reproduction and the quest for survival, but acquire an aura: art *makes* human actions special, makes them meaningful and memorable. I would tend to think that, in these perspectives, just as the work of the form would come from a will to resorb the natural asymmetries and roughnesses, the art would be thought as allowing to preserve the social harmony. It would not change anything to the human condition, but would intervene as therapeutic: it would reinforce the beings, would ensure the interior cohesion of the groups, would facilitate our relation to the nature. We find this problematic in Frederick Crews: “Those of us who embrace Darwinian knowledge without cavil are convinced that all existence is unplanned and therefore quite pointless, leaving humanity with the task of *rendering* its life dignified in moral, intellectual, and aesthetic ways scrounged and adjusted from our evolved heritage of repertoires. When the gods have been shipped to fairyland to rejoin the Easter Bunny, we can direct our awe toward beings who actually deserve it — Shakespeare, Rembrandt, Beethoven, Einstein — without cheapening their achievements by ascribing them to mysterious infusions of spirit” (Crews, 2005: xiii). In other words, with the naturalization of the human existence, dies the metaphysical interpretation of the art, but is born, in a suppletive way, a conception of the art as compensation or supplement of sense.

### *Art as a form of empathy*

Another argument could be advanced to explain the advantages of the recourse to the fiction, it is the idea that the art in general, and in particular of the human detour by the representative arts and the fiction

favors the empathy, conceived here as mode of social regulation by emotional transfer. In other words, the aptitude for literature would take part of a selection and a valorization of altruism as an indispensable mechanism of self-defense of the species, or simply as fluidification of the social relations. I am thinking here of the often-cited work of psychologists Raymond Mar and Keith Oatley on the way in which exercise through fiction improves our capacity to connect with others (Mar and Oatley, 2005; Mar, Oatley, Hirsh *et al.*, 2006; Mar and Oatley, 2008; Mar, Oatley, and Peterson, 2009), or of Mulligan and Habel's work (2011) on the capacity of fiction to favor the development of intersubjective communication capacities and to fluidify the social behavior of children. It is a question of valuing literature as a moment of constitution of affective communities or as an activation of our capacities for empathy through the power of fictional enunciation to lead us to change our position emotionally and intellectually. An evolutionist like Gottschall combines these two ideas, that of resistance and that of transfer: fiction is an exercise of our prosocial capacities. It "enhances our ability to understand other people; it promotes a deep morality that cuts across religious and political creeds" (Gottschall, 2012b). Gottschall is not far from Butler or the moral theorists of empathetic role change (the theory of role imagination comes from Cavell, in particular), but reinscribes himself in an evolutionary logic where the capacity to adapt to difficulty emphasized by Ellen Dissanayake is essential: literature provides us with both a stimulating and useful access to the interiority of others, but also the illusion of a life that can be lived: "[...] fiction's happy endings seem to warp our sense of reality. They make us believe in a lie: that the world is more just than it actually is. But believing that lie has important effects for society — and it may even help explain why humans tell stories in the first place" (Gottschall, 2012b). Hence, for example, a theorist like William Flesch explains that fictions in the world are dominated by retributive justice or *poetic justice*, by this need to maintain in the optimism of the species (Flesch, 2008).

As some works of anthropology of the literature (for example Thomas Pavel in *The Thought of the novel* that shows that even the individualizing and hyper-speculative reflexivity of the literature possesses a provides "a substantial hypothesis on the nature and the organization of the human world" to value of axiological framework [Pavel, 2003: 46-47]), These works deploy a utilitarian thought of the aesthetic behaviors at the same time stimulating and risky, making of the literature a tool of regulation and social coordination, proposing to make of the literature not only the sharing and the debate of moral values, but the creation of a kind of collective self-regulating instinct.

### *Pure cognitive gain theories*

Another form of functionalist consists not in articulating art to direct stakes of selection or adaptation, but in underlining how, in a more diffuse way, the aptitude of art, and in particular of the narrative forms, to increase our cognitive capacities and thus to support our domination of our environment and the aptitude

of the human space to set up and transmit complex social structures. Based on Marie-Laure Ryan's analysis (Ryan, 2010: 482), we can cite various "inflationary" hypotheses that make narrative literature a fundamental mental exercise: all memories take a narrative form (Roger Schank); humanity developed language to respond to a need to tell stories (Mark Turner); narrative constructs reality, identity is a narrative construction and narrative teaches us to read the minds of others (Jerome Bruner); experience is not the subject of narrative, but is made possible by it (David Herman). The general agreement is made around the idea of a mental training: according to Morizot, fiction is a "breaking in of our cognitive capacities" (Morizot, 2012: 185), and to quote Joseph Carroll: "art, music and literature are not merely the products of cognitive fluidity. They are important means by which we cultivate and regulate the complex cognitive machinery on which our more highly developed functions depend" (Carroll, 1998: 481). In other words, because we call in genetics the Baldwin effect, that is to say the integration in the instincts and therefore in the genes of learned cultural behaviors, nature will select the phenotypes of those who do the best learning and will encode in the genotypes aptitudes of cerebral organization optimized by the exercise, passive or active, of the fiction. For this perspective, the human being, in order to assure his domination as an alpha species, is confronted with the necessity of thinking complex and counter-instinctual actions, of managing situations where he overcomes the *stimuli*, of producing long-term contracts, etc. Original behaviors in nature such as technological mastery, post-menopausal survival of females, very long gestation, identification with extended groups could not be thought of without forms of organization of values in time allowed by fiction. As a high-level mental exercise, narrative fiction would favor the mastery of our environment by allowing us to inscribe ourselves in extended logics and imaginative adaptations. These original conducts would impose a kind of "psychological exile" of the man in the nature and would regularly enter in conflict with the determinisms that are the instincts of reproduction and survival. These conflicts between the strategies of the reptilian brain and those, richer, of the neocortex, would be at least as present in the literary representations as the dialectic of the social forces or the relation of the individual to the history.

Many works reference John Tooby and Leda Cosmides' seminal article, "Does Beauty Build Adapted Minds?" (2001). According to Morizot, these authors "developed the idea that in neurocognitive adaptation, the organizational mode plays a role that is at least as fundamental as the functional mode; it is the mode that favors the development of talents, allows their maturation, and tends to signal what would be advantageous to pay attention to outside of instrumental reasons. In short, it is not beauty that is selected, but certain scenarios of response to types of situation acquire an aesthetic significance" (Morizot, 2012: 185). In a rather similar way, for Karl Eibl, the existence of an "induction instinct," an "evolved cognitive tool for information gathering and experiential learning," would explain that rhetoric or poetry, but also the work on formal symmetries (or asymmetries) or the interrogation on the narration and its logics, are

indispensable exercises to maintain and select the *fitness* of the individual (Eibl, 2004 and Eibl, 2009, quoted in Mellmann, 2011: 311), and one will find in Changeux (1994; 2008) other analyses going in the same direction and being situated at the crossroads of an archeology of the aesthetic function, reflections stemming from the experimental psychology and the first data stemming from the neurosciences.

H. P. Abbott (2000) or Katja Mellmann (2010) had underlined the intellectual productivity of narrativity and its centrality. The latter places it at the center of “a complex cultural congregation of innate dispositions” (Mellmann, 2011: 313 n. 41), combined with other high-level adaptive capacities, such as those of inducing reasoning and attributing causality to facts. Mark Turner goes further by making narrativity the very origin of language. For him, “parable is the root of the human mind — of thinking, knowing, acting, creating, and plausibly even of speaking” (Turner, 1997: 168). For the American theorist, storytelling is indeed at the center of three fundamental capacities: telling, projecting, and producing a parable. These capacities result from our capacity to put into action what Turner considers as spatial scenarios. Literature enriches this capacity by allowing for shifts between conceptual orders or changes in spatial point of view. It is therefore necessary to analyze the stories as a combination of mental spaces (*blended spaces* [96]), explains Turner (characters, level of reality, etc.). These spatial micro-schemas are at the very origin of our need and our faculties of expression: on the one hand they produce basic grammatical constructions (predication) and on the other hand they provide transpositions (an action can be transposed into another order of spatial schemas). For this micronarrative thought, each sentence is a microhistory. Against Aristotle, but also against Chomsky, Turner refutes the idea that there is a logical structure of language underlying it or a cerebral module built by evolution and dedicated to this capacity<sup>5</sup>: narrativity is not a consequence of the brain’s organization, but its source, a hypothesis that makes the one engaged by literary narrative fiction prevail over any other form of cognitive exercise.

### **The heuristics of cognitive psychology in practice**

What heuristic model, what type of question is offered to us when evolutionary theory is interested in particular texts, in the works themselves, when we do *close reading*? Evolutionary psychology does not intend to limit itself to the analysis of the “origins” of *Homo narrans* and fossilized behaviors, it is not limited to an archaeology (to what M. S. Sugiyama [2005: 177] calls a “reverse-engineering” functioning of modern fiction), but it wants to show how literature and in particular fiction continues to *respond* to a demand for adaptation by staging concrete adaptive problems, which gives a universal relevance to evolutionary analysis.

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<sup>5</sup> We are close to the criticism addressed by Quine to the “copy theory of language:” see Quine 1969a: 27.

It is in thematic terms that such an explanation can be made: for Joseph Carroll, literature produces a “cognitive mapping,” an image of human experience colored by subjectivity, a mapping that makes experience intelligible (Carroll, 2011a: 10).<sup>6</sup> This “mapping” analyzes the deep motivations of *Homo sapiens sapiens*: education of the children, efforts of enrichment, competition and cooperation (the fundamental mechanisms of perpetuation and defense of the species) — “the most effective and truest works of literature are those that reference or exemplify these basic facts,” comments D. T. Max (2005). In literature, cognitivists argue to produce thematic analyses, character is defined in terms of agency, setting in terms of milieu, and plot in terms of action (Carroll, 2011b: 10). Sugiyama’s recent point (2006/2007) gives some idea of the directions taken by literary Darwinists: study of the choice of sexual partners in the Anglo-Saxon novelistic corpus (Sugiyama, 1996; Sugiyama, 1997; Whissell, 1996); highlighting of the reproductive concerns at work in adultery, through the Arthurian narratives (Nesse, 1995)<sup>7</sup>; definition of epic literature as a staging of intrasexual competition, males against males and females against females (Fox, 1995; Fox, 2005; Barash and Barash, 2002; Barash and Barash, 2005; Gottschall, 2001; Gottschall, 2008b); analysis of the behaviors of revolt against the adaptive pressure (Carroll, 2011c); study of jealousy and cuckolding as answers to the competition of the dominants in Pushkin (Cooke, 1999); quantitative approach of the agonistic structure of the Victorian novels (Carroll, Gottschall *et al.*, 2011), etc. It is the whole “life cycle” (Carroll, 2005: 83) and the behavioral activities of man determined by the “hierarchical motivational structure” of its nature (87): an author (i.e. a particular phenotype<sup>8</sup>) stages a simulation where fictitious phenotypes are confronted in various environmental contexts with adaptation problems. This system is the same in the character as in the writer and the reader: as Tim Horvath notes, among literary Darwinists, “anything that can be said about authors can by definition also be related to characters in some way, and vice versa” (Horvath, 2005), at the risk of underestimating the distance that can be taken from biological determinisms, as Mellmann suggests, “Literary writers are not *compelled* to fashion verisimilar (‘mimetic’) representations” (Mellmann, 2011: 311)<sup>9</sup>.

Let’s take a few specific examples of these analyses, starting with a provocative case: in an essay entitled *Madame Bovary’s Ovaries* (2005), David and Nanelle Barash relate the amorous representations of romance literature to a series of adaptive problems: the selection of the best partner, adultery and its stakes in genetic terms for the species, the education of children and the optimal choices of the family. The novelistic logic

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<sup>6</sup> The notion of *cognitive mapping* is developed in another text : [Carroll, 1995: 3 ff.](#)

<sup>7</sup> The article is devoted to the story of Guinevere and Lancelot in Chrétien de Troyes, Thomas Malory, Tennyson and William Morris.

<sup>8</sup> See [Sugiyama 2006/2007](#): “A given story takes a set of people, each with a different phenotype (i.e., different personality traits, life experiences, fitness attributes and goals), places them in a particular set of historical, cultural, and geographical conditions, then plays out one possible version of the interaction of these variables over a certain length of time.”

<sup>9</sup> The criticism is brought against Carroll in [Richardson, 2000: 561.](#)

of Flaubert's biographical novel is, within this explanatory framework, to stage the adaptive optimization strategy of his eponymous character, governed by his ovaries to find a better partner than Charles. Let's give another example: Gottschall on Homer in *The Rape of Troy* defends the idea that the Iliad tells us about the fights of humans returned to their animal nature: "Homer shows that men in combat stoop to a nearly quadrupedal level and concern themselves only with the animal processes of maintaining and destroying life" (Gottschall, 2008b: 162); they are "precocious killer apes who have applied their grand technologies and cooperative instincts to traverse broad seas and rob other men of all they hold precious: their wealth, their women, their lives" (163); they all act unconsciously in accordance with "life's prime directive: be fruitful and multiply" (163). But for Gottschall, Homer also shows how human beings seek to overcome this animality, sometimes succeeding (Achilles returning Hector's body), failing elsewhere (164): in this sense, the epic would be not only a thematization, but a real literary thought experiment about the evolutionary capacities of man. The moral issues often placed at the heart of the novel do not escape such a biologizing deconstruction, as William Flesch's important book *Comeuppance* (2008), devoted to deserved punishment, costly signals, altruistic punishment and other biological components of fiction, illustrates. Flesch also explains the human attraction to fiction through an evolutionary version of social game theory. The need for fiction comes from the fact that man is a social animal. Therefore, on the one hand, it is a matter of treating narrative as "a verisimilitudinous record of human cooperation" and, on the other hand, of making the work "an object of the kinds of interest that human cooperation requires and rewards" (Flesch, 2008: 182) "Narratives depict signals" (in the sense of evolutionary theory) "and narratives signal" (91). For Flesch, our need for narratives is explained by our need to monitor and appropriate forms of reciprocity: by reading, the reader acquires an aptitude ("fitness") for understanding and exchanging in the social relationship, a capacity and empathy, the latter understood as an indirect reciprocity that makes each individual more interesting and attractive while endowing him or her with a better capacity for social interaction. Being able to know and care about a novel manifests our ability to engage in altruistic activities. This leads to considerations about the value of novels: "We care about the narrative report of what some people do to other people because we care about whether they treat them altruistically or selfishly" (155-156). *Altruistic* here differs from *generous*: it is altruistic to punish the other for their wrongdoing, as it is selfish to neglect the obligation to punish wrongdoers. In sum, we are interested in the novel in what is "prosocial", revenge, for example, as altruistic punishment (Achilles, Hamlet, Batman). Whereas the situation of modern literature, that of an art for art's sake, empowered and breaking with the words and values of the tribe, might seem irreducible to such a functionality, because it places at the center of the literary scene a marginalized individual, a provocative and revolting writer, and the testimony of an irreducible singularity, Flesch very skillfully manages to reintegrate the modern writer, conceived as one who assumes the pain and difficulty of being aware of the world and who shares this ability through an

altruistic self-sacrifice (147) — to the point of quoting Leiris and his conception of literature as a bullfight (143). Flesch explains the “aesthetics” of modernity as the complexification and extreme weighting of the signal, and as the place where refined and prosocial forms of cooperation are enacted. In the same spirit and taking up this theory of “deserved punishment,” Blakey Vermeule analyzes *Middlemarch*, by George Eliot, showing that the genius of the novelist was to build her novel not on the good feelings and the logics proper to the recognition, but on the moral darkness of the man and his desire to punish the others for their misdeeds (Vermeule, 2011). To generalize the thought of evolutionists, our interest in novels is explained not by a quest for individual morality, but rather by that of collective morality, which is itself overdetermined by the logic of the species, not that of particular individuals. According to a paradox already analyzed by Kant, our anti-social aptitudes are part of our social existence. We see again the similarities of such a theory with the axiological vision of Thomas Pavel in *The Thought of the Novel*, for whom the novel plays the role of a toolbox for solving an axiological problem: the novel “poses above all, and with an unparalleled acuteness, the axiological question of whether the moral ideal is part of the order of the world [...]. In the novel, [...] the axiological question amounts to asking whether, in order to defend the ideal, man must resist the world, immerse himself in it in order to re-establish the moral order, or finally try to remedy his own fragility, if, in other words, the individual can *inhabit* the world in which he is born (Pavel, 2003: 46-47).

Another track of evolutionary analysis of literary works is an analysis of a quantitative nature, illustrating the claimed empiricism of literary Darwinists as well as their verification method. J. Gottschall in *Literature, Science, and a New Humanities* (2008a: 91 ff.)<sup>10</sup> thus starts from an evolutionary hypothesis according to which the female protagonists of the stories should defend their offspring rather than those of others; they should choose men with wealth or high social status and who are physically attractive; they should be less active and less physically heroic than their male counterparts (because, in most sexual species, males have risk-taking and status-seeking behaviors that expose them to the very clear-cut alternative of prolific reproduction and possible death); and finally, readers should prefer active and physically heroic male characters. Gottschall confronts this hypothesis with a corpus of 658 tales from different cultures to draw several conclusions that he believes are convincing: the female heroine role is generally eccentric to the male character’s role, they are mostly young and beautiful, they seek to marry and succeed in doing so at the end of the story; they first seek the hero’s kindness (prosocial) and they then devote themselves to the good and wealth of their kin, but less through active physical struggle than their male counterparts. He deduces from his statistics empirical universals, which he then uses against feminist analyses that defend on the contrary the cultural and purely Western dimension of our representations of women: the sexual differences examined by crossing their cultural representation are coherent and stable (Gottschall, 2008a:

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<sup>10</sup> See the review of this book by Easterlin, 2009.



125) and correspond to what can be expected from the behaviors of sexualized mammals. If the American critic defends himself from being essentialist or anti-feminist, he refutes the culturalist theories of gender as empirically inaccurate, while conceding that the statistically observed differences do not deny the possibility of cultural action and plasticity of the species in the face of biological determinisms.

### **Academic and philosophical issues of these emerging disciplines**

Such an analysis sufficiently illustrates the stakes of Darwinian interpretations of literature. In the American context of cultural studies, they break with the traditional culturalist explanatory frameworks of criticism and their ideological undertones, since they lead to the reintroduction at the center of reflection of the idea of a human nature, which is certainly evolving and not predetermined. In the French context, the break is made in relation to another dominant critical paradigm, that of formalism, which affirms the autonomy of linguistic structures. The issue at stake is first of all epistemological, for the Darwinians justify their approach by a certain failure of the human sciences in the face of the scientific requirements in which they declare themselves to be inscribed: it would be a question of overcoming the aporias of a literary analysis based on linguistic, cultural or psychoanalytical models and its prohibitive incapacity to become a tool of empirical prediction, despite the structuralist games with white boxes (Gefen, 2006) or Marxist literary teleologies.

The idea of a methodological bankruptcy of the traditional humanities which would refuse experimentation leads Gottschall to propose to speak about “new humanities” benefiting from the contribution of the life sciences to propose empirical analyses (Gottschall, 2008a), involving in passing virulent reactions like that of the English neuroscientist Raymond Tallis speaking of “*Neurotrash*” about the eliminationist postures of Daniel Dennett and Richard Dawkins (Tallis, 2011b; see also Parry, 2011). In his book *Aping Mankind* (2011a), Tallis designates, not without caricature, two reductionist drifts of the cognitive sciences: on the one hand, *neuromania*, i.e. the idea that brain activity would be the sufficient condition of human consciousness and the only key to our behavior (for example, a famous study of detection of the brain regions involved in love thanks to functional magnetic resonance imaging [Bartels and Zeki, 2000]); on the other hand, *Darwinitis*, i.e. the idea that the theory of evolution would explain not only the origin of the human species (which Tallis admits as a good Darwinian), but also the behavior of man and the nature of social institutions.

Tallis is far from being the only one to brandish the axe of war. To summarize the polemics led notably in *Style and Poetics Today*<sup>11</sup>, the criticisms opposed to the evolutionists are made in the name of an autonomist position defending the insularity of the art and the differential character of the artistic practices

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<sup>11</sup> See especially Eibl and Mellmann, 2008, and *Poetics Today*, 2009. In a more mainstream version, see Gopnik, 2012.

in the name of the freedom (by making of the art the other of the society and the human animality), of an epistemological skepticism as for the inferences produced with regard to an inaccessible past of the prehistoric man, of reticence in front of the immaturity of the discipline or to its reductionist ambitions. Thus, M.-L. Ryan (2010: 481) insists for example on the speculative character of the theories of the narration as adaptation: “since we do not have at our disposal a specimen of Neanderthal or Cro-Magnon man, we cannot compare the storytelling abilities of mankind during various stages of its cultural or biological evolution, and we can only make educated guesses about the role of storytelling in the development of the social organization typical of humans,” explains the Swiss critic. It would be easy, in this respect, to denounce poorly mastered and controversial conceptual transfers, such as, for example, the hypothetical role of mirror neurons in altruistic behavior, extended from macaques and bonobos to evolved human societies (notably by Frans de Waal). This lack of conceptual finesse would render these naturalizing doctrines incapable of expressing particular historical and generic variations<sup>12</sup> without reducing them to invariable universals. Now, for literary Darwinists, for example Mellmann and Carroll, this reduction is inevitable, because it is consubstantial to any real production of knowledge; for them, as for Quine or Dewey, we have nothing to lose by embracing a naturalist and behaviorist conception of signifying facts. The question is not whether Darwinians reduce texts, but how. They do so, Carroll replies, by providing a “*comprehensive* framework” for comparing authors’ perspectives, the organization of meaning in texts, and readers’ responses (Carroll, 2011b: 29-30; Mellmann, 2011: 310).

The criticisms are not only epistemological: for literary Darwinists, a politically motivated resistance is at work against evolutionary psychology or, if you like, against its scientism and determinism. In the United States, the fight was first waged on the cultural studies front: M. S. Sugiyama (2006/2007) recounts that when she asserted in her dissertation that literary characters were representations of evolved human psychology, and that literary analysis should therefore be founded on an understanding of evolutionary psychology, she was accused of reductionism and took more than a year to form a dissertation jury at the University of California, Santa Barbara. She herself warns against the danger that evolutionary psychology is content to propose a universal interpretative scheme in front of the works, to ritualistically unveil unconscious and deeply buried mechanisms, just like Freudism against which it was built. “Stories do not simply reflect adaptive problems and the cognitive mechanisms that have evolved to solve them. Complex adaptations are facultative: they are sensitive to environmental variation, capable of generating different responses to different environmental inputs. Stories enact the facultative nature of our evolved psychology.” (Sugiyama, 2006/2007)<sup>13</sup> It is their utilitarianism, which would be that of Social Darwinism that literary

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<sup>12</sup> This is, for example, the view of [Jackson, 2000: 329, 341](#); [Kelleter, 2007: 164-169](#). [Mellmann, 2011](#) argues against this assertion. [Schaeffer, 2009: 37-43](#) adopts a measured position.

<sup>13</sup> The author admits to being close to the positions of [Easterlin, 2001](#).

Darwinists have also been reproached with, an accusation of fatalism against which Gottschall defends himself: “evolutionary study of human behavior and psychology is not [...] an ideology of pessimism, defeatism, or conservative defense of the *status quo*” (Gottschall, 2008a: 34); on the contrary, it obeys the Delphic imperative *Know thyself*, the learning of freedom being done in the knowledge of biological determinism: this is the old battle of the culturalists against the biologists, which goes back to the fight of Boas and his students against Darwinism (30 ff.). For the critics of evolutionism, the normative naturalization that this doctrine underlies would hide an inegalitarian right-wing thought. The accusation was made, for example, by Patrick Hogan against Randy Thornhill and Craig Palmer’s *A Natural History of Rape* (2000), which presented the propensity of men to commit rape as an evolutionary adaptation (Hogan, 2003b: 200). Gottschall, taking stock of this debate, pointed out that such hypotheses, which are indeed highly questionable, are the subject of debate within evolutionary psychology *itself*, while Peter Singer defended the existence of a left-wing Darwinism (Gottschall, 2004a: 206; Singer, 2000).

In the face of these criticisms, which explain the still marginal and almost sectarian character of evolutionists in American faculties, intermediate critical positions have been suggested, for example by restricting the ambitions of the method. For D. T. Max, “in the end, literary Darwinism may teach us less about individual books than about the point of literature.” (Max, 2005) On the contrary, modern literature would represent problems not reducible to issues of adaptation, and the filter of the evolutionary grid would be too crude to understand literary strategies and denaturalized conduct. For Schaeffer, the animal model is useful, but insufficient to describe human specificities: in the theory of costly signals, the mechanisms of art and courtship are similar, but not the goals and functions. It is necessary according to him to distinguish between structural homology and functional identity, under penalty of engaging in a reductionist approach (Schaeffer, 2009: 37-43). Indeed, “the aesthetic relation is not a function: it is defined as an attentional dynamics regulated by the index of attractiveness of the attentional activity itself” (33).

Another interesting fallback position is represented by the critic Katja Mellmann: for her, evolutionary psychology should not be applied to artifacts such as stories and characters, but to the producer and the reader; it can only concern the living: “anthropological model *reader*” (Mellmann, 2011: 301). Katja Mellmann is in sharp contrast to Carroll and Gottschall’s view that problems of adaptation are represented and thematized in literature. For her, it is necessary to work on concrete living subjects and to produce a *stimulus* pattern heuristic specific to reading: “rather than searching for (redundant) analogies between the behavior of fictional persons and actual human beings, we should pay attention to the potential isomorphisms between text structure and innate releasing schemata” (308), because “literary artifacts [...] can be said to act as a dummy stimulus on our innate dispositions” (309), that is to say, on our natural receptors of sensation. Such an analysis, rather than leading us to utilitarian speculations, would allow us

for example to describe how fiction is “a particular strategy of fictionalisation as based on our adaptations for laughter and humour” (311; refers to Mellmann, 2009: 65-86 and Mellmann, 2007: 264-352, 450-451).

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A few words to conclude and to express both my fascination and my mistrust. As we have seen, this emerging theory, represented by a whole generation of American “literary Darwinists” but also a French school, offers a global explanation of the literary fact that breaks with our whole French critical tradition: for the Darwinians, the literary fact is not marginal in human behaviors, but central to the species; it is not anti-social, but regulating; literature has no ontology of its own or endogenous logic, but is biologically overdetermined; texts or their interpretation are not a space of freedom, but a cognitive device, etc. This vision of literature echoes a new grip of literature on social behaviors, as witnessed by so many essays on personal development and self-management (how X or Y can help you change your life<sup>14</sup>) — which explains the extremely popular character of the works of Alan Palmer, Mark Turner or Jonathan Gottschall, who do not hesitate to explain to us, to quote the title of one of Gottschall’s articles, “why fiction is good for us.” Certainly, it seems to me that the tools proposed are much more refined than those of neuroscience: While stylistics or cognitive narratology are still in their infancy, and medical investigative work on the aesthetic brain is still in its infancy and unfit for describing the complexity and variety of the effects of literature, the evolutionary paradigm produces powerful and ordinary descriptive categories formulated in a common language, as well as a compelling genealogy of the necessity of that strange and yet so profoundly human-defining (Aristotle’s) process that is fiction. The emerging cognitive literary studies — rhetoric<sup>15</sup>, poetics<sup>16</sup>, grammar<sup>17</sup>, stylistics<sup>18</sup>, narratology<sup>19</sup>, semiotics<sup>20</sup> — can be built largely from this archaeology of the artistic fact as much as from observational results with obvious benefits for literature: just as neurosciences allow for an objectification of empirical knowledge and functional enlightenment on cognition (neurophysiological bases of reading, cognition, etc.), the evolutionary paradigm can be used as a basis for

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<sup>14</sup> See, for example, [De Botton, 1997](#) — a work that admittedly plays the humor card — or [Housden, 2001](#), an anthology whose author has produced other collections with a similar aim: ten poems to say goodbye, to free yourself, to open your heart). Similarly, [Métra, 2009](#) delivers a very serious Balzacian management lesson.

<sup>15</sup> The term “cognitive rhetoric” appeared in the mid-1970s in an article by Dan Sperber ([Sperber, 1975](#)). See, among others, [Lakoff and Johnson, 1980](#); [Turner and Lakoff, 1989](#); [Turner, 1997](#).

<sup>16</sup> The term “cognitive poetics” was coined in the early 1990s by Reuven Tsur ([Tsur, 1992](#)). See also [Stockwell, 2002](#); [Gavins and Steen, 2003](#); [Vandaele and Brône, 2009](#).

<sup>17</sup> See, for example, [Langacker, 1987-1991](#); [Langacker, 1991](#); [Langacker, 2008](#).

<sup>18</sup> See, for a first look, [Semino and Culpeper, 2003](#); [Toolan and Weber, 2005](#); [Burke, 2008](#).

<sup>19</sup> The movement was launched in the late 1990s by Manfred Jahn in [Jahn, 1997](#). The most recent points are due to David Herman ([1999](#); [2002](#); [2003](#); [2007](#); [2009](#)). Among the founding works, see [Cook, 1996](#); [Fludernik, 1996](#); [Emmott, 1997](#); [Abbott, 2001](#), [Richardson and Steen, 2002](#); [Palmer, 2004](#); [Richardson and Spolsky, 2006](#); [Zunshine, 2006](#).

<sup>20</sup> See in particular [Rastier, 1991](#). Rastier draws on the computational functionalism of Fodor, [1997](#) and [Pylyshyn, 1984](#); but, for him, this cognitive semantics must be based on what he calls a “material hermeneutics” (see [Rastier, 2005](#)).

the development of a new approach, facilitating the reinsertion of literature into common cognitive processes, proposing us in the process to test a new vocabulary and new problems of text analysis. Another interest exemplified by Gottschall's works (in particular 2004a), but also by those, less immediately biologizing, of Patrick Hogan, in particular *The Mind and Its Stories* (Hogan, 2003a; see also Hogan, 2006; Hogan, 2011), it is to relaunch the criticism to the search of human universals by the literature, quest to which we had largely renounced. Thus, in Hogan's affective evolutionism and his theory of the archetypes of the imagination, we could identify "emotional prototypes," based on three different relationships to emotions, universals with a transcultural value. In any case, the confrontation with the Darwinian paradigm engages a truly interdisciplinary debate, whether or not one adheres to Edward O. Wilson's sociobiology affirming the unity of knowledge (Wilson, 1998), one cannot but be fascinated by the hypothesis that "literature and its oral antecedents derive from a uniquely human, species typical disposition for producing and consuming imaginative verbal constructs. Removing the methodological barrier between humanistic expertise and the expertise of the social sciences can produce results valuable to both fields." (Carroll, Gottschall *et al.*, 2012; cited by Carroll, 2011b: 35) Hence the birth of new disciplines such as the ecocriticism of Harold Fromm or Glen Love (*ecocriticism*) (Love, 2003; Glotfelty and Fromm, 2009; Fromm, 2009), the Darwinian literary history (different from that of the 19th century and Brunetière) of Tom Dolack, based not on the metaphor of the species and the reification of the forms, but on a solid theory of the technological innovation by imitation in the species, etc. (Dolack, 2010). Or Robert Storey's theory of genres and theory of representation in *Mimesis and the Human Animal* (1996; see the review by Carroll, 1996).

With the interdisciplinary postulate of literary evolutionism, it is here the institutional and academic place of the humanities that is questioned. Whether one conceives of literature as an anthropological database, or as a laboratory of experimental psychology or "experimental philosophy," to use another fashionable concept, it is to a relegation of literary criticism and to a reintroduction of the latter into the heart of other knowledge that we could witness. Such are, for example, the virtues of Turner's narrativist theories that I have described and of the cognitivist turn in general: "since the publication in 1980 of George Lakoff and Mark Johnson's influential *Metaphors We Live By*, literary critics have been encouraged by the idea of a cognitive poetics — of, that is, a systematic theory of the mind in which literature is not merely peripheral but central to the understanding of human psychology," writes Van Oort (2003: 238). In other words, literature does not only have to passively import an exogenous conceptual vocabulary, and criticism does not only have to account for its empirical metadiscourses with new scientific tools, but it can serve,

differently from any other form of knowledge, to think concrete mental and social processes, by reinscribing itself in the very long duration of human history<sup>21</sup>.

## Sources

- Abbott, H. Porter (2000). "The Evolutionary Origins of the Storied Mind: Modeling the Prehistory of Narrative Consciousness and Its Discontents". *Narrative*, 8 (3), pp. 247-256.
- Abbott, H. Porter (Ed.) (2001). "On the Origins of Fiction: Interdisciplinary Perspectives", special issue of *SubStance*, 30 (1).
- Barash, David P. and Barash, Nanelle R. (2002). "Evolution and Literary Criticism". *The Chronicle of Higher Education*, October 18, 2002, pp. 7-9.
- Barash, David P. and Barash, Nanelle R. (2005). *Madame Bovary's Ovaries: A Darwinian Look at Literature*. New York, Delacorte Press.
- Bartels, Andreas and Zeki, Semir (2000). "The Neural Basis of Romantic Love". *NeuroReport*, 11 (17), November 27, 2000, pp. 3829-3834; online at: <http://www.vislab.ucl.ac.uk/pdf/NeuralBasisOfLove.pdf>.
- Boyd, Brian (2005). "Evolutionary Theories of Art". In Gottschall, Jonathan and Wilson, David Sloan (Eds.), *The Literary Animal: Evolution and Nature of the Narrative* (pp. 149-178). Evanston (Ill.), Northwestern University Press.
- Brunetière, Ferdinand (1890). *L'Évolution de la critique depuis la Renaissance jusqu'à nos jours*. Paris, Hachette.
- Burke, Michael (2008). "How Cognition Can Augment Stylistic Analysis". *The European Journal of English Studies*, 9 (2), pp. 185-196.
- Buss, David (1999). *Evolutionary Psychology: The New Science of the Mind*. Boston, Allyn & Bacon.
- Carroll, Joseph (1995). *Evolution and Literary Theory*. Columbia, University of Missouri Press.
- Carroll, Joseph (1996). Review of Robert F. Storey, *Mimesis and the Human Animal*, 1996; online at [http://cogweb.ucla.edu/Abstracts/Carroll\\_S98.html](http://cogweb.ucla.edu/Abstracts/Carroll_S98.html).
- Carroll, Joseph (1998). "Steven Pinker's Cheesecake for the Mind" (Review of Steven Pinker, *How the Mind Works*, 1997). *Philosophy and Literature*, 22 (2), p. 478-485; online at: [http://cogweb.ucla.edu/Abstracts/Carroll\\_C98.html](http://cogweb.ucla.edu/Abstracts/Carroll_C98.html).
- Carroll, Joseph (2005). "Human Nature and Literary Meaning: A Theoretical Model Illustrated with a Critique of *Pride and Prejudice*". In Gottschall, Jonathan and Wilson, David Sloan (Eds.), *The Literary Animal: Evolution and Nature of the Narrative* (pp. 76-116). Evanston (Ill.), Northwestern University Press.
- Carroll, Joseph (2011a). *Reading Human Nature: Literary Darwinism in Theory and Practice*. Albany (N.Y.), SUNY Press.
- Carroll, Joseph (2011b). "An Evolutionary Paradigm for Literary Study, with Two Sequels". In Carroll, Joseph, *Reading Human Nature: Literary Darwinism in Theory and Practice* (pp. 3-54). Albany (N.Y.), SUNY Press.
- Carroll, Joseph (2011c). "The Cuckoo's History: Human Nature in *Wuthering Heights*". In Carroll, Joseph, *Reading Human Nature: Literary Darwinism in Theory and Practice* (pp. 109-122). Albany (N.Y.), SUNY Press.
- Carroll, Joseph, Gottschall, Jonathan, Johnson, John A., and Kruger, Daniel (2011). "Agonistic Structure in Victorian Novels: Doing the Math". In Carroll, Joseph, *Reading Human Nature: Literary Darwinism in Theory and Practice* (pp. 151-175). Albany (N.Y.), SUNY Press.
- Carroll, Joseph, Gottschall, Jonathan, Johnson, John A., and Kruger, Daniel (2012). *Graphing Jane Austen: The Evolutionary Basis of Literary Meaning*. New York, Palgrave Macmillan.
- Changeux, Jean-Pierre (1994). *Raison et plaisir*. Paris, Odile Jacob.
- Changeux, Jean-Pierre (2008). *Du vrai, du beau, du bien*. Paris, Odile Jacob.
- Cohn, Dorrit (1978). *Transparent Minds: Narrative Modes for Presenting Consciousness in Fiction*. Princeton, Princeton University Press.
- Compagnon, Antoine. "Genre, création, évolution" (Course); online at: <http://www.fabula.org/compagnon/genre12.php>.
- Cook, Guy (1994). *Discourse and Literature*. Oxford, Oxford University Press.
- Cooke, Brett (1999). "Sexual Property in Pushkin's 'The Snowstorm': A Darwinist Perspective". In Cooke, Brett and Turner, Frederick (Eds.), *Biopoetics: Evolutionary Explorations in the Arts* (pp. 175-204). Lexington, ICUS.

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<sup>21</sup> I am in complete agreement with the conclusions of [Ryan 2010](#).

- Crews, Frederick (2005). "Foreword from the Literary Side". In Gottschall, Jonathan and Wilson, David Sloan (Eds.), *The Literary Animal: Evolution and Nature of the Narrative* (pp. xiii-xv). Evanston (Ill.), Northwestern University Press.
- Dawkins, Richard (1976). *The Selfish Gene*. Oxford, Oxford University Press.
- Dawkins, Richard (1982). *The Extended Phenotype*. Oxford, Oxford University Press.
- Dawkins, Richard (2006). *The God Delusion*. London, Bantam Press.
- De Botton, Alain (1997). *How Proust Can Change Your Life*. New York, Pantheon.
- Deacon, Terrence W. (1997). *The Symbolic Species: The Co-evolution of Language and the Brain*. New York, W. W. Norton & Company.
- Dennett, Daniel C. (1991). *Consciousness Explained*. Boston, Little, Brown.
- Dennett, Daniel C. (1995). *Darwin's Dangerous Idea: Evolution and the Meanings of Life*. New York, Simon & Schuster.
- Dennett, Daniel C. (2006). *Breaking the Spell: Religion as a Natural Phenomenon*. London, Allen Lane.
- Dissanayake, Ellen (1992). *Homo Aestheticus: Where Art Comes from and Why*. New York, Free Press.
- Dolack, Tom (2010). "Imitation and Literary Evolution". *Politics and Culture*, (1), April 29, 2010, online at: <http://www.politicsandculture.org/2010/04/29/imitation-and-literary-evolution/>.
- Easterlin, Nancy (2001). "Hans Christian Andersen Fish Out of Water". *Philosophy and Literature*, 25 (2), pp. 251-277.
- Easterlin, Nancy (2009). "Literature, Science, and the New Humanities" (Review). *Philosophy and Literature*, 33 (1), pp. 230-233.
- Eibl, Karl (2004). *Animal Poeta. Bausteine der biologischen Kultur- und Literaturtheorie*. Paderborn, Mentis.
- Eibl, Karl (2009). "The Induction Instinct: Evolution and Poetic Application of a Cognitive Tool". *Studies in the Literary Imagination*, 42 (2), pp. 43-60.
- Eibl, Karl and Mellmann, Katja (2008). "Misleading Alternatives". *Style*, 42 (2-3), pp. 166-171.
- Emmott, Catherine (1997). *Narrative Comprehension: A Discourse Perspective*. Oxford, Oxford University Press.
- Flesch, William (2008). *Comeuppance: Costly Signaling, Altruistic Punishment, and Other Biological Components of Fiction*. Cambridge (Mass.), Harvard University Press.
- Fludernik, Monika (1996). *Towards a "Natural" Narratology*. London, Routledge.
- Fodor, J. A. (1987). *Psychosemantics*. Cambridge (Mass.), M.I.T. Press.
- Fox, Robin (1995). "Sexual Conflict in the Epics". *Human Nature*, 6 (2), pp. 135-144.
- Fox, Robin (2005). "Male Bonding in the Epics and Romances". In Gottschall, Jonathan and Wilson, David Sloan (Eds.), *The Literary Animal: Evolution and Nature of the Narrative* (pp. 126-144). Evanston (Ill.), Northwestern University Press.
- Fromm, Harold (2010). *The Nature of Being Human: From Environmentalism to Consciousness*. Baltimore, Johns Hopkins University Press.
- Gavins, Joanna and Steen, Gerard (Eds.) (2003). *Cognitive Poetics in Practice*. London, Routledge.
- Gefen, Alexandre (2006). "Du bon usage des tableaux à double entrée: stratégies taxinomiques et ambitions épistémologiques de la théorie littéraire". In Escola, Marc and Rabau, Sophie (Eds.), *La Case blanche: théorie littéraire et textes possibles*, actes du colloque d'Oléron (14-18 avril 2003). Reims, *La Lecture littéraire*, n. 8.
- Gefen, Alexandre (2007). "L'adieu aux exemples. Sérendipité et inexemplarité dans la littérature modern". In Bouju, Emmanuel, Gefen, Alexandre, Hautcœur, Guiomar, and Macé, Marielle (Eds.), *Littérature et exemplarité* (pp. 249-261). Rennes, PUR.
- Gefen, Alexandre (2010). "L'éthique est-elle un récit? Le récit est-il une éthique? Retour sur la querelle du 'narrativisme'". Proceedings of the international colloquium "Les moralistes modernes", University of Belgrade (22-23 October 2009). Published online at: <http://www.fabula.org/colloques/document1352.php>.
- Glotfelty, Cheryl and Fromm, Harold (Eds.) (2009). *The Ecocriticism Reader: Landmarks in Literary Ecology*. 2nd ed.: Athens, The University of Georgia Press.
- Gopnik, Adam (2012). "Can science explain why we like stories?" *The New Yorker*; online at: <http://www.newyorker.com/online/blogs/books/2012/05/can-science-explain-why-we-tell-stories.html>.
- Gottschall, Jonathan (2001). "Homer's Human Animal: Ritual Combat in the *Iliad*". *Philosophy and Literature*, 25 (2), pp. 278-294.
- Gottschall, Jonathan (2004b). Review of Joseph Carroll, *Literary Darwinism*, 2004. *Human Ethology Bulletin*, 19 (4), pp. 11-13.
- Gottschall, Jonathan (2008a). *Literature, Science, and a New Humanities*. New York, Palgrave Macmillan.
- Gottschall, Jonathan (2008b). *The Rape of Troy: Evolution, Violence, and the World of Homer*. Cambridge, New York, Cambridge University Press.

- Gottschall, Jonathan (2012a). *The Storytelling Animal: How Stories Makes Us Human*. New York, Houghton Mifflin Harcourt.
- Gottschall, Jonathan (2012b). "Why Fiction Is Good for You". *The Boston Globe*, April 29, 2012; online at: [http://articles.boston.com/2012-04-29/ideas/31417849\\_1\\_fiction-morality-happy-endings](http://articles.boston.com/2012-04-29/ideas/31417849_1_fiction-morality-happy-endings).
- Guerin, Wilfred L., Labor, Earle, Morgan, Lee, Reesman, Jeanne C., and Willingham, John R. (2010). *A Handbook of Critical Approaches to Literature*. 6th ed.: Oxford and New York, Oxford University Press.
- Herman, David (Ed.) (1999). *Narratologies: New Perspectives on Narrative Analysis*. Columbus, Ohio State University Press.
- Herman, David (2002). *Story Logic: Problems and Possibilities of Narrative*. Lincoln (Neb.), University of Nebraska Press.
- Herman, David (2003). "Stories as a Tool for Thinking". In Herman, David (Ed.), *Narrative Theory and the Cognitive Sciences* (pp. 163-192). Stanford, CSLI.
- Herman, David (2007). "Storytelling and the Sciences of the Mind: Cognitive Narratology, Discursive Psychology, and Narratives in Face-to-Face Interaction". *Narrative*, 15, pp. 306-334.
- Herman, David (2009). *Basic Elements of Narrative*. Oxford, Wiley-Blackwell.
- Hogan, Patrick Colm (2003a). *The Mind and Its Stories: Narrative Universals and Human Emotion*. New York, Cambridge University Press.
- Hogan, Patrick Colm (2003b). *Cognitive Science, Literature, and the Arts: A Guide for Humanists*. London, Routledge.
- Hogan, Patrick Colm (2006). "A Debate for Making Clear the Worth of Universals: Ninety-Five Theses". Position paper serving as the text for debate at the plenary session on "Aesthetic Universals". Conference of the International Society for the Empirical Study of Literature and Media (Internationale Gesellschaft für Empirische Literaturwissenschaft). Fraueninsel, Germany, August 2006.
- Hogan, Patrick Colm (2011). *Affective Narratology: The Emotional Structure of Stories*. Lincoln (Neb.), University of Nebraska Press.
- Horvath, Tim (2005). "Literary Darwinism and Literary Darwinisms: Let the Games Begin...". *Cogweb*, 1 January 2005; online at: <http://cogweb.ucla.edu/Culture/Horvath-on-Carroll-04.html>.
- Housden, Roger (2001). *Ten Poems to Change Your Life*. New York, Harmony.
- Jackson, Tony (2000). "Questioning Interdisciplinarity: Cognitive Science, Evolutionary Psychology, and Literary Criticism". *Poetics Today*, 21 (2), pp. 319-347.
- Jahn, Manfred (1997). "Frames, Preferences, and the Reading of Third-Person Narratives: Toward a Cognitive Narratology". *Poetics Today*, 18 (4), pp. 441-468.
- Kelleter, Frank (2007). "A Tale of Two Natures: Worried Reflections on the Study of Literature and Culture in an Age of Neuroscience and Neo-Darwinism". *Journal of Literary Theory*, 1 (1), pp. 153-189, online at: <http://www.jltonline.de/index.php/articles/article/view/65/258>.
- Lageira, Jacinto (2012). "Artialisation". In Pouivet, Roger et Morizot, Jacques (Eds.), *Dictionnaire de philosophie esthétique* (pp. 49-50). 2nd ed.: Paris, Armand Colin.
- Lakoff, George and Johnson, Mark (1980). *Metaphors We Live By*. Chicago, University of Chicago Press, 1980.
- Langacker, Ronald W. (1987-1991). *Foundations of Cognitive Grammar*. Stanford, Stanford University Press, 2 vols.
- Langacker, Ronald W. (1991). *Concept, Image, and Symbol: The Cognitive Basis of Grammar*. Berlin and New York, Mouton de Gruyter.
- Langacker, Ronald W. (2008). *Cognitive Grammar: A Basic Introduction*. New York, Oxford University Press.
- Laugier, Sandra (1992). *L'Apprentissage de l'obvie: l'anthropologie logique de Quine*. Paris, J. Vrin.
- Laugier, Sandra (2010). *Wittgenstein, le mythe de l'inexpressivité*. Paris, J. Vrin.
- Love, Glen (2003). *Practical Ecocriticism: Literature, Biology, and the Environment*. Charlottesville: University of Virginia Press.
- Mar, Raymond and Oatley, Keith (2005). "Evolutionary Pre-adaptation and the Idea of Character in Fiction". *Journal of Cultural and Evolutionary Psychology*, 3 (2), pp. 179-194.
- Mar, Raymond and Oatley, Keith (2008). "The Function of Fiction Is the Abstraction and Simulation of Social Experience". *Perspectives on Psychological Science*, 3 (3), pp. 173-192.
- Mar, Raymond, Oatley, Keith, Hirsh, Jonathan, dela Paz, Jennifer, and Peterson, Jordan B. (2006). "Bookworms versus Nerds: Exposure to Fiction versus Non-fiction, Divergent Associations with Social Ability, and the Simulation of Fictional Social Worlds". *Journal of Research in Personality*, 40, pp. 694-712.
- Mar, Raymond, Oatley, Keith, and Peterson, Jordan B. (2009). "Exploring the Link between Reading Fiction and Empathy: Ruling out Individual Differences and Examining Outcomes". *Communications*, 34, pp. 407-428.
- Max, D. T. (2005). "The Literary Darwinists". *The New York Times Magazine*, November 6, 2005; online at: <http://www.nytimes.com/2005/11/06/magazine/06darwin.html?pagewanted=all>.



- Mellmann, Katja (2007). *Emotionalisierung. Von der Nebenstundenpoesie zum Buch als Freund*. Paderborn, Mentis.
- Mellmann, Katja (2009). "Das 'Spielgesicht' als poetisches Verfahren. Elemente einer verhaltensbasierten Fiktionalitätstheorie". In Anz, Thomas and Kaulen, Heinrich (Eds.), *Literatur als Spiel. Evolutionsbiologische, ästhetische und pädagogische Aspekte* (pp. 65-86). Berlin, de Gruyter.
- Mellmann, Katja (2010). "Voice and Perception. An Evolutionary Approach to the Basic Functions of Narrative". In Aldama, Frederick Luis (Ed.), *Toward a Cognitive Theory of Narrative Acts* (pp. 119-140). Austin, University of Texas Press.
- Mellmann, Katja (2011). "Evolutionary Psychology as a Heuristic in Literary Studies". In Saul, Nicholas and James, Simon J. (Eds.), *The Evolution of Literature: Legacies of Darwin in European Cultures* (pp. 299-317). Amsterdam, Rodopi.
- Méra, Brigitte (2009). *La Méthode Rastignac: "La Comédie humaine", une culture d'entreprise*. Paris, Tallandier.
- Miller, Geoffrey (2000). *The Eating Mind: How Sexual Choice Shaped the Evolution of Human Nature*. New York, Doubleday Books.
- Mithen, Steve J. (1996). *The Prehistory of the Mind: A Search for the Origins of Art, Religion, and Science*. London, Thames and Hudson.
- Morizot, Jacques (2012). "Évolution et esthétique". In Pouivet, Roger et Morizot, Jacques (Eds.), *Dictionnaire de philosophie esthétique* (pp. 184-186). 2nd ed.: Paris, Armand Colin.
- Mulligan, Kenneth and Habel, Philip (2011). "An Experimental Test of the Effects of Fictional Framing on Attitudes". *Social Science Quarterly*, 92 (1), pp. 79-99.
- Nesse, Margaret (1995). "Guivener's Choice". *Human Nature*, 6 (2), pp. 145-163.
- Nettle, David (2005). "What Happens in *Hamlet*? Exploring the Psychological Foundations of Drama". In Gottschall, Jonathan and Wilson, David Sloan (Eds.), *The Literary Animal: Evolution and Nature of the Narrative* (pp. 56-75). Evanston (Ill.), Northwestern University Press.
- Palmer, Alan (2004). *Fictional Minds*. Lincoln, University of Nebraska Press.
- Parry, Mark (2011). "Raymond Tallis Takes Out 'Neurotrash'". *The Chronicle Review*, October 9, 2011; published online: <http://chronicle.com/article/Raymond-Tallis-Takes-Out-the/129279/>.
- Pavel, Thomas (2003). *La Pensée du roman*. Paris, Gallimard.
- Pinker, Steven (1997). *How the Mind Works*. New York, W. W. Norton.
- Pinker, Steven (1997). "Toward a Consilient Study of Literature". *Philosophy and Literature*, 31 (1), pp. 161-177.
- Poetics Today* (2009). "Cognitive Themes". *Poetics Today*, 30 (3).
- Prince, Gerald (2008). "Narratologie Classique et narratologie post-classique;" published online: <http://www.vox-poetica.org/t/articles/prince.html>.
- Pylyshyn, Z. (1984). *Computation and Cognition*. Cambridge (Mass.), MIT Press.
- Quine, W. V. (1969a). "Ontological Relativity". In Quine, W. V., *Ontological Relativity and Other Essays* (pp. 26-68). New York, Columbia University Press.
- Quine, W. V. (1969b). "Epistemology Naturalized". In Quine, W. V., *Ontological Relativity and Other Essays* (pp. 69-90). New York, Columbia University Press.
- Rastier, François (1991). *Sémantique et recherches cognitives*. Paris, PUF. 2nd ed.: 2001.
- Rastier, François (2005). "Sémiotique du cognitivisme et sémantique cognitive: questions d'histoire et d'épistémologie". *Texte*; online at: [http://www.revue-texto.net/inédits/rastier/rastier\\_semantique-cognitive.html](http://www.revue-texto.net/inédits/rastier/rastier_semantique-cognitive.html).
- Richardson, Alan (2000). "Rethinking Romantic Incest: Human Universals, Literary Representation, and the Biology of Mind". *New Literary History*, 31 (3), pp. 553-572.
- Richardson, Alan and Spolsky, Ellen (Eds.) (2006). *The Work of Fiction: Cognition, Culture, and Complexity*. Aldershot, Ashgate.
- Richardson, Alan and Steen, Francis F. (Eds.) (2002). "Literature and the Cognitive Revolution". *Poetics Today*, special issue, 23 (1).
- Ryan, Marie-Laure (2010). "Narratology and Cognitive Science: A Problematic Relation". *Style*, 44 (4), pp. 469-495.
- Schaeffer, Jean-Marie (2007). *La Fin de l'exception humaine*. Paris, Gallimard.
- Schaeffer, Jean-Marie (2009). *Théorie des signaux coûteux: esthétique et art*. Rimouski (Québec), Tangence éditeur.
- Schaeffer, Jean-Marie (2012). "Pour une esthétique naturaliste: l'animal artiste et esthète? ". In Pouivet, Roger et Morizot, Jacques (Eds.), *Dictionnaire de philosophie esthétique* (pp. 28-31). 2nd ed.: Paris, Armand Colin.
- Semino, Elena and Culpeper, Jonathan (Eds.) (2003). *Cognitive Stylistics: Language and Cognition in Text Analysis*. Amsterdam and Philadelphia: John Benjamins.
- Singer, Peter (2000). *A Darwinian Left: Politics, Evolution, and Cooperation*. New Haven, Yale University Press.
- Sperber, Dan (1975). "Rudiments of Cognitive Rhetoric". *Poetics*, (23), pp. 389-415.
- Stockwell, Peter (2002). *Cognitive Poetics: An Introduction*. London, Routledge.

- Storey, Robert F. (1996). *Mimesis and the Human Animal: On the Biogenetic Foundations of Literary Representation*. Evanston (Ill.), Northwestern University Press.
- Sugiyama, Michelle Scalise (1996). "On the Origins of Narrative: Storyteller Bias as a Fitness-Enhancing Strategy". *Human Nature*, 7 (7), pp. 403-425.
- Sugiyama, Michelle Scalise (1997). *Feminine Nature: An Evolutionary Analysis of Hemingway's Women Characters* (PhD). University of California, Santa Barbara.
- Sugiyama, Michelle Scalise (2005). "Reverse Engineering Narrative". In Gottschall, Jonathan and Wilson, David Sloan (Eds.), *The Literary Animal: Evolution and Nature of the Narrative* (pp. 177-195). Evanston (Ill.), Northwestern University Press.
- Sugiyama, Michelle Scalise (2006/2007). "The Nature of Literature", review of David and Nanelle Barash, *Madame Bovary's Ovaries*. *Entelechy*, (8); online at: <http://www.entelechyjournal.com/michellescalisesugiyama.html>.
- Tallis, Raymond (2011a). *Aping Mankind: Neuromania, Darwinitis, and the Misrepresentation of Humanity*. Durham, Acumen.
- Tallis, Raymond (2011b). "Neurotrash. Humans Are Special". *Prospect*, published online: <http://www.prospectmagazine.co.uk/magazine/neurotrash-brain-chemistry-biologism-neurones-darwin/>.
- Thornhill, Randy and Palmer, Craig T. (2000). *A Natural History of Rape: Biological Bases of Sexual Coercion*. Cambridge (Mass.), MIT Press.
- Tooby, John and Cosmides, Leda (2001). "Does Beauty Build Adapted Minds? Toward an Evolutionary Theory of Aesthetics, Fiction and the Arts". *SubStance*, (94/95), pp. 6-27; online at: <http://www.psych.ucsb.edu/research/cep/papers/beauty01.pdf>.
- Toolan, Michael and Weber, Jean-Jacques (Eds.) (2005). *The Cognitive Turn: Papers in Cognitive Literary Studies*, *European Journal of English Studies*, 9 (2).
- Tsur, Reuven (1992). *Toward a Theory of Cognitive Poetics*. Amsterdam, North-Holland, 1992. 2nd ed.: Brighton and Portland, Sussex Academic Press.
- Turner, Mark (1997). *The Literary Mind: The Origins of Thought and Language*. New York, Oxford University Press.
- Turner, Mark and Lakoff, George (1989). *More Than Cool Reason: A Field Guide to Poetic Metaphor*. Chicago, University of Chicago Press.
- Van Oort, Richard (2003). "Cognitive Science and the Problem of Representation". *Poetics Today*, 24 (2), pp. 237-295.
- Vandaele, Jeroen and Brône, Geert (Eds.) (2009). *Cognitive Poetics: Goals, Gains and Gaps*. Berlin, Mouton de Gruyter.
- Vermeule, Blakey (2011). "A Comeuppance Theory of Narrative and Emotions". *Poetics Today*, 32 (2), pp. 235-253.
- Whissell, Cynthia M. (1996). "Mate Selection in Popular Women's Fiction". *Human Nature*, 7 (4), pp. 427-447.
- Wilson, Edward O. (1998). *Consilience: The Unity of Knowledge*. New York: Alfred A. Knopf.
- Zunshine, Lisa (2006). *Why We Read Fiction: Theory of Mind and the Novel*. Columbus, Ohio State University Press; online at: <https://uky.academia.edu/LisaZunshine>.
- Zunshine, Lisa (2008). "Theory of Mind and Fictions of Embodied Transparency". *Narrative*, 16 (1), pp. 65-92; online at: <https://uky.academia.edu/LisaZunshine>.
- Zunshine, Lisa (2011). "Style Brings in Mental States". *Style*, 45 (2), pp. 349-356; online at: <https://uky.academia.edu/LisaZunshine>.