

The 'hard' problem from a literary perspective: on cognitive literary criticism

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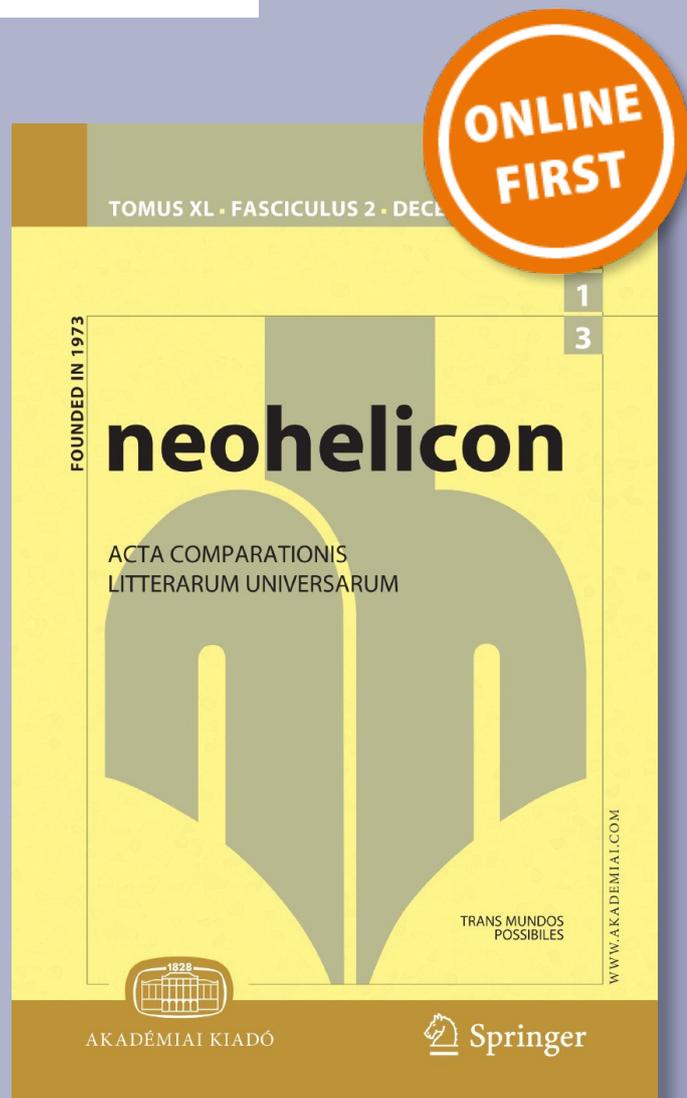
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The 'hard' problem from a literary perspective: on cognitive literary criticism

Sowon S. Park

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Abstract Theories of consciousness have a long history but they became a topic of interdisciplinary inquiry only in the late twentieth century. Beginning in the 1980s, a disparate range of disciplines converged on the view of the human mind as an information-processing organ, launching the fertile field of cognitive neuroscience. However, before the expansion of cognitive studies, the field that produced the most sustained forms of thinking about consciousness was literature. In particular, capturing consciousness was the spur to a great modernist ambition, as the development of the 'stream of consciousness' method in the early twentieth century attests. Even so, a gap remains between cognitive studies and literary studies. While the new field of cognitive literary criticism has produced a body of work that is extremely wide-ranging, at this nascent stage there are a great many problems that arise when attempting to generate an interpretive framework that can build on knowledge across the divide between cognitive studies and literary studies, and these issues remain difficult to resolve. To comprehensively synthesize neurobiological knowledge with the literary is to create nothing less than a model of knowledge that goes from the molecular to the aesthetic; from the objective to the subjective, from mechanism to experience. It is to unite the 'two cultures' or, in the lexicon of cognitivism, it is to solve what is known as the 'hard' problem. This paper will examine the symptomatic issues that apply to the field of cognitive literary criticism, discuss possible resolutions that might be found in the future and reflect on the relevance of cognitive science to the study of literature.

Author's personal

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The cognitive revolution

Consciousness used to be the terrain of the humanities, but in the last three decades we have witnessed an explosive amount of research by all fields, and especially by the natural sciences. Consciousness is the common thread that has pulled the concepts and methods of evolutionary biology, anthropology, psychology, artificial intelligence, computer science, linguistics, philosophy of mind and neuroscience into working relations with one another, offering a new degree of interdisciplinarity unrivalled in modern academia. Not only has cognitivism provided a rare point of convergence for a wide range of disciplines, it has also become, with stem cells and genomics, one of the best-funded and fastest-growing research areas, as President Obama's 2013 pledge of a hundred million dollars to fund the first year of the BRAIN initiative attests. Furthermore, it is a rapidly expanding industry: instrumentalist applications of cognitive science have created new offshoots like Psychoneuro-pharmacology, Neuromarketing and Neurosecurity, the growth of which is prompting a range of questions about ethical and political implications, forming, in turn, the new branches of Neuroethics and Neuropolitics.¹ In all, phrases like the "cognitive turn" and the "cognitive revolution" appear justified.

However, before the expansion of cognitivism, the field which produced the most sustained forms of thinking about consciousness was literature. As David Lodge has argued in his seminal study, *Consciousness and the Novel*, "Literature is a record of human consciousness, the richest and the most comprehensive we have." (Lodge 2002, p. 10). But, at present, reconfigurations between the bifurcated cultures of literature and the hard sciences remain relatively circumscribed. For the large part this has to do with the simple fact that the majority of cognitive scientists are unwilling or unable to find ways to incorporate literary knowledge about consciousness into materialist scientific epistemology, because the kind of knowledge that humanists accumulate is not so much problematic as untestable or even irrelevant. Indeed, mainstream cognitive scientists would accept that the very premise of their investigation rests upon bracketing off the subjective and the affective—traits that are, as I shall argue, often simplistically and inaccurately ascribed to literature. Nevertheless, even within cognitive science,

there is a growing recognition that a consideration of high-level consciousness would need to take into account human experience in its phenomenological aspects, which its current materialist scope cannot accommodate. Neurophenomenologists Varela, Thompson and Rosch argued as early as 1993 that the “need for a bridge between cognitive science and an open-ended pragmatic approach to human experience will become only more inevitable. Indeed, cognitive science will be able to resist the need for such a bridge only by adopting an attitude that is inconsistent with its own theories and discoveries” (Varela et al. 1991, p. 127). How to build that bridge

¹See Gray (2007).

remains, in the idiom of cognitivism, the 'hard' problem. But to comprehensively synthesize neurobiological knowledge with the literary is to create nothing less than a model of knowledge that goes from the molecular to the aesthetic; from the objective to the subjective, from mechanism to experience.

To provide a workable solution to the 'hard problem' or to bridge the epistemological gap between the 'two cultures' is cognitive literary criticism, an embryonic field that has already produced a body of work that is extremely wide-ranging—for example, Cognitive Poetics, Cognitive Stylistics, Cognitive Aesthetics, Cognitive Narratology, 'Evo' (evolutionary) Literary Criticism, 'Neuro' (neuroscientific) Literary Criticism and other interdisciplinary studies yet to be identified as legitimate fields of enquiry. As various as they are, the attempt to synthesize the wide range of discoveries in brain science with literary knowledge unite them. The typical spirit was captured in the 2002 special issue of *Poetics Today*, entitled *Literature and the Cognitive Revolution*, when it confidently pronounced that cognitive approaches will 'revolutionize the study of literature by overthrowing the rule of poststructuralism' (Jackson 2002, p. 167). To what degree cognitive literary criticism will overturn poststructuralist knowledge remains to be seen. These are early days and while the range is diverse—from eye-tracking experiments on the reading process, to fMRI studies of poetic metre, to the neurobiology of memory and modernism—the scale and the explanatory scope of the field remain provisional, exploratory and fragmented. And while there is no doubt that the wondrous developments in brain biology in the last forty years have great relevance on how we consider art and literature, it is often not clear what a scientific finding can or cannot contribute to the field of literature or what conclusions we can or cannot draw from the latest discoveries. And there are local issues as well as opportunities specific to each cognitive approach that are too numerous to try and catalogue here. So I will focus on what I see as the symptomatic issues that apply to the field overall when attempting to generate an interpretive framework that can build on knowledge across the cultural divide, discuss possible resolutions that might be found in the future and reflect on the relevance of cognitive studies to the study of literature.

The two cultures and the scientific viewpoint

Recent interdisciplinary and transdisciplinary collaborations emerge out of, and in contrast to, a long history of debates and practices that have separated the humanities and the natural

sciences, the most widely-reproduced being C. P. Snow's 1959 Cambridge Rede lecture, "The Two Cultures and the Scientific Revolution." Charles Percy Snow (1905-1980), classical physicist and novelist, famously pronounced the divide between the sciences and the humanities by identifying a "gulf of mutual incomprehension" between the "literary intellectuals" and the natural scientists (Snow [1993](#), p. 11). This is how he put it:

A good many times I have been present at gatherings of people who, by the standards of the traditional culture, are thought highly educated and who have

with considerable gusto been expressing their incredulity at the illiteracy of scientists. Once or twice I have been provoked and have asked the company how many of them could describe the Second Law of Thermodynamics. The response was cold: it was also negative. Yet I was asking something which is about the scientific equivalent of: *Have you read a work of Shakespeare's?* (Ibid., p. 14).

When the lecture was published in *Encounter* the same year, it met an enthusiastic reception on both sides of the Atlantic and the phrase the "two cultures" became an enduring formulation to refer to a range of differences, ranging from the epistemological to the territorial.²

But the idea that the natural sciences and the humanities are two distinct forms of intellectual enquiry, yielding two different kinds of knowledge, has a long genealogy in western thought.³ The difference between the two has been identified as that between the empirical and the non-empirical; the trivial and the non-trivial, fact and value; science and literature.⁴ In Britain, this divide can be traced back to the Arnold/Huxley debate in the nineteenth century, if not to the so-called 'dissociation of sensibility' in the seventeenth, and, if one were to take a longer view, as Patricia Waugh has done, the separation could be seen to be as old as Western civilization itself, going far back to classical antiquity, to Aristotle's 'exact' and 'inexact' kinds of knowledge. Moreover, Waugh sees aspects of this debate as universal, stating "no culture has been without its version of this debate: every culture has witnessed struggles for dominance between rival paradigms." (Waugh 1999, p. 33).

However, the notion of the "two cultures" also carries a secondary motif, albeit a less justifiable one. Snow may have given the two cultures rhetorical parity but in fact he placed them in a strict hierarchy: scientists, he maintained, "have their own culture [...] which contains a great deal of argument, usually much more rigorous and almost always at a much higher conceptual level than a literary person's argument." (Snow 1993, p. 12). In devising the set-up of the two cultures, not as two essentially different but equal realms of knowledge but as a rank of worth, Snow was giving voice to the reigning logical positivist orthodoxy of the period that the analytical and logically rigorous scientific method set the standard for intellectual investigation. Classical physics was the exemplary discipline according to this empiricist view, whose unified and verifiable accumulation of knowledge should form the basis for all intellectual inquiry, including inquiry in the humanities. By insisting on logical inference and verifiability as key tools for acquiring meaning, this philosophy made not only the epistemologies of aesthetic communication problematic, it

rendered the category of literary knowledge irrelevant.

This hierarchization of disciplines also had a political aspect. Snow's scheme of the two cultures equated the scientific mode of investigation with political progressivism. His lament was that

although the empiricist and rationalist

² *Encounter* (London: M. Secker & Warburg Ltd., June, July 1959). The August issue contains the first responses to Snow's lecture.

³ See Collini (1998).

⁴ See 2012.

foundations of scientific progress in the twentieth century were revolutionizing life in post-war Britain, the nation continued to be governed by an elitist culture of letters which refused to acknowledge, let alone embrace, the forward-thinking culture of hard science. He continued:

I now believe that if I had asked an even simpler question – such as, What do you mean by mass, or acceleration, which is the scientific equivalent of saying, *Can you read?* – not more than one in ten of the highly educated would have felt that I was speaking the same language. So the great edifice of modern physics goes up, and the majority of the cleverest people in the western world have about as much insight into it as their neolithic ancestors would have had. (Ibid., p. 15).

Snow's criticism of what he saw as the neolithic ignorance of the literary intellectuals was directly linked in his mind to their regressive politics and their degenerate view of life, what he called as their "most imbecile expressions of anti- social feeling," which the following illustrates:

Why do most writers take on social opinions which would have been thought distinctly uncivilized and *de' mode'* at the time of the Plantagenets? Wasn't that true of most of the famous twentieth century writers? Yeats, Pound, Wyndham Lewis, nine out of ten of those who have dominated literary sensibility in our time – weren't they not only politically silly, but politically wicked? Didn't the influence of all they represent bring Auschwitz that much nearer? (Snow 1961, p. 15).

By this point, Snow casts off all pretense of advocating a *rapprochement* of the two cultures. The literary culture or, as he specifies, the modernist culture, is not only degenerate and reactionary; it is, in Snow's view, actually unacceptable.

Snow's assertions of scientific ascendancy famously provoked F. R. Leavis (1895–1978), Cambridge academic and arguably the most influential literary critic of the day, to a public repudiation which called on the literary intellectuals to "raise their sword" against such "evidence of barbarism". Entitled "Two Cultures? The Significance of Lord Snow," the 1962 Richmond lecture was a long remonstrance on what Leavis saw as the "intellectual nullity" of Snow's "panoptic pseudo- cogencies," his "parade of a thesis," his "embarrassing vulgarity of style," "unrelieved and cultureless banality" and his "technologico-Benthamite" reduction of the human. As an attack on Snow's overextension of scientific epistemology, it was thorough. However it left little room for a rigorous definition of what literary knowledge is and how it stands in relation to the kind of scientific knowledge delineated by Snow.

The lack of a systematic defence of literary knowledge was a damaging omission not least because it reinforced the grounds inherited from the enlightenment whereby literary knowledge (or more broadly speaking, aesthetic knowledge) was rendered indefinable as a result of the category of science staking a special claim on objective knowledge. Leavis continually and emphatically claimed that literature is separate from other objects of scientific enquiry and has its own laws that go beyond positivist calculations. But with one exception, which shall shortly be discussed, he left the presumed opposition between the objective and the

private intact. With it, he also left untouched the putative hierarchy even if the Snow's ascending scale is reversed in favour of literary knowledge. However, Leavis did briefly introduce the idea of literary knowledge—of a "third realm." He wrote:

It is in the study of literature [...] that one comes to recognize the nature and priority of the third realm [...] the realm of that which is neither merely private and personal nor public in the sense that it can be brought into the laboratory or pointed to. (Ibid., p. 62).

By reasserting the reconciliation of the objectivist scientific account of reality with the realm of private feeling, Leavis alluded to a way of advancing the two cultures debate beyond Snow's proclamations. A further elucidation of this realm would have effectively corrected the false but prevalent supposition that literary knowledge is all about the subjective, the affective and the impressionistic—or, to put it another way, that literature is the Other of scientific rationalism. Of course there is a large number of kinds of knowledge about literature—philosophical, historical, linguistic, generic and so on—which are connected in various kinds of ways and which all add up to the experience of literature; but what Leavis points to is the unique relation between literature, or art, and epistemology. The literary mode of knowledge was always more than a scooping up of mysterious and indefinable experiences left to one side by scientific discourses; it was a challenge to the dualism which produced such a divide in the first place. The "third realm" of which Leavis spoke had always been the foundation of literature, providing us with a general kind of knowledge that has not been purified of 'singularity'.⁵ This is not to privilege the role of emotion in literature but relegating literature to fancy, feeling and imagination is no less a dubious move than trying to erase affect from literary studies altogether as was the case for certain strands of literary theory. In any case, any theory of literature that imputes affect to literary knowledge without taking account of the fact that literature is a form of cognition *about* affect would be not only incomplete but misconceived. As Suzanne Langer stated in her brilliant but rather neglected work, *Feeling and Form*: 'Although a work of art reveals the character of subjectivity, it is itself objective: its purpose is to objectify the life of feeling.' Likewise, Eliot famously wrote that poets do not express emotions subjectively but create the objective correlative for those emotions. Similarly Woolf attempted to capture the 'granite' of solid fact with the 'rainbow' of sensations.

Evolutionary literary criticism

With the demise of logical positivism, the boundaries between the two cultures have been rendered increasingly more permeable. But if there has been a larger degree of convergence between the two cultures, it is clear that the movement came

⁵ See Attridge ([2004](#)).

overwhelmingly from one direction, from the sciences to the humanities. Quarks, entropy, string theory, fractals, memes, quantum mechanics and Heisenberg's uncertainty principle have all been swiftly and at times ingeniously adopted into literary discourses and, although it is nothing new for humanists to borrow language, or import methods, from the hard sciences to frame and interpret literary texts, no period of literary criticism has been more prone to such borrowings than the latter half of the twentieth century. Furthermore, various kinds and degrees of pressures to adopt rigorous, analytic, "scientific" methods have defined literary studies in ways more profound than through the incorporations and adoptions of scientific terms and models. And humanists in the twenty-first century have mostly overcome our neolithic ignorance thanks to the growth and the high standard of the popular science publishing market.

Going against this current is "evo" criticism or Darwinian literary criticism (though "neo-Darwinian" would be more accurate). Exceptionally for scientists, evolutionary psychologists recognize literature as a serious field of knowledge in their search to understand the biological basis for human behaviour and experience. For example, *The Literary Animal: Evolution and the Nature of Narrative* (2005), edited by Jonathan Gottschall and David Sloan Wilson, identifies literature "a last frontier in Human evolutionary studies" and announces its aims as being "to understand the nature of literature from an evolutionary perspective" (Gottschall and Wilson 2005, p. xvii). The volume attempts an even-handed approach, with contributions from the literary side as well as from scientists. It even has two forewords: a "Foreword from the scientific side" by E. O. Wilson and a "Foreword from the literary side" by Frederick Crews.

However, one soon finds that the general confusion that arose from poorly conceived notions of literary study was not unique to the era of logical positivism and that such views inform current debates in the field of "evo" criticism on grounds very similar to Snow's. Evolutionary criticism attempts to understand the "nature of literature" by using literature as an object of scientific scrutiny from which instrumental and reductionist explanations can be drawn. Two fundamental problems are immediately presented by this approach. One concerns the basic premise of verbal works of art: literature is not analyzable and reducible into more basic speech and it only exists as an indivisible whole whose meanings are always symbolic. Second, the evolutionary approach does not address the phenomenological nature of the reading process and the instability of any given piece of text. However, these problems are mostly sidestepped by evolutionary critics, to whom literature is a scientific puzzle whose meaning can be extracted according to the criterion of adaptive value. Finding that narratives lack

“biological utility” in spite of their indubitable ubiquity, they try and understand this “biologically functionless activity” within the framework of evolutionary adaptation. Their evolutionary analyses of literature yield reductionist explanations, such as that poetry is the expression of our need for oral transmission of complex knowledge or that we read literature in order to acquire the adaptive, evolutionary benefit of having empathy with others. This kind of instrumentalist reflection does very little to illuminate the

specific nature of texts and our experience of them, though it certainly helps our understanding of proto-literary transactions made by some early humans.⁶

So it is not surprising, given the low level of value imputed to literature, that underneath the veneer of aspirations to a common ground of knowledge lie presumptions of a common ground of scientific knowledge as assertions such as the following section from Joseph Carroll's "Human Nature and Literary Meaning" show:

Darwinian psychology provides a scientifically grounded and systematic account of human nature. This is the first time in our intellectual history that we have had such a theory, but the subject of this theory - human nature itself - is the very same nature that has always animated writers and readers. Most writers historically have not had access to the evolutionary explanation for how human nature came to be what it is, but they have nonetheless had a deep intuitive understanding of human motives and human feelings. What a Darwinian social science can now do for literary criticism is to give us conscious theoretical access to the elemental forces that have impelled all human beings throughout time and that have fundamentally informed the observations and reflections of all writers and all readers. Darwinian criticism can lift us above the superficial paraphrases of traditional criticism without forcing us into the often false reductions in the postmodern conceptions of human nature. (Carroll 2005, p. 103).

The assumption that the methods and the standards of the sciences are the automatic means to improve the non-scientific, "soft" and backward disciplines remains intact since Snow's pronouncements. To be lifted above the "superficial paraphrases of traditional criticism" would be no bad thing if Carroll could articulate exactly what these were. The volume's premise that evolution could provide literary studies with "its first truly scientific theory of human psychology and behaviour [...] a theory based not in intuitive speculation but in the bedrock of evolutionary theory and scientific method" performs a ritual relegation of literary knowledge to speculative fancy and intuitive feeling, dismissing the entire tradition of literary knowledge.

And then it is but one step to attacks on non-scientific modes of knowledge in the tradition of Snow. One prominent example of this kind of approach can be found in the works of Steven Pinker. Like other neo-Darwinian psychologists, he explores the function of literature from an evolutionary perspective: "The throbbing question about fiction from an evolutionary viewpoint is what, if anything, it is for" he proposes. His answer is the following:

The technology of fiction delivers a simulation of life that an audience can enter in the comfort of their cave, couch, or theatre seat. [...] When we are absorbed in a book or a movie, we get to see breathtaking landscapes, hobnob with important people, fall in love with ravishing men and women, protect loved ones, attain impossible goals and defeat wicked enemies. (Pinker 1997, p. 539).

⁶ See Hernadi (2002).

Here, Pinker not only blithely reduces literature to entertainment but, without any sense of a change, slides from the “technology” of fiction to “a movie”. Times without number, Pinker will begin an argument on the adaptive value of literature only to conclude with an observation about popular films. Both are categorized as entertainment in his scheme and within that interpretive model he has no room to make qualitative distinctions between say, a Mills and Boon and a *Mrs Dalloway*. Nor can it take into account the vastly different and at times incompatible interpretations a single text often yields. Pinker’s hypothesis that fiction is vicarious entertainment to simulate life in safety does not cover most of literature—it is empirically false—but anything that does not fit into the evolutionary logic is either explained away or denounced. His explanation for why a lot of literature does not entertain but still survives is: we read them “to gain status through cultural machismo. We endure a pummeling of the emotions to differentiate ourselves from the crass philistines.” This unusual level of literal-mindedness about the uses of literature reduces fiction to an eternal repetition of a few simplistic clichés.

But an even stronger cause for concern is the argument put forward in Pinker’s next book, *The Blank Slate*. He launches an attack on modernism like C. P. Snow did, fifty-odd years before him, stating that

The dominant theories of elite art and criticism in the twentieth century grew out of a militant denial of human nature. One legacy is ugly and baffling, and insulting art. The other is pretentious and unintelligent scholarship [...] Once we recognize what modernism and postmodernism have done to the elite arts and humanities, the reason for their decline and fall become all too obvious. The movements are based on a false theory of human psychology, the Blank Slate. (Pinker 2002, p. 401).

His mystifying conclusion is reached on the grounds that modernism does not fit into his adaptive theory of literature as entertainment and so it can only be explained as cultural masochism. That which does not fit into his evolutionary model is not permitted to pass. On the basis of his flawed hypothesis that the premise of modernism is the blank slate, he deplores the downhill turn the humanities and the arts have taken in the last century.

In *How the Mind Works* and *The Blank Slate* and in his other more academic publications, Pinker argues for a convergence of approaches to the human condition by artists and scientists—for a “consilient” study of literature.⁷ But this proclamation does not carry much weight because he is in the habit of beginning his argument by diagnosing what is wrong with the humanities and

ends by offering a suggestion for their revitalization which is: humanists should learn from the cognitive sciences (Pinker 2002, p. 401).

⁷ See Pinker (2007).

Experiential affect from a literary perspective

However, not all scientific scrutiny is quite so tendentious. In a curious twist, the hard sciences are charting new ground that restores to the centre areas previously considered the realm of the humanities: consciousness, experience and affect, due to the rise of cognitivism. Interdisciplinary from the beginning, cognitive science was not as narrow and rigid in methodology as classical physics and its rise coincided with a weakening of narrowly positivist, objective, empiricist knowledge as the standard of intellectual inquiry. As Urban Kordes reflects:

The traditional analytical-reductionist scientific method can be seen as a sieve separating the trivial from the non-trivial. From the outset the set of all our interactions with the environment it selects only those that suit its standards. The scientific procedure is hence not a method for research on triviality, but rather a procedure for determining areas susceptible to trivialization. (Kordes 2012, p. 188).

Focusing exclusively on testability and falsifiability has been found to be too restrictive, for example in psychology, where behaviourism has been relegated to the margins. And though verifiability and experimental replicability remain the fundamental methods by which science operates, objective inquiry in the positivist tradition has become more open and varied.

The role of affect, which has been relegated to the margins for so long in the sciences is now being recognized as an essential part in any representations of consciousness by recent developments in cognitive neuroscience and neurophenomenology. Although no reference to literature is made in the works of Antonio Damasio or Joseph LeDoux, their models of cognitive processes place experiential affect at the centre of the rational thinking process. The neuroscientific evidence in Damasio and LeDoux's experiments indicates that cognitive decision making is disabled when the affective structures of the orbito-frontal cortex are impaired, demonstrating that rationality and feeling are indivisible, effectively breaking the dualist and hierarchical model of knowledge.

Paradoxically, the modernist movement, against which a series of attacks has been launched from across the cultural divide, was precisely the ground which proved most fertile for capturing the mixture of thinking and feeling. Although they were formed independently of each other, the model of mind represented in European modernist fiction, the formalized expression of which was the Leavisite notion of the third realm, is strikingly similar to recent cognitive scientific discoveries. The "pan-optic imperative" of the modernists attempted to reconcile an objective viewpoint

with subjective feeling: deeply and self-consciously preoccupied with knowledge and cognition, Virginia Woolf, like other modernists, wrote of a desire to capture the whole of human experience. She announced:

For our generation and the generation that is coming, the lyric cry of ecstasy or despair which is so intense, so personal, so limited, is not enough. The mind is full of monstrous, hybrid, unmanageable emotions. [...] the novel will express the feelings and ideas of the characters closely and vividly, but from a

different angle. [...] it will give not only or mainly people's relations to each other and their activities together, as the novel has hitherto done, but it will give the relation of mind to general ideas and its soliloquy in solitude. The novel [...] will take the mould of that queer confusion of incongruous things. (Woolf 1988a, pp. 429, 435).

The desire to capture the mind from a "different angle" produced a method of writing which portrays the phenomenology of consciousness—how an ordinary mind on an ordinary day registers the world through perception, cognition and sensations, while at the same time, consciousness itself is being constituted by the material world. The nature of the private and fragmented flow of thought in modernist literature is also deeply rooted in the body which has affinity with Damasio's idea of somatic thought or affective rationality. The techniques of interior monologue, shifting focalization and free indirect discourse (FID) and "stream of consciousness," produces in the reader a perceptual mimesis of consciousness which approximates the actual process of not only of sight, sound, smell, taste and touch but, crucially, of thought. The fluid mixture of the first person and the third person has the power of intimating what the characters are thinking or simply registering and showing us the silent incongruity of their thoughts without making the characters speak. Thus we experience a mind which is alone with itself; we get to feel what it is like to be that character, objectively. The similarities between consciousness as represented and produced in modernist fiction and accounts of the affective brain in neuroscience amount to mutual corroboration, even if they are not in epistemological agreement, and they carry weight precisely because they were obtained by independent methods, offering new hopes of an intellectually coherent framework that speaks across the divide between the two cultures. Though literary criticism and theory do not need to authorize what they do by appeal to the scientific forms of ideas produced within their discourses; and vice versa, the newly foregrounded role of experiential affect in rational thought offers the prospect of a different and exciting relationship that is genuinely reconceived. However, to reach that level of understanding, the significance of aesthetic knowledge will need to be continually reasserted in the face of scientific reduction of the literary. As Woolf expressed on this very question:

According to him [Mr Hamilton] every work of art can be taken to pieces, and those pieces can be named and numbered, divided and subdivided, and given their order of precedence, like the eternal organs of a frog. Thus we learn how to put them together again - [...] There is the complication, the

major knot, and the explication; the inductive and the deductive methods; the kinetic and the static; the direct and the indirect with sub-divisions of the same; connotation, annotation, personal equation, and denotation; logical sequence and chronological succession - all parts of the frog and all capable of further dissection. [...] Still, as Mr Hamilton uneasily perceives now and then, you may dissect your frog, but you cannot make it hop; there is, unfortunately, such a thing as life. (Woolf [1988b](#), pp. 44-45).⁸

⁸ Originally published in *Athenaeum*, 16 May 1919.

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