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The Dilemma of Cognitive Literary Studies

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Abstract: Sowon Park offers a concise introduction to the field of cognitive literary criticism, how it emerged, how it is defined and how it interrelates with existing criticism. Placing the development of cognitive literary criticism in a historical context, Park identifies a key issue that runs through interdisciplinary research across the divide between the 'two cultures' and across time. On the one hand, attempts to integrate scientific and literary knowledge are fraught with scientific reductions of the literary; on the other, attempts to preserve literary knowledge as a different-but-equal field of inquiry risks the complete exclusion from the hegemonic scientific discourse and a further marginalization. What constructive possibilities there are in the future in the face of such a dilemma are presented and reviewed.

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Cognitive literary criticism emerged as a field of enquiry in the late 1990s. Traditionally, the term ‘cognitive’ referred to ideas of thinking and inference but in this new field, it frequently refers to mental phenomena other than thinking, such as feeling, perception, unconscious memory and kinesis. The interest in cognitive processes in literary studies reflects a major shift in thinking in the late twentieth century called the ‘cognitive turn’. The mechanism and function of mind and brain are now considered to illuminate discourses of every kind.

Cognitivism finds its roots in what has been called the ‘cognitive revolution’ in psychology in the 1950s. Aided by developments in computer science, linguistics and artificial intelligence, psychological accounts of human mental processes merged with those in cybernetics and in other fields to produce a new synthesis in psychological studies, cognitive science. At about the same time, another new discipline, neuroscience, emerged out of psychology and biology. The ‘biological revolution’ of the 1950s, made possible by the discovery of the molecular structure of DNA in 1953, brought to the study of mental processes an understanding of mechanism which had hitherto remained mysterious. And that part of neuroscience concerned with cognition, cognitive neuroscience, has now become the principal discipline of cognitivism, providing for a joint investigation of mental processes. The findings from this new interdisciplinary field inform the nascent field of cognitive literary criticism.

Cognitive literary criticism has already produced a wide-ranging body of work. The vitality of this subfield was indicated by the Cognitive Humanities Network annual conference at Durham University in 2014, where the topics of more than 100 papers ranged from cognitive processing of language to ‘conceptual blending’, to the relations between kinesis and writing, to the neuroscience of memory and its relevance for literature. Currently, cognitive poetics, cognitive stylistics, cognitive aesthetics, cognitive narratology, ‘mindreading’ and fiction, ‘evo’ (evolutionary) literary studies and ‘neuro’ (neuroscientific) literary studies are recognized as formal fields of enquiry and under these headings investigations are flourishing.

Nevertheless these are early days and, although the range is diverse, the scale and the explanatory scope of the research remain exploratory. And although there is no doubt that the developments in cognitive neuroscience in the last 50 years are relevant to how we consider art and literature, it is often unclear what a scientific finding can or cannot contribute to literature or what conclusions we can or cannot draw from

it. Though cognitive literary criticism purportedly joins the study of literature with scientific investigations, the extent to which science and literature can be meaningfully connected is a question about which there is no overall consensus. At this stage, there are many issues and problems that arise when attempting to generate an interpretive framework that can build on knowledge across the divide between literature and science, and these problems remain difficult to resolve. In the following section, I will discuss the issue of interdisciplinary compatibility and place cognitive literary criticism in a historical context to make salient the problems that have arisen in recent years.

II

The idea that the sciences and the humanities are two distinct forms of intellectual enquiry, yielding two different kinds of knowledge, has a long history in Western thought. The difference between the two has been identified at various times as that between the empirical and the non-empirical; the quantifiable and the non-quantifiable; fact and value. 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.¹ 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 back to Aristotle's 'exact' and 'inexact' kinds of knowledge.² But the most familiar formulation of the divide comes from the classical physicist and novelist, C. P. Snow (1905–80), who in his 1959 Rede lecture, 'The Two Cultures and the Scientific Revolution', coined the phrase that is now part of everyday language.

Snow's thesis in 'The Two Cultures' was that there ought to be just one culture, and that the 'gulf of mutual incomprehension' between the two should be bridged. Rhetorically, his argument conferred parity on the two cultures, as different-but-equal realms of knowledge. But in reality, Snow placed them in a hierarchy. Scientists, he argued, '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.'³ This statement was not merely an impartial description of the methods of 'hard' science. For Snow, sciences with their methodological rigour and empirical and conceptual precision set the standard to which the non-scientific, 'soft' disciplines should aspire.

The following section reveals his impatience about the state of literary studies:

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?* 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.⁴

As this rebuke makes clear, Snow's surface argument may have been about the gulf of mutual incomprehension, but his point was not so much that there should be a consilience of knowledge as that the humanists should learn from the scientists. Thus, Snow presents the two cultures not so much as different-but-equal realms of knowledge but as disciplines ranked by intellectual worth.

The hierarchization of disciplines that Snow advocated reflected the reigning logical positivist orthodoxy of the day. In this intellectual climate, the logically rigorous and conceptually exact scientific method presented the accepted standard for all intellectual investigation. And within this frame of empiricism, theoretical physics prevailed as the most authoritative discipline, setting the example for all intellectual enquiry, including, as Snow asserted, enquiry in the humanities. During the middle of the last century, many disciplines, including traditionally non-scientific subjects, aspired to such positivist models of knowledge: in Psychology, behaviourism took centre stage focusing exclusively on what was directly observable; Linguistics remodeled itself on natural science; and in English, there was the rise of New Criticism, which scrupulously excluded non-verifiable questions such as intention, affect and meaning from interpretation.⁵

Much has changed and much has not changed since Snow's lecture 50-odd years ago. What has not changed is the ascendancy of science. The scientization of culture has accelerated to the point that, today,

'Have you read a work of Shakespeare's?' would be met with indifference among a large number of scientists, while most humanists have overcome our neolithic ignorance thanks to the growth and the high standard of the popular science publishing market. We now live in a global science- and technology-based environment where the idea that literary intellectuals can be put on a par with scientists has been dispelled. The asymmetry between the two cultures has intensified: institutional conditions are not comparable and there is a different degree of legitimation in the public eye.

What has changed, however, is the kind of scientific ascendancy that has occurred in the last 50 years. The revolution that was actually taking place in science when Snow presented his argument was not in classical physics but, as outlined earlier, in the new interdisciplinary area of neuroscience, and cognitive neuroscience in particular. From the beginning, cognitive studies was not as narrow in methodology as classical physics, and the emergence of cognitive neuroscience coincided with a weakening of positivism as the standard of intellectual enquiry. Focusing exclusively on the directly observable has been found 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, areas of enquiry have become broader than those considered legitimate in the positivist tradition.

This development is due in some part to the fact that the scientific study of mind and brain must take up topics that previously were considered to be within the realm of the humanities: consciousness, experience and affect. That is to say, though it is not often acknowledged in scientific circles, science has moved in the general direction of what used to be the province of literature. As David Lodge claimed in his landmark study *Consciousness and the Novel*, 'literature is a record of human consciousness, the richest and the most comprehensive we have.'⁶ Likewise 'affect', currently an active area of neuroscientific research, was previously considered a suitable topic only for art and literature and was traditionally bracketed off from scientific enquiry. But by a curious twist, the two cultures, 50-odd years on, find a common focus in consciousness, in particular human emotions and memory, making the two cultures appear less divided and more directed towards common ground. In this sense, much has changed since Snow's argument and much for the better.

And it looks set to continue. One of the striking things about the period in which we live is the degree to which neuroscientific and evolutionary models are offered to explain every aspect of human life. Not only the sciences but law, anthropology, culture, music, literature and art are reconsidered in the light of biological mechanism. Currently cognitive neuroscience is, with stem cells and genomics, one of the best-funded and fastest-growing areas of research. Furthermore, it is a rapidly expanding industry: applications of consciousness studies have created offshoots like psychoneuropharmacology, neuromarketing and neurosecurity, whose growth is prompting a range of ethical and political questions, and the formation of new areas like neuroethics and neuropolitics. Neurophilosophy, neuropsychanalysis and neurophenomenology have invigorated traditional investigations by bringing in new knowledge about the anatomy and function of the brain. In all, cognitivism looks poised to influence every area of study in the first half of this century.

In the context of these developments, what does cognitivism mean for English studies in particular? What are some of the issues specific to interdisciplinary literary criticism? What are the opportunities? And how do cognitive approaches interrelate with existing literary criticism? The next section will reflect on the relevance and place of cognitive theories to English studies and discuss the main dilemma that cognitive literary criticism faces.

III

The proper study of English extends over many disciplinary boundaries. Philosophy, sociology, linguistics, anthropology, aesthetics and history (including history of science) have all been foundational to literature research. Combined with the inherently interdisciplinary field of cognitive neuroscience, cognitive literary criticism cannot but be exceptionally broad. There is no single cognitive method of literary criticism or even a unified school. But disparate though they are, the various subfields within cognitive literary criticism have in common the attempt to bring to bear upon the study of literature the wide range of discoveries in cognitive science and an optimistic belief in this process.

What these subfields also have in common, however, is not related to science itself but is germane to the field of English. And that is a

reaction against structuralist and poststructuralist thought of the twentieth century, in particular that which does not credit nature with any validity in interpretation of literature and of culture. This reactive spirit of cognitive literary criticism was captured in one of the earliest extended explorations of the field, the 2002 special issue of *Poetics Today*, entitled *Literature and the Cognitive Revolution*. In their introduction, Alan Richardson and Francis F. Steen wrote:

A spreading dissatisfaction with the more bleakly relativistic and anti-humanist strands of poststructuralism has given a new urgency to the groundbreaking efforts of these and other literary critics to forge a 'new interdisciplinarity'... Contemporary theories of literature and culture, in our view, have made remarkable progress in demystifying traditional humanist and religious concepts of supposedly timeless categories, such as self, identity, and morality, to posit instead historically contingent and culturally constructed identities. Such theories have also successfully demonstrated that the category of the natural has frequently been invoked to play a rhetorical role in providing a conceptual backing for particular forms of domination and oppression. What the discipline has been significantly less successful in addressing, on the other hand, is why and how this rhetoric works. The relative failure on these counts is linked to the intense reluctance of literary and cultural studies to engage with the natural as a category that has its own history... [W]e wish to address the challenge of reconceptualizing the cultural significance of the natural in contemporary terms. Nature can no longer be seen as essentialist, normative, and timeless.⁷

The aim, stated in no uncertain terms, reflects a more widespread reaction against the antifoundationalism of poststructuralist theory in cognitive literary criticism. Will cognitive approaches 'revolutionize the study of literature by overthrowing the rule of poststructuralism'?⁸ As yet, to what degree cognitive literary criticism will overturn, correct or complement poststructuralist thinking remains to be seen. The full extent of what is possible on such a large scale cannot be estimated at this stage, when research is provisional and fragmented.

But if cognitive literary criticism is not providing answers to questions left unresolved by existing literary concepts and methods, what then is the rationale for importing new scientific ones? Are transfers of cognitive knowledge a mere passing trend, a passive adoption of terms from the dominant intellectual discourse of our day that is biology? Is cognitive literary criticism the implementation of Snow's recommendation that the humanists should learn from the scientists?

At the most basic level, the rationale for consilience between literary studies and cognitive neuroscience can be made on the grounds that empirical discoveries have significance for all intellectual enquiry, including the study of literature. Snow's reprimand about humanists' 'neolithic' ignorance has validity insofar as accurate understanding of our natural world is a precondition for any research. Literary studies is not so exceptional that it can be positioned completely outside the rules of the natural world. And just as one would not develop an argument based on the premise that the Earth is flat, one would not, in the twenty-first century, launch an investigation based upon phrenology or unreconstructed ideas about hysteria. So at a fundamental level, cognitive literary criticism provides a bridge between literary enquiry and scientific research by facilitating the integration of a vast amount of relevant information coming from many different areas of scientific research.

Findings in cognitive neuroscience provide not only new information but open up the possibility of conceiving new questions. Just as neuroscience, as a field, progressed as a result of technical advances such as brain imaging and cell labeling techniques and continuing insights from human lesion studies and comparative animal neurology, so knowledge of biological mechanism permits new directions of enquiry about literary processes. For example, the neurobiology of reading, writing, remembering and forgetting are topics of research that were simply beyond conception before the advent of cognitive neuroscience. While a full picture of a 'literary mind' has yet to be realized, research about the biology of literary processes is charting new territory.⁹ These kinds of knowledge transfer do not erode the foundation of literary studies but affirm it.

But there are transfers and there are transfers. And there is a distinction to be made between absorptions of new empirical facts about how the mind functions and transfers of scientific knowledge to literary studies at the expense of the latter's central premise. A basic issue that arises from bringing the concepts and methods of cognitive neuroscience to literary studies is whether the transfer of scientific knowledge adds anything new to non-verifiable modes of knowledge when, to go back to the origins of the divide between the two cultures, humanistic discourses were founded precisely on the ground that cannot be derived from scientific modes of knowledge. This is a key stumbling block that surfaces, in varying degrees, throughout cognitive literary criticism. And because the subfield that has suffered most from this obstacle is perhaps

evolutionary cognitive criticism (sometimes called ‘evo’ criticism or Darwinian literary criticism), in the following section I will take examples from evo criticism and use them as a springboard for discussing the obstacles that lie in the path of interdisciplinarity.

IV

Evolutionary psychologists are virtually unique in scientific circles in recognizing literature as a serious and legitimate field of knowledge in their search to understand the biological basis of human behaviour and experience. In *The Literary Animal: Evolution and the Nature of Narrative*, Jonathan Gottschall and David Sloan Wilson identify literature as ‘a last frontier in Human evolutionary studies.’¹⁰ Steven Pinker proposes: ‘The throbbing question about fiction from an evolutionary viewpoint is what, if anything, it is for.’¹¹ Likewise, E. O. Wilson writes: ‘if... literary productions can be solidly connected to biological roots, it will be one of the greatest events of intellectual history. *Science and the humanities united!*’¹² Their work represents a step towards consilience of the two cultures.

However, a new interdisciplinarity has yet to materialize. This is in no small part attributable to the method of evolutionary cognitive criticism which simply reduces literature to data. Finding that narratives lack ‘biological utility’ in spite of their ubiquity, evolutionary critics 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. To Pinker, the function of literature from an evolutionary perspective is as follows:

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.¹³

This kind of instrumentalist reduction does very little to illuminate the specific nature of literature and our experience of it, though it certainly helps our understanding of proto-literary transactions made by some

early humans.¹⁴ This is not an argument against reduction. If the process of reduction is a move in the direction of greater objectivity in the sciences, it is also a move towards a more accurate view of the real nature of things in the humanities. But some processes of reduction lead us straight up a dead end, and thinking that adaptive use value in itself elucidates literature is an idea not only incomplete, but possibly misconceived, showing a general confusion about what literature is. Of course, there are various aspects of literature from the grammatical to the ideological among which entertainment and information gathering play a part. But in the face of such a drastic reduction which only wafts over the surface of realist texts, a reassertion of the basic premises of literature seems necessary in order to continue the difficult process of integrating scientific and literary knowledge.

The first premise of a verbal work of art is that it is not analysable and reducible to more basic speech and it only exists as an indivisible whole whose meanings are symbolic. An unusual level of literal-mindedness that evolutionary criticism can be prone to, in the enthusiasm to search for generalities, only reduces literature to a few simplistic clichés. The second premise is the phenomenal nature of the reading process and the instability of any given piece of text. The nature of literature cannot simply be extracted by treating it as stable data. As Stanley Fish argued, a text is not just a material object but also a temporal process.¹⁵ Treating literature as stable data cannot account for the vastly different and at times incompatible interpretations a single text often yields. The third premise is that literature cannot be accounted for by instrumental value alone. If adaptive and functional value remain the only tools for acquiring meaning, biology-led ideas of what literature is can have little to say about literature that has no discernible adaptive value – for example, modernism, the favourite straw target of scientists from Snow to Pinker. The fourth premise is that literature is not synonymous with entertainment. If literature is categorized as entertainment, within that interpretive model there is no room to make qualitative distinctions between, say, a Mills and Boon and a *Mrs Dalloway*. Finally, and most importantly, there is the question of the relationship between literature and ideology, which is overlooked when the meaning of literature is extracted according to the criterion of use value applied similarly across all humans. These legitimate questions and many others need to be addressed to reach a level of understanding where consilience is not merely the scientific reduction of the literary. And though I have

discussed these issues with specific reference to evo criticism, they have general relevance across the field.

V

If the problems facing cognitive literary criticism are placed on a gradient, perhaps the scientific reduction of the literary is at the lower, easier end. Scaling higher up the incline is the mainstream scientific response to cognitive literary criticism, which is so minimal that it is virtually non-existent. For example at the 2013 Annual Meeting of the Society of Neuroscience in San Diego, where more than 30,000 scientists from nearly 80 countries congregated, not a single paper out of 16,000 presentations discussed literature. Memory, emotion, perception and cognition were key strands, yet literature and philosophy remained outside the realm of neuroscientific enquiry. To scholars of literature and philosophy, the almost total exclusion of literary and philosophical studies from mainstream cognitive neuroscience is baffling. After all, does not literature provide us with an unbroken history of representations of the human mind in its most subtle and complex states? Does not philosophy provide us with the most advanced models of human consciousness?

To begin to address these questions, one could do worse than to identify what are the main barriers from the scientific point of view to integrating the vast amount of relevant information in the humanities into scientific research. Were one to identify a single word to sum up these barriers, it might be *practical*. The majority of cognitive neuroscientists are unable (or unwilling) to find ways to incorporate non-verifiable modes of knowledge about consciousness into materialist scientific epistemology, not because they are philistines, as F. R. Leavis once averred, but because the kinds of knowledge that humanists accumulate are not so much problematic as untestable.¹⁶ The fundamental method of enquiry in cognitive neuroscience is the experiment. To conduct experiments, knowledge about consciousness, however insightful, needs to be practically applicable to the design of experiments. So we encounter the classic problem of how scientists might process what they regard as speculative, evidence-free observations (which is what literature amounts to within the frame of scientific experiment), when their methodology is confined to the strict parameters of testability and falsifiability.¹⁷ To a scientist, any insights literature might provide are mere 'pre-experimental speculation'

and necessarily so. The lack of practical ways in which literary knowledge can be incorporated into science is an obstacle higher up the gradient of problems affecting cognitive literary criticism than the scientific reduction of the literary.

The sociology and history of science have made clear that scientific facts are not disconnected from the culture from which they emerge. Patricia Churchland has argued:

For neuroscientists, a sense of how to get a grip on the big questions and of the appropriate overarching framework with which to pursue hands-on research is essential – essential, that is if neuroscientists are not to lose themselves, sinking blissfully into the sweet, teeming minutiae, or inching with manful dedication down a dead-end warren.¹⁸

But the increasing marginalization of humanist enquiry from dominant discourses is making it harder for the scientific community to draw from the rich field of non-verifiable knowledge in which they can situate their specific questions. As custodians of literary knowledge, humanists bear some responsibility for making accessible the rich observations of human mind to scientific research. The translation of literary terms into cognitive terms and vice versa, which is one of the primary activities of cognitive literary criticism, render a valuable service to the course of consilience by opening up the possibility of the two cultures talking to one another.

VI

If the aim of cognitive literary criticism is to create a new interdisciplinarity, the exchange so far is characterized less by recalibration of the relations between the two cultures than the transfer of knowledge from the sciences to literary studies. What is to be done to redress this situation? The field is presented with a dilemma. On the one hand, attempts to integrate scientific and literary knowledge are fraught with scientific reductions of the literary; on the other, attempts to preserve literary knowledge as a different-but-equal field of enquiry risks the complete exclusion from the hegemonic discourse and a further marginalization. Facing such a dilemma, literary studies, however conceived, needs to be more explicit about defending the boundaries of non-verifiable knowledge. Literary studies should resist being cast as a subdiscipline of cognitive neuroscience.

As Leavis asserted in his response to Snow, literature is separate from other objects of scientific enquiry and has its own laws that go beyond positivist calculations. However, he left literary knowledge undefined on the assumption that there is general agreement that literature constitutes a 'third realm' which reconciles the objective with the subjective. The lack of a systematic defence of literary knowledge was a damaging omission, not least because it reinforced the ground inherited from the enlightenment whereby literary or, more broadly speaking, aesthetic knowledge was rendered indefinable as a result of science staking a special claim on objective knowledge. And without further elucidation, the prevalent supposition that literary knowledge is all about the subjective, the affective and the impressionistic gets further entrenched. This is not to privilege the role of objective form in literature; but relegating literature to speculative fancy, intuitive imagination and an overflow of powerful feeling is no less a dubious act than trying to erase affect and experience from literary studies altogether, as was the case for certain strands of literary theory.

Literature is not so much the Other of scientific rationalism, the scooping up of mysterious and indefinable experiences left to one side by scientific discourses; it is, as Leavis implied, a challenge to the dualism which produced such a divide in the first place. The 'third realm', of which Leavis spoke, has always been the foundation of literature, providing us with the kind of general knowledge that has not been purified of all *singularity*, to use Derek Attridge's term. As Suzanne Langer stated in her brilliant but 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.'¹⁹

Seen in this light, the dilemma of cognitive literary criticism is not inconsistent with the dilemma that faces literary studies in general. The aim of literature, after all, is to capture the truth of reality – the 'granite' of solid fact with the 'rainbow' of sensations, in the words of Virginia Woolf.²⁰ The reconciliation of an objective scientific viewpoint with the personal realm of private feeling is not an ideal confined to cognitive literary criticism. Thus, humanists need to make every attempt to connect with scientific research across all levels, not only because scientific advances provide an opportunity to re-examine earlier models of the mind represented in literature and to clarify – and even possibly extend – existing literary knowledge. Moreover, the attempt is necessary to remain faithful to the aims of literature itself, which are to capture the whole of human experience, subjective feeling as well as objective form.

The balance of faculties required for such a monumental undertaking will be struck, if at all, only as a result of dialogue, of which false starts, mutual misunderstanding, criticism and modification must necessarily be part. And at this stage of interdisciplinarity, what seems most pressing is a continual clarification and reassertion of what literary knowledge is in relation to rationalist, empiricist knowledge.

Notes

- 1 See Thomas Henry Huxley, 'Science and Culture' in *Science and Education*, London, Macmillan, 1893, pp. 134–59, and Matthew Arnold, 'Literature and Science' in Robert H. Super (ed.) *Philistinism in England and America*, Ann Arbor, University of Michigan, 1974, pp. 53–73, p. 70. T. S. Eliot famously argued that thinking and feeling became separated around the seventeenth century, in 'The Metaphysical Poets', *Times Literary Supplement*, 20 October 1921.
- 2 See Patricia Waugh, 'Revising the Two Cultures Debate: Science, Literature, and Value', in David Fuller and Patricia Waugh (eds), *The Arts and Sciences of Criticism*, Oxford, Oxford University Press, 1999, pp. 33–59, p. 34.
- 3 C. P. Snow, *The Two Cultures*, Cambridge, Cambridge University Press, 1993, p. 11.
- 4 Snow, *Two Cultures*, pp. 14–5.
- 5 New Critics, like John Crowe Ransom, Allen Tate and Cleanth Brooks, excluded both the author and the reader from interpretation, focusing on the internal organization – harmony, paradox, ambiguity and so on – of a verbal work of art.
- 6 David Lodge, *Consciousness and the Novel: Collected Essays*, Cambridge, MA, Harvard University Press, 2000, p. 10.
- 7 Alan Richardson and Francis F. Steen, 'Literature and the Cognitive Revolution: An Introduction', *Poetics Today*, 23:1, Spring 2002, pp. 1–8, pp. 2–3.
- 8 Tony E. Jackson, 'Issues and Problems in the Blending of Cognitive Science, Evolutionary Psychology, and Literary Study', *Poetics Today*, 23:1, Spring 2002, pp. 161–79, p. 167.
- 9 See for example, Gordon M. Shepherd and Kirsten Shepherd-Barr, 'Madeleines and Neuromodernism: Reassessing Mechanisms of Autobiographical Memory in Proust', *Auto/Biographical Studies* 13:1, Spring 1998, pp. 39–60; Russell Epstein, 'Consciousness, Art and the Brain: Lessons from Marcel Proust', *Consciousness and Cognition*, 13, 2004, pp. 213–40 and Melba Cuddy-Keane, 'Narration, Navigation and Non-Conscious Thought: Neuroscientific and Literary Approaches to the Thinking Body', *University of Toronto Quarterly*, 79:2, Spring 2010, pp. 680–701. Mark Turner, *The Literary Mind: the Origins of Thought and Language*, Oxford, Oxford University Press, 1996, is a landmark study in the field of cognitive literary criticism.

- 10 Jonathan Gottschall and David Sloan Wilson (eds), *The Literary Animal: Evolution and the Nature of Narrative*, Evanston, IL, Northwestern University Press, 2005, p. xvii.
- 11 Steven Pinker, 'Toward a Consilient Study of Literature', *Philosophy and Literature*, 31:1, April 2007, pp. 161–77, p. 169.
- 12 E. O. Wilson, 'Foreword from the Scientific Side', in Jonathan Gottschall and David Sloan Wilson (eds) *The Literary Animal*, Evanston, IL, Northwestern University Press, 2005, pp. vii–xi, p.vii.
- 13 Steven Pinker, *How the Mind Works*, New York, Norton, 1997, p. 539.
- 14 See Paul Hernadi, 'Why Is Literature: A Coevolutionary Perspective on Imaginative Worldmaking', *Poetics Today*, 23:1, Spring 2002, pp. 21–42.
- 15 Stanley Fish, *Is There a Text in This Class?: The Authority of Interpretive Communities*, Cambridge MA, Harvard University Press, 1980.
- 16 F. R. Leavis, 'Two Cultures? The Significance of Lord Snow' in *Nor Shall My Sword: Discourses on Pluralism, Compassion and Social Hope*, London, Chatto and Windus, 1972, pp. 41–74, pp. 42–3.
- 17 See Peter B. Medawar, *Induction and Intuition in Scientific Thought*, London, Methuen, 1969, pp. 14–21.
- 18 Patricia Churchland, *Neurophilosophy*, Cambridge, MA, MIT Press, 1989, p. 3.
- 19 Suzanne K. Langer, *Feeling and Form*, London, Routledge, 1953, p. 374.
- 20 In a 1927 essay, Virginia Woolf described 'truth as something of granite-like solidity' and 'personality as something of rainbow-like intangibility'; for Woolf the aim of biography was 'to weld these two into one seamless whole', to achieve the 'perpetual marriage of granite and rainbow'. Virginia Woolf, 'The New Biography', in David Bradshaw (ed.), *Selected Essays*, Oxford, Oxford University Press, 2008, pp. 95–100, p. 93, p. 98.