This essay identifies a new subgenre of narrative fiction, “neuronarratives,” defined as works of fiction that incorporate advances in cognitive studies as a prominent theme, that compel novelists to struggle with consciousness as “content” and to reassess the value of narrative fiction.

Consciousness as Content: Neuronarratives and the Redemption of Fiction

GARY JOHNSON

The opening chapter of David Lodge’s 2001 novel, Thinks . . ., presents a self-conscious exercise in stream-of-consciousness narration. Ralph Messenger, Lodge’s co-protagonist, is a cognitive scientist endeavouring to understand and describe the workings of the human mind. As the work begins, we encounter Ralph as he dictates his own thoughts into a tape recorder—a quaintly retrograde piece of equipment given his position as the head of a fictional British university’s Centre for Cognitive Science. One of the aims of the exercise, he reveals, is “to try to describe the structure of, or rather to produce a specimen, that is to say raw data, on the basis of which one might infer the structure of . . . thought” (1). Ralph is acutely aware of the “artificiality” of his experiment, recognizing the fact that his consciousness of the exercise will inevitably change the nature of his thoughts and his thought process. He wants “random” thoughts, but his project necessarily imposes some kind of order on those thoughts; it is nearly impossible, it seems, to be aware of one’s thinking without allowing that...
awareness to alter the process itself. As he admits later in the novel, “The brain does a lot of ordering and revising before the words come out of your mouth” (172).

Ralph’s experiment is artificial on a second level as well. Although the reader ostensibly takes the place that would be occupied by a specific narratee, Lodge is obliged to construct and reveal Ralph’s thoughts in a way that makes them accessible to us. Thus, Ralph’s opening monologue provides more information than would be necessary if no audience—other than Ralph himself—were anticipated. The first line of Lodge’s novel, in fact, introduces this somewhat artificial manner of narration: “One, two, three, testing, testing, recorder working, OK . . .” (1). Shortly thereafter, Ralph reveals the aim of his exercise, an aim that will prove crucial to the unfolding of the novel’s main plot: “Where was I? But that’s the point, I’m not anywhere, I haven’t made a decision to think about anything specific, the object of the exercise being simply to record the random thoughts, if anything can be random, the random thoughts passing through a man’s head [. . .] at a randomly chosen time and place” (1). Such information appears not “naturally,” but rather as the result of a conscious decision on Lodge’s part to orient his reader.

The subject matter of this novel—the structure of human thought—necessitates this type of orientation. Traditional stream-of-consciousness narratives, to which parts of Lodge’s Thinks . . . bear some resemblance, endeavour “simply” to represent natural human thought. At their most basic level, these narratives aspire to mimesis, the realistic depiction of an individual’s consciousness. Thought, therefore, is crucial to the narrative, and the human psyche is certainly one area of the novelists’ interest, but cognitive science was not yet a central concern, since cognitive science itself did not yet exist. Lodge’s work, in contrast, approaches consciousness from a scientific angle, one made possible by the scientific advances of the last several decades, and one that obliges him not only to represent thought, but also, as Ralph puts it, to describe its structure. As a result, Lodge must both represent and explain.

The problem of explaining human consciousness, or at least of explaining what scientists know of human consciousness, within the framework of a literary text presents the novelist with some interesting and revealing narrative challenges. Chief among these, I believe, is the issue of how to convey to the lay reader scientific information that he or she likely lacks, but that is essential to the narrative itself. And Lodge is not alone in facing this dilemma; indeed, in 1995, Richard Powers published his own neuronarrative (the term I will use to describe a work of fiction that has cognitive science as a, or the, main theme), entitled Galatea 2.2, a work that poses narrative challenges similar to those we find in Thinks . . . While my focus in this essay will be on the works of Lodge and Powers, a growing list of narrative works, including Powers’s recent The Echo Maker, Ian McEwan’s Saturday, Jonathan Franzen’s The Corrections, and A.S. Byatt’s A Whistling Woman, follows suit in foregrounding the emerging fields
of neuroscience and neurobiology. These works, I propose, constitute an emerging subgenre of literature that can provide us with a glimpse of how authors are responding to scientific advances concerning the nature of human consciousness.

In *Thinks...*, Lodge has provided Ralph—an intellectually stereotypical scientist—with a foil/love interest from the humanities, a novelist named Helen who has accepted a temporary teaching position at Ralph’s university. Early in their relationship, as the writer comes to make sense of what it is that a cognitive scientist does, Helen surmises somewhat incredulously that “consciousness is apparently the sort of thing cognitive scientists study” and that those scientists “have decided that consciousness is a ‘problem’ which has to be ‘solved’” (61). Helen’s use of scare quotes here is significant; it reveals the fact that, for this humanist, the scientific approach to consciousness is foreign, suspect, and, in a way, threatening. “I’ve always assumed, I suppose,” Helen muses, “that consciousness was the province of the arts, especially literature, and most especially the novel. Consciousness, after all, is what most novels [. . .] are about. [. . .] Consciousness is simply the medium in which one lives, and has a sense of personal identity. The problem is how to *represent* it, especially in different selves from one’s own” (61). Helen’s interaction with Ralph is significant because it enlarges her understanding of the problem of consciousness; the challenge involved in working with consciousness now has an epistemological dimension as well as a mimetic one. Indeed, cognitive science purports to know something about consciousness as an object of study that this particular novelist, who takes consciousness “more simply” as a given component of human life, does not.

The contrasting views of Ralph and Helen regarding the nature of consciousness, and Helen’s sense of bewilderment with the scientific approach that Ralph both advocates and embodies, can help us to understand the challenges faced by contemporary novelists. As Helen indicates, the issue for authors (especially authors of realistic fiction) has always been how to *represent* consciousness, how, in other words, to construct characters that seem true to life in the sense that they could be real people with their own individual consciousnesses. Seen from this angle, consciousness always pertains to characters (or narrators) and, thus, as Helen reveals, one of the primary tasks of an author involves figuring out *how* to narrate or represent that mind. This places the problem of consciousness squarely in the realm of “discourse,” the term that narratologists use for “the expression plane of narrative as opposed to its content plane or story; the ‘how’ of a narrative as opposed to its ‘what’” (Prince 21). This distinction, and the placement of consciousness in it, works particularly well when we think about much of twentieth-century literature; what were the “high modernists” doing if not, among other things, experimenting with modes of representing consciousness?
Helen’s emerging grasp of the nature of cognitive science, however, has profound implications for her understanding of consciousness and how it might be relevant to, and treated by, novelists. If she accepts Ralph’s position, then she must accept the possibility that consciousness is no longer the sole province of the arts and, more profoundly, that consciousness might fit equally well in the “content plane” of narrative, as a “thing” or a “problem” that is separable from individual selves or characters. As scientists learn more about the general human phenomenon of consciousness, novelists find themselves forced to rethink how that phenomenon manifests itself in their individual narratives. Neuronarratives, I submit, allow readers to see the early results of this new way of thinking about consciousness.

I have divided this essay into two sections in order to pursue two primary objectives. The first is to illustrate how two novelists struggle to approach consciousness as “content” and how that struggle manifests itself in the structure of their respective narratives. My second aim is to argue that the encroachment of neuroscience on the field of literature results in a kind of revaluation of narrative fiction on the part of the novelists who produce it. Even as neurologists, psychologists, medical doctors, and others in the scientific community embrace narrative as a legitimate area of inquiry, Lodge and Powers seem to need to convince themselves of the potential value of narrative fiction.

Perhaps because the broad field of what we might call consciousness studies—and, by extension, consciousness as a part of the story world—remains in its infancy, novelists such as Lodge and Powers seem to be struggling with what to do with it and wrestling with what it portends for literature as a field. In Lodge’s *Thinks...* and Powers’s *Galatea 2.2,* this two-fronted struggle produces a plot that turns on the old, and now questionable, “two cultures” split that C.P. Snow described in 1959. In his well-known lectures at Cambridge, Snow argued that a dangerous gulf had come to separate the humanities (especially literature) and the sciences (especially the physical sciences) in the first half of the twentieth century. Snow describes a climate in which writers and scientists “had almost ceased to communicate at all” (2). The scientists, apparently, did not read (literature) and the writers, apparently, did not understand science. “There seems to be no place,” he lamented, “where the cultures meet” (17).

If this was the case in 1959, the intervening half century has brought significant change. Even a cursory survey of recent popular science writing, for example, indicates that scientists do, in fact, read literature and that they are interested in exploring the ways in which literature and the arts more generally can interact with science. Indeed, some of the most popular science writers incorporate some discussion of the humanities in their recent works. Unfortunately, this group of writers, all of whom
work from the perspective of evolutionary psychology, write about the humanities in a way that ultimately trivializes the arts and strikes many—especially those of us in humanities fields—as somewhat one-sided, if not predatory.

Other scientists, however, while perhaps less well-known to the general public, take a more balanced view and have gone even further in bridging the divide between the two cultures. These writers include the likes of Antonio Damasio and Gerald Edelman. And, in a recent development, the neurologist Oliver Sacks—known for his narrative approach to the science of the mind—has accepted a position at Columbia as that school’s first “Columbia artist,” a platform that will allow him to move among, and teach in, a number of different departments, including creative writing (Rich).

Approaching from the other side of the shrinking divide, literary critics have become especially likely to write about science in their works, and even to adopt a scientific frame of reference; this is particularly true of those critics who have an interest in cognitive science. Writing of literary critics who “are now producing critical works that apply cognitive research” to literary analysis, F. Elizabeth Hart points out that such an approach is necessarily “dependent on scientific studies of the brain and mind and so accepts axiomatically some degree of epistemological efficacy in scientific empiricism” (314). In addition to Hart, other such critics include Lisa Zunshine, Mary Crane, Alan Richardson, and N. Katherine Hayles.

Additionally, the sub-discipline of narratology—an offshoot of structuralism, which itself has a scientific bent—has become increasingly interdisciplinary. David Herman, Alan Palmer, and Nancy Easterlin, for example, are all concerned with the relationships among consciousness, cognition, and narrative. Interest in the relationship between science and narrative flows in the other direction as well, a fact illustrated by the existence of the Program in Narrative Medicine at Columbia University. The promotional material for this unique program indicates that “narrative theory and knowledge provide fundamental conceptual frameworks for all […] dimensions of medicine while narrative skills and methods provide means of achieving narratively competent care.”

There is also, I should add, no dearth of literature devoted to exploring the realm of science. There continues to be, of course, a large market of science fiction and fantasy, but even writers outside of these generic confines pursue scientific themes in their works. As Jay Clayton has pointed out, there has been a “veritable explosion” in the last twenty years of “fictional explorations of scientific issues” (808). If we sort through the individual pieces left over from this explosion, we will note some distinctive aspects of those works of literature that focus on neuroscience rather than on one or another of the myriad scientific issues that would make for interesting topics for a work of literature (genetic engineering, global warming, etc.).
One of the most fascinating characteristics of neuronarratives, as I indicated above, is the novelist’s perceived need to inform his or her audience about the current state of neuroscience. To put this in narratological terms, the authors seem compelled to facilitate the readers’ entry into the “authorial audience.” In *Before Reading: Narrative Conventions and the Politics of Interpretation*, Peter Rabinowitz proposes that we recognize three categories for the reader of fictional narratives: the actual audience, which is composed of the individual flesh-and-blood readers; the narrative audience, which Rabinowitz describes as a “role” in which the reader is willing to enter the world of the narrative on its own terms (95–96); and the authorial audience, or the hypothetical audience for whom authors have designed their works (21). In many cases, that authorial audience will be more sophisticated and more educated than the narrative audience, as this former group is expected to be capable of joining “a particular social/interpretive community,” one whose membership includes the author him- or herself (22). This audience is a construct that is capable of “getting” the author’s intended meaning, even as members of the actual and/or narrative audience might not. Because consciousness is so new as “content”—rather than form—we witness some interesting moves on the part of novelists, moves that are intended, I believe, to allow readers entry into the authorial audience.

In the case of neuronarratives, one way of doing this is to revisit and, in a sense, to reopen the two-culture divide within the fictional world of the narrative, and then to rehearse the closing of that divide. Toward this end, the fortuitous choice of a setting can facilitate the novelist’s task, allowing him or her to convey the requisite scientific information in a way that does not compromise the aesthetic integrity of the novel. In short, by setting their novels in a university, both Lodge and Powers can plausibly depict both the separation and the potential for the convergence of the two cultures and also explore the ramifications of that convergence. Indeed, the university has long been recognized as a logical place for this type of convergence. This setting, therefore, allows for—indeed, almost necessitates—the presence of characters from different disciplines and with different ideas about the human condition.

As anyone familiar with a university and its culture of clearly defined and demarcated programs can attest, however, simple proximity does not guarantee convergence. Lodge, who is intimately familiar with the culture of universities, plays with this fact when he has the Dean of Humanities of his fictional university explain to Helen, who is also the narrator at this point in the novel, the layout of the campus:

They started building at each end of the site, Arts at one end and Sciences at the other, confident that they would soon fill up the intervening acres. But costs rose, the money supply
dwindled, and in the nineteen-eighties the Government realized that it would be much cheaper to convert all the polytechnics into universities with a stroke of the pen than to enlarge the existing ones. [. . . ] “We’re an architectural allegory of the Two Cultures, I’m afraid,” Jasper Richmond said, with a wry smile, as we looked out over the campus from his tenth-floor office in the Humanities Tower towards the distant Science buildings. (11)

In order to overcome this fact of academic life, Lodge and Powers have employed distinct methods of bringing together characters who represent the “two cultures.” In Thinks . . . , the catalyst for actual convergence is a trusted staple of narrative fiction—physical/romantic attraction. Ralph first encounters Helen at a dinner party hosted by a university dean. Ralph is, of course, something of a rascal, and when he spies Helen walking around campus the following day he begins to plan for ways to “bump into her,” apparently serendipitously. Such a meeting does occur several weeks into the semester at the cafeteria of the University’s “Staff House.” Over lunch, Ralph and Helen engage in a conversation that is weighted heavily toward Ralph’s work and interests, which happen to be the intellectual areas in which the reader of Lodge’s novel is most likely deficient. As readers, therefore, we tend to share Helen’s perspective as well as her need for some remedial work in cognitive science.

Like Helen, the reader is simultaneously intrigued by Ralph and repelled by his stereotypically cold, analytical, scientific way of looking at things. In just a brief conversation, Ralph is able to dismiss the religiously inclined as irrational and unintelligent (33), dismiss the notion of a permanent self, spirit, or soul (35), and even call into question the reality of “our subjective experiences of the world” (36). All of this fits in with Ralph’s guiding simile that the “mind is like a computer” (37), and that it is theoretically possible to construct artificially intelligent robots “embodied in some kind of organic material” (38). As a novelist and a committed humanist, Helen represents the alternative to Ralph’s radical scientism, and, not surprisingly, she finds much of his talk interesting but disconcerting.

The plot device that keeps this encounter between Helen and Ralph from being the full extent of their relationship is Ralph’s desire for Helen. The reader is aware almost from the beginning of the novel of an attraction between these two figures, one that is initially resisted by Helen because Ralph is married and because her own husband has recently and unexpectedly died. Ralph, on the other hand, does not allow his marital status to impede his pursuit of Helen, and he uses the prospect of a tour of the Centre for Cognitive Science as a way of enticing her to spend some time with him. His plan works, and in the novel’s third chapter—the first one to be narrated by a third-person narrator (the first consists of Ralph’s dictated thoughts, and the second
consists of Helen’s personal journal entries)—Helen and Ralph find themselves together in the Centre.

The Centre is a modern, technologically advanced building whose distinguishing feature is a large mural that encircles an atrium on the second-floor gallery. As Lodge’s third-person narrator describes it, the mural comprises “a series of overlapping scenes, figures, vignettes, painted in a bold, expressionistic style,” which, together, give the effect of “a kind of cyclorama” whose colours and figures stand in stark contrast to the “hi-tech austerity of the rest of the building” (49). The “Karinthy Mural” (named for the fictional amateur painter who conceived and executed the project while on a sabbatical year at the Centre) pictorially represents “various well-known theories and thought experiments in cognitive science, evolutionary psychology and the philosophy of mind” (49). The episode of ekphrasis that follows the description of the mural allows Lodge to provide both Helen and the reader with a brief, but essential, history of cognitive science. Indeed, as Lodge is surely aware, the likely reader of his novel is probably more like the scientifically benighted Helen than like Ralph, the scientist. Ralph’s interpretation of the mural for Helen doubles as Lodge’s way of “showing”—or perhaps it is an interesting combination of showing and telling—this information to the reader. Rather than breaking into his plot to provide the reader with this background information, Lodge has found a more “artful” means of conveying the same material.

A similar centre plays a similar narrative role in Powers’s Galatea 2.2. In this case, the first person narrator, who shares the author’s name, arrives, at the outset of the novel, at an unnamed Midwestern university’s “enormous new Center for the Study of Advanced Sciences” (4). “My official title was Visitor,” Powers informs us. “Unofficially, I was the token humanist” (4). While the Centre in Lodge’s narrative serves as a means of facilitating “convergence” between Ralph and Helen, the Center in Powers’s work functions more immediately as the actual manifestation of convergence. In his role as Visitor, Richard is given an office in the expansive Center, a facility so large that one could hardly expect the “embarrassment of talking to the same colleague twice” (6). Our narrator initially welcomes such isolation, as he has recently emerged from a painful romantic separation. As he settles into his new high-tech environment, Richard is drawn into the World Wide Web, as a lurker, and he finds his presence there to be even more acutely isolating and dispiriting: “But the longer I lurked, the sadder the holiday became. […] The web was a neighborhood more efficiently lonely than the one it replaced. Its solitude was bigger and faster” (9).

Just as a work of art (the mural) serves as the lure to get Helen into the Centre for Cognitive Science and into a relationship with Ralph in Thinks . . ., so too does a
quintessentially humanist artifact draw Richard out of his dispiriting solitude and into a relationship (albeit not a romantic one) with a scientist in *Galatea 2.2*. For Richard, the artistic seduction takes the form of the middle movement of Mozart’s Clarinet Concerto, a piece that seeps into his consciousness one night as he works in what he assumes is an otherwise empty Center. Richard declares that, in other circumstances, “any sound would have driven me to an emergency exit” (12), but he is drawn to the music and ultimately traces it to a hallway and an office of which he was previously unaware. Inside the office, he finds Philip Lentz, a somewhat surly scientist studying neural networks and connectionism, who is using the Mozart piece as a part of one of his experiments. This human convergence leads to Richard’s association with a group of scientists, most of whom are working in related fields of cognitive science and neuroscience. And it is from this connection that the main plot takes shape: a kind of ruse perpetrated by the scientists on the naïve novelist.

Ostensibly, there is a bet among the group of scientists concerning whether or not they could program a computer to pass a masters-level exam in English Literature. Using theories of connectionism and neural nets, Lentz and Richard endeavour to train the machine by reading it works of literature and “teaching” it the power of paraphrase. The novelist believes the bet to be legitimate, and so he earnestly engages himself in the task. At the end of the novel, however, Powers’s protagonist and the reader learn that the bet was not about “teaching a machine to read,” but rather about “teaching a human to tell” (317–18). The scientists’ real interest, in other words, was to see if they could dupe the naïve writer into believing that a bogus experiment was legitimate; the bet was a joke and Richard was its butt. Still, though, the project—even if it was never completely serious—provides Powers with an excuse to meditate on cognitive science, neural nets, and connectionism, and to convey a surprising amount of material to his reader in what I consider to be an aesthetically satisfying manner.

One of the many interesting similarities between *Thinks . . .* and *Galatea 2.2* lies in the trajectory of their plots. Both begin with an unexpected, and in many ways exciting, convergence between representatives of the two cultures, both use this convergence as an opportunity for intellectual and emotional growth, and both end with the two “cultures” once again diverging. In Lodge’s novel, Helen and Ralph end their relationship, and Helen leaves the university to return full-time to her writing; in *Galatea 2.2*, Richard, put off by the duplicity of his supposed colleagues, leaves the Center and, like Helen, resumes his writing.

Although there are clearly multiple reasons for the eventual dissolution of the relationships between the novelists and the scientists, I believe that the conclusions represent the novelists’ attempts to work through the value of the kinds of narratives
they want to create, and perhaps ultimately to come to terms with the kinds of narratives they feel have value. In the case of both Lodge and Powers, I sense that their personal experience with the developments in neuroscience have compelled them to re-evaluate and revalue the phenomenon of the fictional narrative.

Although Lodge represents the convergence and the eventual (re)divergence of the two cultures in the plot of *Thinks . . .*, the novel as a whole is a product of the author’s own attempt at an alliance with scientists studying cognition. While we can only hypothesize about whether and how two fictional characters might have benefited intellectually from their temporary fictional relationship, we know definitively that the text itself owes its very existence to convergence of the novel as a genre and the knowledge emerging from the discipline of cognitive science. Lodge’s “Acknowledgments” section, which concludes but is not part of the narrative, allows us to see the novel as, at least partly, a product of a relationship the author had cultivated with a scientist. “My biggest single debt,” Lodge attests,

is to Aaron Sloman, Professor of Artificial Intelligence and Cognitive Science in the School of Computer Science at the University of Birmingham. Aaron patiently answered my elementary questions, gave me copies of his publications, introduced me to his colleagues, welcomed me to his departmental seminars, escorted me to an eye-opening international conference on consciousness…and generally acted as an indispensable guide to consciousness studies in general and artificial intelligence in particular. (342)

Even though the story Lodge tells does not offer or represent a good model for a successful alliance between the two cultures, the novel is, perhaps ironically, the fruit of just such an alliance.

We can make the same observation regarding *Galatea 2.2*, a novel that often seems, even more so than *Thinks . . .*, an excuse for the author to show us all that he has learned about cognitive science, artificial intelligence, and connectionism. In this case, the protagonist is an only slightly fictionalized version of the author who shares his name. Unlike Helen, Richard embraces cognitive science and makes a concerted effort to learn about the field. When he is first teamed with the scientist Philip Lentz as part of the wager on artificial intelligence, Richard, like Lodge, begins reading scientific articles in an effort to understand the task he has undertaken. The fictionalized novelist’s convergence with science, he realizes, is literally a mind-altering experience:

I read the homework Lentz assigned me. An article on hippocampal association that Diana Hartrick co-authored grabbed my imagination. Every sentence, every word I’d ever stored
had changed the physical structure of my brain. Even reading this article deformed the cell map of the mind the piece described, the map that took the piece in.

At bottom, at synapse level, I was far more fluid than I’d ever suspected. As fluid as the sum of things that had happened to me, all things retained and apparently lost. Every input to my associative sieve changed the way I sieved the next input. (56)

The reader senses Richard’s excitement about the transformative power of the information he is processing as he familiarizes himself with the current state of cognitive science. Having been introduced to “connectionism,” and finding in it a potential means for explaining cognition, Richard is entranced with his new discoveries. “I now couldn’t escape the word,” he confesses. “I read about it throughout the worldwide electronic notefiles and in the stack of diversionary texts that replaced my nightly dose of forgotten fiction. Neural simulation’s scent of the unprecedented diffused everywhere. I followed along, moving my lips like a child, while Lentz declared in print that we had shot the first rapids of inanimate thought” (29). Clearly infatuated with this new field, Richard abandons his literary projects and seems to be a cultural convert, jumping from the humanities to the sciences.

Yet, even if Richard has replaced the novels on his night table with scientific monographs, the novel we are reading testifies to the interdisciplinary nature of his foray into cognitive science. With every new bit of information, the brain, as our protagonist has learned, is altered, but it is not completely altered, and this is made clear as the novel progresses. Indeed, Richard consistently, and perhaps inevitably, processes the scientific input through his own neural network, one that has been shaped by his humanistic background. When, for example, Richard finds himself out of his depths with the hard science and complex mathematics that underpin connectionism, he reassures himself by redescribing the problem in literary terms: “I could at least follow the pictures, if not the argument’s text. I visualized the spin glasses, complex similes for mental topology. I walked through the landscape of imagination, where every valley formed an associative memory. I could follow the story of the math, if not the substance” (74). Given his “real” vocation, it should not be surprising that Richard resorts to a narrative metaphor (understanding the “story of the math”), but it is no less instructive for its predictability.

Much of Richard’s scientific education, in fact, is processed and related in a similarly interdisciplinary way. He is aided in trying to understand how the computer he is helping to program makes certain associations, for example, by again reformulating the neurobiological questions at play in language and in concepts that are more familiar to him, and probably to the reader versed in post-structuralist literary theory as well: “Meaning was not a pitch but an interval. It sprang from the depth of disjunction,
the distance between one circuit’s center and the edge of another. Representation caught the sign napping, with its semantic pants down. Sense lay in metaphor’s embarrassment at having two turns on the same thing. For the first time, I understood Emerson’s saying about the use of life being to learn metonymy... Life was metonymy, or at least stood for it” (154–55). One senses that this quotation and the previous one come close to expressing Powers’s own feelings regarding his encounter with cognitive science; even if he cannot quite pin down the “substance” of the discipline, he can allude to its meaning and tell the story of its broader significance using the tools (language and figures of speech) with which he is both familiar and comfortable.

Lodge’s and Powers’s neuronarratives serve two important epistemological functions: they implicitly validate the notion that science produces a certain kind of useful and true knowledge and they artfully disseminate that knowledge to the lay public through the narrative devices I have noted above. On the literal level, both of the novelist-characters leave their stories a little wiser than they began them, and they both have material for new works of fiction. In this sense, these characters apparently reflect the experiences that their authors have had in their respective encounters with cognitive studies. We should not, however, underestimate the importance of the dissolution of the relationships between humanists and scientists that occurs in both *Thinks...* and *Galatea 2.2*. This aspect of the plots reveals the paradoxical nature of the problem of epistemology for the humanists.

The interdisciplinary exchange of intellectual property, for lack of a better term, is central to both of these neuronarratives. On an epistemological level, the humanist characters—and through them, many of the readers—receive a sort of remedial crash course in cognitive science that informs the novels. These characters must be brought up-to-date concerning the knowledge that is emerging from this field so that they can understand it and determine how it might or might not affect their own disciplines and ways of thinking.

In *Thinks...* the remediation is pared down to a bare minimum, as Lodge provides us only with the basic issues at play in “the current scientific and philosophical debate about consciousness” (341), and with a rudimentary working vocabulary, one that includes increasingly common words such as “neurons” and “synapses.” Most of Helen’s “instruction” comes directly from Ralph and his colleagues as she speaks with them, or indirectly, as she inhabits, albeit from the margins, their intellectual space. Like the reader, however, Helen learns enough to be conversant with the scientists, but not enough to be completely at ease in this new discipline. Both Helen and the reader realize how basic their understanding of cognitive science is when Helen relates the titles (“A phase-state approach to quantum neurodynamics and its relation to the space-time domain of neural coding mechanisms” [313], for example) of some of the
papers presented at a conference organized by Ralph. Still, the fact that Helen is forced by the convergence of the two cultures to see the issue of consciousness from a different disciplinary perspective is a salutary intellectual development.

In the two neuronarratives under discussion here, however, the interdisciplinary epistemology tends to flow in one direction: the humanists must learn what the scientists already know, or are in the process of learning. The scientists, on the other hand, are generally skeptical that the humanities have any real knowledge that can benefit them. The dismissive and ironic tone of Lentz’s challenge to Richard at the beginning of *Galatea 2.2* captures the general attitude of the scientists: “Tell us,” he demands. “What passes for knowledge in your so-called discipline? What does a student of English have to do to demonstrate acceptable reading comprehension?” (43). Lentz’s questions strike a sensitive nerve with Richard and with anyone committed to the humanities; indeed, articulating the “knowledge” that one gains through the study of literature, for example, always poses difficulties for the humanist, particularly when the epistemological standard is set by the hard sciences. Ralph Messenger shares Lentz’s attitude toward literature. In one of their first discussions, Helen tries to persuade Ralph that one’s reason for reading novels—“to find out what goes on in other people’s heads” (42)—might mirror the enterprise of cognitive science. Ralph replies, however, that, “all they really find out is what has gone on in the writer’s head. It’s not real knowledge” (42).

We see in both of the novels the establishment, or at least the representation, of a classic binary opposition between scientific knowledge on the one hand and that ineffable something that the humanities purports to offer on the other. For lack of a better term, we might call that something “understanding,” in a hermeneutic rather than an epistemological sense. And at the end of each neuronarrative, the fictionalized novelists seem to recognize the apparent marginality and relative impotence of such understanding vis-à-vis the concrete knowledge produced through scientific investigation.

Helen, for her part, delivers the keynote address at a conference organized by Ralph, and she ends by pointing out that there is “a tragic dimension to consciousness” that has not been discussed at the conference and which literature can help us to understand (319–20). This claim, however, seems susceptible to Ralph’s previous retort that this is not “real knowledge,” and Ralph admits to Helen that he does not “agree with a word” of what she has said. And even Helen concedes that it is unlikely that she has “converted any scientists” with a speech that is essentially a close reading Andrew Marvell’s “The Garden” (321).

In *Galatea 2.2*, Richard is forced to acknowledge that his claim on Helen—the computer they have co-developed—is somehow less tenable than is Lentz’s. This acknowledgment occurs as Richard faces the prospect of Lentz dismantling the computer in
order to analyze how she has been able to do what she has done. Richard is devastated by this prospect, but realizes that in the context of their convergence, Lentz has the power: “I had no leg to stand on. Lentz owned Helen, her shaped evolution, the lay of her synapses. He owned all the reasoning about her as well. I had some connection to her, by virtue of our long association. But that connection was, at most, emotional. And if Helen lived far enough to be able to feel, it just went to prove that emotions were no more than the sum of their weight vectors. And cuttable, in the name of knowing” (302). The humanist concedes that, in this case, knowledge trumps emotion, but the reader is made to feel that the scientist has failed to understand how significant Helen has become for Richard. Helen has clearly come to mean—and even to be—more than the sum of her parts, but Lentz is incapable or unwilling to see that, a failing that makes him seem somehow less than human, but also quintessentially (or stereotypically) scientific.

The problem of epistemology is the remainder at the end of these two novels and it is, I believe, what prevents the convergence of the two cultures that we see represented in the narratives from enduring. The novelists can tell the story of scientific advances in the field of cognition, but they are unable to abide by the implications of that narrative. If understanding inner reality as a hermeneutic enterprise gives way to understanding the reality of the inner (the mind) through purely scientific means, then the humanities would seem to have lost something, at least if we read the relatively somber endings of these two novels symbolically.

The re-divergence of the two cultures at the end of each of our neuronarratives possibly reveals the extent to which the humanities are still threatened by the potential resolution of the problem of epistemology on scientific terms and the extent to which the scientific community is still skeptical about the knowledge value of literature and the humanities more generally. As I claimed at the outset of this essay, however, the distance between the two cultures does not seem to be as great in the contemporary real world as it appears to be in these novels. Columbia University alone, in fact, now has Oliver Sacks teaching creative writing students and literary scholars instructing future medical doctors. So why have Lodge and Powers revived a tension between science and literature that has apparently relaxed considerably in the real world?

The obvious answer would be that the conflict between scientists and novelists in these narratives meets some very practical needs for the authors. Explaining the source of this conflict—even if it is somewhat artificial—allows the authors to bring the readers into the authorial audience because it allows them (the authors) to treat consciousness as content. Moreover, and even more practically, a good plot tends to need some kind of conflict, and the divide between the two cultures stands as a ready-made plot element.
Yet, the endings of these two novels seem to reveal something significant about their authors’ feelings regarding fictional narrative, a genre that both writers have subjected to ridicule through their scientist-characters. One senses in both Lodge and Powers a recognition of the possibility that Messenger and Lentz are not completely wrong in questioning the value of narrative fiction. This feeling, at least for this reader, has its origins in the relatively pathetic author-characters described early on in each novel. Both Helen and Richard appear stilted emotionally and exhausted creatively, neither likely to produce anything truly worth reading. As Richard puts it in *Galatea 2.2*, “Mornings passed when a sick knot in my stomach informed me that I would never write anything again. I had nothing left in me but the autobiography I’d refused from the start even to think about. My life threatened to grow as useless as a three-month old computer magazine” (36). For her part, Lodge’s Helen is no more sanguine about her own potential productivity or the state of narrative fiction generally. “Of course one can argue that there’s a basic human need for narrative,” she recognizes,

it’s one of our fundamental tools for making sense of experience—has been, back as far as you can go in history. But does this, I ask myself, necessarily entail the endless multiplication of new stories? […] It’s frightening to think of how many novels I must have read in my lifetime, and how little I retain of the substance of most of them. Should I really be encouraging these bright young people to add their quotient to the dust-heap of forgotten pseudo-lives? Would they perhaps be more profitably occupied designing computer models of the mind in Ralph Messenger’s Centre for Cognitive Science? (83-84).

Despite these misgivings about their own profession, however, by the end of the narratives they inhabit, both fictional authors are reinvigorated and apparently armed with the raw material—the substance or content—for narratives that they must believe will both matter and last. Thus, even as the convergence of the two cultures as symbolized through the interpersonal relationships in the novels does not last, the convergence itself has had a salutary effect. In a sense, the narrative literature that has been demeaned in both works is given fresh import because it has new content. Tellingly, both novels end with a Proustian twist, their author-characters set to emerge from their respective states of writer’s block and self-doubt and ready to write something close to the novels we have just finished reading. Richard leaves the Center with the refreshing sense that “I might have another fiction in me after all” (328), and Helen, following her tumultuous experiences with Ralph Messenger, ends up writing a novel, set in a university, with a title that comes directly from her discussions with Ralph and that attests to the fact that neuroscientists still cannot rationally explain all of what humans do or feel: *Crying is a Puzzler*. In both of these neuronarratives, it
seems as if the real authors—Lodge and Powers—have endeavoured to introduce their author-characters and their readers to a new area of fictional content, human consciousness, that has the potential to refresh and redeem the field of literature.

NOTES


WORKS CITED


GARY JOHNSON is Associate Professor and Chair of the English Department at the University of Findlay. He is currently completing a book about the presence of allegory in modern and contemporary film.