

poetics today

Exchange Values: Poetics and Cognitive Science (I)

Mark J. Bruhn, Guest Editor

Volume 32, Number 3

Fall 2011

Published by Duke University Press

**Introduction:
Exchange Values:
Poetics and Cognitive Science**

Mark J. Bruhn

Regis University, English

Theory of literature, literary criticism and interpretation, literary and cultural history, semiotics of culture, linguistics, rhetoric and communications, cultural anthropology, cognitive studies, translation theory: . . . the common denominator of all this diversity is the ambition to understand literary and cultural texts both in their own right and in the context of other . . . systems; to develop advanced theories of literature, communication, and culture, and advanced methods of research; and to integrate the study of literature within the evolving larger field of the human sciences and ultimately that of the sciences at large.

Before I divulge the provenance of my epigraph, allow me to highlight three features of the ambitious interdisciplinary program it outlines. First, cognitive studies is but one among nine well-differentiated fields: it evidently contributes not a master theory but what might be called an “associate theory” to their common enterprise.

Second, as an associate theory or set of theories, cognitive studies takes its place in a logical order of inquiry that begins with a specific object of considerable complexity, “literature,” and proceeds in stepwise fashion through mediating frames of critical practice, historical moment, semiotic

My thanks to H. Porter Abbott, Margaret H. Freeman, Tony E. Jackson, Alan Richardson, Ellen Spolsky, Kelley Young, and especially Meir Sternberg for their thoughtful criticism and suggestions.

Poetics Today 32:3 (Fall 2011) DOI 10.1215/03335372-1375243
© 2011 by Porter Institute for Poetics and Semiotics

code, cultural set, and psychological structure before proposing to reach the most general levels of cross-cultural (“translation theory”) and interdisciplinary integration. This ordering requires that explanation at each step be attentive and adequate to the real complexities of the human object in question, presumably to ensure that advancing generalization should not amount to mere (or “eliminative”) reductionism.¹ The danger and precaution may be captured by the fact that my epigraph’s second ellipsis replaces a single word, which may appear redundant at first but which on reflection readily suggests its necessity. The original reads, “The common denominator of all this diversity is the ambition to understand literary and cultural texts both in their own right and in the context of other”—not *physical*, not *biological*, not even (or rather not yet) *cognitive* systems but—“*cultural* systems.”² One cannot jump directly from cultural products like literature to supposed cognitive causes underlying them. A description of cultural systems within systems is first required—specifically here of literature within communication within culture—to accurately formulate the cognitive-scientific explananda: only then (and only with appropriately “advanced methods of research”) can the “study of literature” be legitimately extended and situated “within the evolving larger field of the human sciences and . . . the sciences at large.”

Third, given this orderly imperative for the *adequation* of theory and method to the object of study, the exchange values of interdisciplinary transfer should accumulate as the explanatory frame of reference widens. In other words, just as “theory of literature” defines essential explananda for any comprehensive theory of human culture, so theory of culture (i.e., “cultural history, semiotics of culture, linguistics, rhetoric and communications, cultural anthropology”) likewise defines essential explananda for any comprehensive theory of human cognition. In both cases, the second term necessarily remains incomplete and subject to revision until it can give an integrative but nonreductive account of the phenomena investigated and explained by the first term. Notice that the reverse does not hold, at least not with the same necessity: a comprehensive theory of literature is not obviously required to account for other cultural phenomena, nor

1. For similar antireductive reasons, Patrick Colm Hogan (2003a: 209) cautions: “We should know as much as possible about the higher-level structure we are investigating before we go too far with lower-level explanations.”

2. Hogan (2003a: 202 ff.) makes a crucial point about the interrelation of these explanatory levels, ranging from the “physical” or “neurobiological” to the “mental” to the “social”: while a physical brain in a body is necessary for mental or cognitive activity and mental or cognitive activity for the (human) interactions we describe as social, it is nevertheless the case that each successive level develops structures of its own that are fundamentally different from those of the preceding level and in fact reorganize them for its own purposes.

should we expect a comprehensive cultural theory to explain all aspects of human cognition. The asymmetry suggests that, on the way to a comprehensive theory of human cognition, (f)acts of literature will likely prove more revealing about (f)acts of cognition than (f)acts of cognition about (f)acts of literature.

This wisely sequenced and surprisingly suggestive interdisciplinary agenda is excerpted from a statement of the scope and aims of *Poetics Today*, as articulated in the late eighties by the journal's second editor, Itamar Even-Zohar.³ So conceived, *Poetics Today* was poised from its inception to take on the critical role it has performed (among many others) so continuously and constructively in the ensuing three decades: to provide a leading international forum for the development and ongoing assessment of the emergent interdiscipline now widely known as cognitive literary studies or (more or less synonymously) cognitive poetics.⁴ The list of contributors to this end constitutes a who's who of the field—for example, Raymond Gibbs Jr., David Herman, Patrick Colm Hogan, David S. Miall, Alan Richardson, Ellen Spolsky, Gerard Steen, Eve Sweetser, Reuven Tsur, Mark Turner, Willie van Peer, and Lisa Zunshine, among many others, most of them contributing multiple times and some again in the following pages. Nor do I know another journal that can boast an equally extensive list of special issues (not to mention a variety of individual articles) on cognitive approaches to literature, including four on metaphor (1983, 4:2; 1992, 13:4; 1993, 14:1; 1999, 20:3), two on the “cognitive revolution” (2002, 23:1; 2003, 24:2), one on empirical approaches to literary reception (2004, 25:2), and most recently a general issue on “cognitive themes” that addresses all these matters and more (2009, 30:3).⁵

It is thus a great but daunting honor to present under the title of *Poetics Today* this latest set of articles, “Exchange Values: Poetics and Cognitive Science.” No venue could be more fitting for the studies here undertaken, but by the same token none perhaps could require so exact and comprehensive an accounting of just how and where these studies are situated, in relation to what exactly, within the sprawling, heterogeneous field of cognitive literary studies. Richardson (2010: 4 ff.; Richardson and Steen 2003: 152), one of the field's pioneer researchers and leading theorists, embraces this heterogeneity as both inevitable and desirable, given the irreducible complexity of the mental and verbal objects in question. Citing the renowned behavioral neurologist V. S. Ramachandran, Richardson

3. See the Humanist Archives volume 3 (3.885), www.digitalhumanities.org/humanist/Archives/Virginia/v03/0879.html (accessed April 24, 2010).

4. See Richardson 2004b for a hyponymic distinction of these terms.

5. See also the first two issues of this year's volume, 32.1–2, “Narrative and Emotion.”

(2004b: 3) too “recommends ‘tinkering’ as a legitimate research strategy,” whereby “cognitive critics stand to contribute not only to literary studies but to the mind sciences as well.” For many skeptics, however, it is just this yoking of “tinkering” to alleged interdisciplinarity that calls the whole enterprise into question as a species of mere *scientism* with little relevance to mind *science* as such.⁶ On this score, even Richardson (2010: x) has lately introduced a note of caution, distinguishing usefully between “interdiscursivity” and “interdisciplinarity.” “Interdiscursivity” may be characterized as “tinkering,” that is, “reading across disciplinary boundaries and selectively incorporating elements of another discipline’s vocabulary, without placing one’s home disciplinary perspective into sustained, mutually vulnerable, and potentially transformative dialogue with the rival perspective of colleagues trained in significantly different areas, with different methods and aims”; while “interdisciplinarity” entails all this and more, including “at the least, active collaboration among researchers from various fields.” Though Richardson himself interprets it generously, this more demanding standard of interdisciplinarity, especially as anticipated and articulated in the carefully sequenced terms of my epigraph, has arguably been missed more often than met in the literary critical work inspired or otherwise influenced by the cognitive sciences.⁷ Where and how frequently, we may well ask, has this work brought cognitive scientists “into sustained, mutually vulnerable, and potentially transformative dialogue with the rival perspectives” of their literary-critical compeers? Such dialogue is not unprecedented—the collaboration between Gilles Fauconnier and Turner is a famous example—just comparatively rare.⁸ Hence and still pressingly, this issue’s framing question of *interdisciplinary exchange values* between poetics and cognitive science.

To diagnose the field’s (non)developments so as to contextualize the essays offered here and enable the reader to take the measure of their achievement, the following comments undertake a sort of meta-review of three key self-reflective moments in the history of cognitive literary studies. The moments I have selected⁹ share two general features that

6. For a recent and prominent example, see Tallis 2008, “The Neuroscience Delusion.”

7. I mean “arguably” neither hypothetically nor personally but as a matter of record; see section 3.

8. As Richardson (2010: 78) likewise seems to acknowledge: “As more literary theorists, critics, and historians begin speaking to notions of cognitive rhetoric and figurative thought, cognitive scientists would do well to reply—or at least to overhear.”

9. Others were possible, notably Richardson and Steen 2002, 2003; Sternberg 2009. The initial Richardson and Steen collaboration, a special issue of *Poetics Today*, “Literature and the Cognitive Revolution,” provoked an “emergent” target article in Adler and Gross 2002, answered in various ways by the contributors to the follow-up issue, “The Cognitive Turn? A Debate on Interdisciplinarity.” Meir Sternberg’s recent piece is a long commentary (“epi-

indicate, respectively, their representative and diagnostic qualities: they are all *dialogic*, involving target articles and multiple responses, and they are all *evaluative*, aiming to assess the possibility and value of interdisciplinary exchange between literary studies and the cognitive sciences. On the other hand, their several differences in orientation, argument, and outcome amount to genuine, which is to say largely incompatible, *alternatives* for the theory and practice of the proposed interdiscipline. The fact that all three positions are echoed and occupied throughout the field to this day is a potent reminder of its still inchoate character; and what some may celebrate as vital plurality, others will lament as compromising and perhaps irredeemable incoherence. In any case, as we shall see, all the fundamental questions remain open and contested, and it will therefore be helpful to trace lines of development and discriminate general positions, if only to clarify what has arguably gone right and wrong in the field and to situate the following essays accordingly.

My first key moment is the 1994 *Stanford Humanities Review* online roundtable “Bridging the Gap: Where Cognitive Science Meets Literary Criticism,” featuring a target article and thirty-three responses (Franchi and Güzeldere 1994b). Prefacing this special electronic issue, the editors of “Bridging the Gap,” Stefano Franchi and Güven Güzeldere, induce from the multidisciplinary array of perspectives on offer three potential but mutually exclusive resolutions to what they can only characterize as an emerging interdisciplinary “conflict.” These resolutions, which stipulate different distributions of power and possibilities of exchange between the disciplines, are represented paradigmatically and serially in this and the two successor moments I have selected for examination.

The first of these three possible interdisciplinary resolutions is provocatively advocated by the artificial intelligence (AI) theorist and Nobel laureate Herbert Simon (1994) in his target article, “Literary Criticism: A Cognitive Approach.” In Simon’s vision of the interdisciplinary future, literary studies would become “a branch of cognitive science,” adopting the latter’s “basic concepts and methods” to provide a unified account “of the production and interpretation of literary texts” (Franchi and Güzeldere 1994a). In this scenario, interdisciplinary traffic would flow essentially in one direction, from cognitive science to literary studies, which would retain literature as its distinctive object of inquiry but abandon its literary-critical theories and methods for the allegedly superior apparatus of the mind sciences. Following Simon’s lead in the title and argument of his essay, let

logue”) article making wide and sharp reference not only to the volume’s other efforts but to a broad spectrum of cognitive literary and cognitive linguistic scholarship. Evaluative but not dialogic, Richardson 2004b also provides a useful overview.

us call this proposed approach to the interdiscipline “cognitive science as poetics.”

A second possible resolution of the interdisciplinary power struggle, only hinted in the Stanford roundtable discussion, is forcefully developed and frankly urged by Meir Sternberg (2003a, 2003b) in the two essays “Universals of Narrative and Their Cognitive Fortunes [(I) and (II)]” that constitute my second key moment. In this scenario, rather than surrender its native territory, literary studies would go on the “counter-attack” and demonstrate that “cognitive science’s shortcomings” with respect to literary and cultural phenomena “point to more general theoretical problems endemic to the entire cognitive territory” (Franchi and Güzeldere 1994a). On this view, evidently consonant with the interdisciplinary vision of *Poetics Today*, the hard-won theoretical insights, time-tested applications, and highly differentiated data of literary and cultural studies would serve to guide, test, and refine the otherwise crude hypotheses and underdeveloped models of the cognitive sciences. Interdisciplinary traffic would reverse direction from that indicated by Simon and flow from the venerable to the novice field. Let us therefore call this approach “poetics as cognitive science.”

A third conceivable resolution of the interdisciplinary confrontation, advanced in various terms and tones by many of Simon’s respondents, has been urged most recently and extensively by Frank Kelleter (2007, 2008) and respondents in the “Controversy: Literary Studies and Science” series in the *Journal of Literary Theory* (*JLT*) (2007–9), which therefore represents the last of my three key moments. In this scenario, rather than surrendering its proprietary domains or occupying those of the cognitive sciences, literary studies would “refuse the cognitive scientific intervention and try to stake out (or preserve) a theoretical space for itself” (Franchi and Güzeldere 1994a). This separate but equal approach would stress the incommensurability of humanist and scientific modes of inquiry but insist that the fullness of knowledge requires both, each operating more or less independently in its own sphere. Thus we will term this approach “poetics and/or cognitive science.”

A final note before we examine each of these interdisciplinary alternatives in detail. Their chronological presentation is neither intended to nor in fact does represent anything like a “development” in cognitive literary studies. All three resolutions with respect to the problem of interdisciplinarity have been advanced from the first and continue to attract advocates. Moreover, even while Kelleter and his Continental respondents in the *JLT* were making the case for the necessary but amicable separation of incommensurate fields, a vigorous (if not yet flourishing) Anglo-American

tradition continued to argue for their mutually profitable and still more promising partnership (see section 1.1). It is precisely in the interests of this interdisciplinary partnership that I undertake this historical review of its persistent trials and occasional triumphs, with a view to clarifying the challenges that remain and the opportunities that await.

1. Cognitive Science as Poetics

Problems with the first interdisciplinary resolution, in which cognitive science is to subsume and transform literary studies, are manifest even before Simon's respondents weigh in. Undertaking "a proposed reconstruction of literary criticism from a Cognitive Science/Artificial Intelligence perspective," Simon (1994) apparently neglected to consult the "unreconstructed" field itself, and his immodest proposals self-destruct accordingly. Simon sweepingly claims, for example, that "familiar terms like 'meaning,' 'context,' 'evocation,' 'recognition,' and 'image' have gained clarity from the researches of contemporary cognitive science that they did not have in earlier writing and still do not have in literary criticism and its theory." Yet his ensuing comments only disclose a grievous underexposure to the disciplinary other he proposes to colonize and thereby improve. In its reconstructed acceptance, Simon (*ibid.*) informs us, "recognition" (to take up the only one of the listed terms not elsewhere defended by one or another of the respondents) now refers simply and solely to word recognition as a precursor to meaning evocation:

Meanings are *evoked*. When a reader attends to words in a text, certain symbols or symbol structures that are stored in the reader's memory come into awareness. . . . The process that underlies evocation is recognition. Words in the text serve as cues. Being familiar (if they are not familiar, they will not convey meaning), they are recognized, and the act of recognition gives access to some of the information that has been stored in association with them—their meaning. . . . Recognizing a word has the same effect as recognizing anything else (a friend on the street). Recognition accesses meaning.

I pass over the ways Simon's information-processing model mis-serves him in conceptualizing human cognition as well as his hasty conflation of symbol processing with object and face recognition. I will just comment on the errors and oversights that even introductory reading "in literary criticism and its theory"—poetics, in short—would readily avert or amend. True, text comprehension involves word recognition, but it is not true that unfamiliar or unrecognized words "will not convey meaning." Think, for instance, of Robert Frost's (1913, quoted in Borroff 1992: 142n8) "abstract

sound of sense,” the suprasegmental features of (poetic) discourse that, even when isolated from the words with which they co-occur—as with voices heard “from . . . behind a door that cuts off the words”—nevertheless convey emotional and speech-actional (illocutionary) meanings. For a more venerable example, consider medieval macaronic hymns, carols, sermons, and poems, whose “dual-coding” strategies, typically involving the setting of biblical and ecclesiastical Latin phrases into an otherwise vernacular text, would be meaningfully perceived by the illiterate as well as by the cleric (though of course not in the same way).¹⁰ And how will Simon’s simple word-recognition model comprehend such interart provocations as René Magritte’s *Treason of Images* or *Key to Dreams*, whose destabilized meanings derive precisely from the pictorial subversion of the “familiar” recognitions that Simon makes foundational to literary understanding?¹¹

Still more egregiously, Simon seems unaware that recognition is susceptible not only of a general information-processing definition but also, and more importantly with respect to the *literariness* of the literary object in question, of a specifically *poetic* definition as old as Aristotle and *generically* concerned with the interplay of temporal sequences in verbal art. While Simon captures a rudiment of any act of language processing, he overlooks virtually all the criterial features of the literary per se—in the case of recognition, the powerful affective and sense-making dynamics generated by the subordination of the *matter* of representation to the *manner* of representation (see section 2). One question that Simon therefore does not raise and that his theory consequently cannot answer is, what special kinds of meanings or evocations are made possible by this poetic kind of recognition, which may involve the word-processing kind but cannot be explained by it? In contemporary works in poetics by such figures as Sternberg (1978 [1971]) and David Bordwell (1985) or, closer to his home discipline, by the cognitive psychologists William F. Brewer and Edward H. Lichtenstein (1981), Simon might have found more nuanced answers to this question, unsettling his confidence in the new cognitive-scientific “clarifications” of old literary-critical terminology and provoking instead their multidimensional complication.

This criticism can be repeated at every step of Simon’s (1994) argument, as when he defines meaning as an intentional act and accordingly opines that “authors’ meanings . . . are to be assigned by discovering what was actually evoked in their minds to form their words,” or when he proposes that there are no more than “*several* different kinds of ambiguity that

10. For review of scholarship on macaronic literature, see Schendl 2002: 57 ff.

11. For discussion, see Foucault 1983.

are important to art” (my emphasis), including unpredictability, inconsistency, vagueness, polysemy, novelty, subtlety, and abstraction (seven after all!). It is the omission of canonical reading in literary criticism and poetics¹² that dooms Simon’s theory to the drubbing it takes in the roundtable response, where the proportion of negative to positive reactions is greater than three to one. The many problems that the respondents identify in Simon’s approach can be consolidated under four related heads: redundancy, (in)differentiation, incommensurability, and disciplinary imperialism. Because these sorts of charges recur again and again in subsequent critical reflection on cognitive literary studies, it will be useful to specify them briefly now, first in the respondents’ own terms, then in the words of other and more recent scholars. In selecting among Simon’s respondents, I favor critiques advanced by scholars of literature as the ones who know best what is at stake in their own field, but it is worth noting that all are echoed to various degrees by scholars across the represented disciplines, from philosophy to computer science and engineering. Such consensus emerging from the respondents’ diverse disciplinary perspectives suggests that the requirements for genuine interdisciplinarity, including mutually illuminating dialogue (if not yet active collaboration) with other-disciplinary scholars, are hardly unrealistic, even if demanding.

1.1. Redundancy

Simon’s first respondent (the editors having chosen to present responses alphabetically) is Frederick Adams (1994), who objects to Simon’s “reconstructive” project by reason of its *redundancy*. “It is far from clear that there have not always been terms in literary criticism for the types of concepts that Simon thinks cognitive science can sharpen for literary critics,” Adams (*ibid.*) writes, adding that “his offerings do not seem to add things that are new or more precise than *any* literary critic would have known” (my emphasis, and worth emphasizing). Norman Holland (1994) puts a more positive spin on the point. He warmly suggests that “American reader-response critics will find [Simon’s] ideas completely congenial” but nevertheless offers some friendly advice about the handling and implications of key terms, advice that reflects Holland’s long engagement with the issues in question and at least part of the deliberation they deserve: “Were I editing Simon’s paper, I would substitute reader actions for these subtly text-active container metaphors. I would drop ‘meaning’ entirely and use

12. A point made by the mathematician Brian Rotman (1994), with appropriate reference to William Empson. On the intentional fallacy in interpretation, see Abbott in this issue. On the relevance of one of Empson’s seven types of ambiguity to cognitive scientific work in conceptual integration, see Bruhn in part 2 of this issue.

a word like 'interpretation' to foreground the reader's activity. Similarly, 'context' might be better than 'associations.' As for 'evoke,' I would rewrite sentences that make the text the subject of an active verb to make the reader the subject" (ibid.).¹³ In short, Holland would convert Simon into a reader-response critic, but that job of interdisciplinary work surely belongs to Simon himself if he wishes to weigh in creditably on matters of literary reception (never minding for the moment those of literary creation).

Subsequent criticism repeats Adam's explicit and Holland's implicit charge of redundancy (i.e., "reinventing the wheel") and develops it into an evaluative touchstone: from the point of view of literary and cultural studies, what exactly is the value added by cognitive approaches, models, and terminologies? Another way to put this question is to ask where precisely, and in what ways exactly, does a cognitive analysis differ from and improve upon available disciplinary analyses? It seems to me self-evident that any accurate answer must be based on truly expert knowledge of the long history and considerable variety of such analyses, at least within the particular subfield of inquiry. As Richardson (2004b: 25) observes at the close of his helpful "field map" of cognitive literary studies: "Cognitive critics working on narrative, for example, need to actively pursue dialogue with narratologists. Rhetoric, poetics, and reader esthetics all have rich disciplinary histories that must be kept sight of if cognitive critics wish to avoid repeating the mistakes or restating the truisms of their fields."¹⁴ Tony E. Jackson (2005: 526–30), reviewing two companion textbooks in cognitive poetics, explicitly raises the value-added question and finds both books largely wanting by its measure: "We find new terms that do not really force a significantly new conceptualization, and the result . . . seems to be revealing the obvious, at least to fellow literary scholars. . . . This same problem has been recurrent in the short history of cognitive, as well as in evolutionary-psychological literary studies. . . . Despite regular, enthusiastic claims for radically new insights, the actual application of theories to texts has much too often produced interpretations that are painfully obvious" or, where not obvious, whose insights derive from basic close reading skills rather than the application of the imported cognitive-

13. Holland objects to Simon's suggestion that authors intentionally and as it were mechanically *put* meanings *into* container-like texts, so that readers may subsequently intentionally and mechanically *extract* them. To be fair, Simon does allow for interpretative difference as a result of readerly "association," but Holland is unhappy with this term as well.

14. Needless to say, the other-disciplinary demand cuts both ways. As Uri Margolin (2007: 205) observes, "Conversely, it is counterproductive for literary scholars to invent *ab initio* theories of language, cognition, society or culture where tremendous amounts of valuable work on these subjects are already available in other disciplines. In most cases, the best result would be a reinvention of the wheel."

scientific theory or model. Two years later, in the “Controversy: Literary Studies and Science” essay that inaugurates the third of my key moments, Kelleter (2007: 162) reiterates the charge, adding *trivial* and *banal* as synonyms for Jackson’s *obvious* (see section 3).

This is not to denigrate the record of cognitive gains to date (see Brône and Vandaele 2009 for a recent accounting); though often critical, honest assessment has occasionally marked some specific and theoretically potent new insights derived from cognitive approaches. So, for example, Sabine Gross (1997: 275) credits conceptual metaphor and blending theories with providing a genuinely new analysis of figuration, which shifts focus from “tropes and conceits of language” to “conventions of thought and body.” Turner, as an exemplary figure in this tradition, “does not merely recast knowledge that has been available in literary studies and analyze it in cognitive terms, but instead shows the cognitive basis that literary texts and their study presuppose” (*ibid.*; see likewise Fludernik et al. 1999; Richardson 2004b: 7; Toolan and Weber 2005: 108–9). In the field of cognitive story analysis, according to one of its most trenchant critics, “cognitivism is unprecedented for its emphasis on the knowledge of reality (actions, existents, places, schemas at large) we bring to the text,” with extensive recruitments of working memory and inferential reasoning—theoretical developments that may be traced back to “Schank and Abelson’s famous ‘script’” theory in 1977 (Sternberg 2003a: 307; 2003b: 546). Investigating cross-cultural correlations of generic universals and affect-laden social cognition, Hogan (2003b: 104, 168) has advanced challenging cognitive arguments for fairly radical readjustments to literary genre theory, including an understanding of tragedy as essentially “a transformation of comedy” and of lyric poetry as “regularly bound up with narrative in its production, meaning, and impact.”

Then again, a healthy variety of cognitive literary studies is associated with Spolsky’s (1993: 3) pioneering *Gaps in Nature*, which proposes “biological materialism” as a theoretical counterweight and explanatory complement to various forms of cultural materialism prevalent in literary and cultural studies. F. Elizabeth Hart (2001: 316) summarizes Spolsky’s cognitive-historicist project as “indexing cultural and literary diversity to the human cognitive apparatus” and thereby balancing and limiting cultural constructivism or “relativism” with natural determinism or “realism.” This forces post-structuralism “to commit to the idea that at least some of the material constraints on discourse, texts, and subjectivity derive from the phenomenologically ‘real’ effects of mind-embodiment” (Hart 2007: 97). Yet Hart (*ibid.*: 100) admits that such embodied cognitive constraints “do not alter or even add substantively to the *content* of poststruc-

turalist critics' readings" of literary texts but impinge only on "the *philosophical bases*" for such readings, especially with respect to vexed issues of subjectivity and agency (emphasis added). Mary Thomas Crane (2009: 76) views this characteristic restriction to theoretical rather than applied issues in criticism as the chief reason that "cognitive literary and cultural studies continues to occupy a marginal place" in the humanities at large: "It has not so far tended to offer a hermeneutic, a mode of reading that allows us to produce novel interpretations of texts." An important exception to this general rule is the kind of "cognitive literary historicism" represented by the work of Crane's colleague Richardson (2010: 117). He brings cognitive-scientific theories and models "to the work of critical investigation" in order "not only to reopen old questions and revitalize ongoing debates but to ask fundamentally new questions and to discriminate certain literary and cultural patterns that earlier criticism has simply failed to notice" (ibid.). A landmark study like Richardson's (2001: 36) *British Romanticism and the Science of the Mind* accordingly offers provocative reinterpretations of major Romantic works and writers in light of "the many points of contact between [the period's] scientific and literary representations of the embodied psyche." In this case, the cognitive-science-as-poetics paradigm has proved to be anything but redundant.¹⁵

1.2. (In)differentiation

As a critique, the demand for *differentiation* emerges from the more evaluatively charged version of the redundancy charge: if cognitive readings tend to yield obvious, trivial, and banal statements, it is because they have mistaken the object of inquiry. Even granting Simon's symbol-processing model as a requirement for discourse of any kind, what additional processes does the reception of a distinctively literary performance further require or engage? James A. Winn, writing with the statistician Fred L. Bookstein (1994), elaborates the question with reference to specially poetic effects of "gentle wit and irony" in an elegy by John Dryden: "To devise a program sensitive to this range of poetic effects, cognitive science would need to broaden radically the context of 'meaning' suggested by Simon to include all the features that differentiate the perception of art from mere

15. Though the cognitive science that directly sponsors Richardson's reevaluations in *British Romanticism and the Science of the Mind* is that of Romantic era theorists, such as Pierre-Jean-George Cabanis, J. G. Spurzheim, Francois Joseph Gall, and Charles Bell, in his recently published *The Neural Sublime* (2010) he employs the science of their present-day counterparts to similar effect. Further study of the correlations between present-day cognitive science and the theory and poetics of Romanticism is in Bruhn 2006, 2009a, 2009b, part 2 of this issue; Miall in part 2 of this issue; Richardson in part 2 of this issue.

cognition. But then it would be literary criticism itself, no longer ‘cognitive science’” (Bookstein and Winn 1994). John Dupré, writing with the philosopher Regenia Gagnier, expands the point to include not just distinctively literary kinds of *meanings* but also the *aesthetic* qualities that subtend and inform such meanings, including phenomena that are often categorized as “sense, or feeling, or emotion” and (falsely) are opposed to “cognition” or “thought” (Dupré and Gagnier 1994).¹⁶ For Dupré and Gagnier (*ibid.*),¹⁷ “the failure to address the specifically aesthetic aspect of meaning is a limitation of Simon’s nonetheless welcome overture” to interdisciplinary exchange. Janet Murray (1994) insists on still another aspect of differential accounting in addition to those of poetic effect and aesthetic affect, that of cultural bearing, with *bearing* understood in the senses both of information (as carried or *borne* by the artifact) and implication (as engendered by or *born* of the artifact): “Simon’s analysis offers a picture only of the lowest level of functioning,” involving “microstructures” of meaning-making, whereas literary criticism “describes the macro structures using a rich variety of representations from the rhetorical to the cultural. We can describe figures of language like metaphors and similes, larger formal structures like genres and subgenres, and most ambitiously we can tease out complex intersecting cultural structures of ideology, psychology, and even the dense world of ‘values.’” Miall (1994) shares Murray’s multidimensional view of things: “The outcome of an effective response to *Hamlet* probably involves a range of phenomena, from the physiological to issues of identity and culture. What is required, if progress is to be made, is attention to all the phenomena that may be implicated in the process of reading literary texts.”

The objection to the leveling down of—and consequent inattention to—the *extraordinary* phenomena of literature is, in truth, the obverse face of the value-added compliment that critics such as Gross and Sternberg have paid to cognitive studies. For while it is true, as Gross (1997: 275, 282, 293) says, that Turner and his colleagues are pursuing “the cognitive basis that literary texts and their study presuppose” and that this pursuit, to the degree it is successful, is assuredly to their credit, it is no less true that “literature does more than demonstrate cognition” and that using it only for that purpose “risks reducing literature to the lowest common denominator.” Similarly with event schemata, scripts, frames, and the like, which are theorized to inform *all* knowledge representation at least at some level and to a certain extent. The question remains (or then becomes), what, if anything, distinguishes literary use of the same? If interpreted *solely* in terms

16. See section 2.5; Johnson 2007.

17. As for Margaret H. Freeman (part 2 of this issue), more generally and with special attention to poetic art.

of such knowledge frames, “poetic art itself is leveled down to the model that it should open up” (Sternberg 2003b: 562). Kelleter (2007: 162, 185) likewise objects to the “instrumentalism” of the “master-theory” approach, whereby the literary object is used to illustrate and prove the cognitive model or method. He accordingly reminds us that,

while empirical research and abstract model-building are crucial elements of any kind of scholarly or scientific activity, models and methods must always have a serving function: They are tools, not truths. As such, they must be adjusted to their objects and live up to their demands. And if a particular method or model proves unable to explain essential features of an object or to answer essential questions about it, we must not declare these questions unscientific, but we must improve or even switch our methods and models. (Ibid.: 168)

This is, as far as I can tell, precisely the object of the disciplinary sequencing called for in my epigraph: the adequation of model and method to the literary object in question, not after the fact of cognitive applications but well before, so that those applications may understand just what they are trying to apply to in the first place.

The cognitive mantra that “the literary mind is the everyday mind” is thus, as Richardson might say, something of a truism, and Sternberg (2003a: 319) rightly adds that a theory that “subsumes everything, truly or falsely, distinguishes nothing by its own logic.” By the same token, neither can the category of the literary subsume “basic cognitive processes that characterize much of quotidian life” (pace Richardson and Steen 2002: 4; see Adler and Gross 2002: 199). Andrew Elfenbein (2006: 485), considering literary reception from the point of view of the cognitive psychology of reading, therefore argues for compromise and correlation: “While literary critics prize the complexity of the reading experience, many aspects of this process are indeed routine, automatic, and quasi-mechanical. The very expertise of literary critics may render such aspects invisible because their skills have become so routinized. Far from leading to shallow or superficial results, such routinization enables sophisticated literary-critical readings, since it allows critics to move quickly past many basic processes that occupy less skilled readers and concentrate on more involved ones.” Another truism perhaps, but one that merits study, especially of the sort that would complicate the “bottom-up” model implied here—in which “basic processes” and “routinized skills” “enable sophisticated . . . reading”—with attention to the “top-down” (e.g., attentional, memorial, logical) and “outside-in” (i.e., cultural-institutional) forces at play in the acquisition and subsequently “routine” operation of literary expertise (see Allington 2006; Elfenbein 2004). In any event, the original outcry for appropriate

disciplinary differentiation stands, as does the appeal for (and of) a literary theory incorporating “multiple levels of units and of organization” (Margolin 2007: 206; see also Hogan 2003a: 202 ff.). But as Gross (1997: 293) wisely cautions and the *Poetics Today* statement strongly implies, in the relation of the disciplines that may contribute to such a multilevel theory, cognitive studies should serve to constitute “the ground, not the figure, with regard to literature.”

1.3. *Incommensurability*

Just as the critique of (in)differentiation arises from a strong form of the redundancy critique, so that of *incommensurability* follows from a strong form of the (in)differentiation objection. Now the difference between the objects and methods of cognitive-scientific inquiry and those of literary-critical inquiry becomes so great as to be (or for the moment at least appear) unbridgeable, and we find a yawning epistemic chasm where before we had a negotiable cross-disciplinary gap. Thus for Don Byrd (1994), “the sciences and the arts, while sharing certain generalized methodological conceptions, have developed incommensurable, even mutually cancelling, domains.” Literary

reading is not the consumption of an expression but an event of life value. To read a literary work is neither to posit a blank, known as an author, to which the reader attributes beliefs, nor to posit a subject or inner-reader, to which meanings are revealed . . . but to enter concretely a community in which author, reader, text, other authors, readers, texts and other things of every conceivable kind are constantly interacting physically and logically, valuing, mutually impinging, and so forth, and this totality is *categorically different* from the information which it helps to make manifest. (Ibid.; emphasis added)

For Ronald Schleifer (1994), even the “methodological conceptions” of the two cultures are categorically different, the one given to “veridicality, generalizing, and simplicity” through “measurement and comparison,” the other seeking “the ‘complexification of what appears to be simple’ [quoting Gaston Bachelard]. This is to say, criticism studies rhetoric, and the mode of that study is not to reduce differences to the same, but to study the complex interplay of differences.”

On this view of interdisciplinary matters, a cognitive approach to literature runs the double risk of applying the wrong method to a misconstrued object. H. Porter Abbott (2006: 720) thus opens the necessary divides between art and science with the double-edged blade of (un)repeatability: “The distinct achievements of literature are made up of both the repeatable and the unrepeatable. And if that latter cannot exist without the

former, it is no less true that without the latter there is no distinction—and, finally, that this distinction of literature is also a distinction of the human mind.” This dual nature of the literary mind, invoking shared and relatively stable systems (of language, genre, and education, among others) to articulate unprecedented texts and readings, suggests “two fundamentally opposed objects of study, which generate two fundamentally opposed ways of going about that study. The one is bound to the repeatable, the other to the unrepeatable; the one to the norm, the other to the exception; the one to the general, the other to the particular” (ibid.: 712). Acts of literary creation and interpretation are always to some extent unique: the aim is never reproduction but always transformation or least supplementation (Jackson 2003: 198–99). Consequently, central principles and terms of scientific inquiry, such as *reproducibility* and *falsification*, apply to literary studies only in an “approximative” sense at best (Brandt 2008: 32–34; see also Jackson 2003: 199–200).

For Spolsky (1993: 6), however, the to some extent unbridgeable gap is an inescapable cognitive fact and the natural fount of creativity; as she would put it, human cognition is “incomplete commensurability” all the way up, from the modules that process sense stimuli to the complex generic judgments that inform literary writing and reading. Writing in advance of the *Stanford Humanities Review* roundtable, Spolsky (ibid.: 192) seems proleptically to announce and address its titular theme: “The gaps in the interpretive system, far from being accidental, are necessary and innate aspects of our genetically inherited epistemological equipment. While no amount of bridging will succeed in permanently closing the gaps, large stretches of mental life are devoted to finding temporarily satisfactory connections.” Such connections, however temporary, are often productive, generating new perceptions, new semantic categories, and new fields of knowledge. Thus for Spolsky (2002: 56; 2003: 161), it is precisely in the real incommensurabilities between cognitive science and poetics that we are likely to discover the greatest potential of their interdisciplinary conjunction, in which the “cross-fertilization of whole disciplines” will lead to “new ways of talking about our subject[s].” At the very least, we will learn about the specific differences between otherwise convergent theories; at best, we will envision new possibilities of higher-level explanation or synthesis.¹⁸

Other critics suggest that the alleged incommensurability is, at least with respect to certain domains of literary study, more apparent than real.

18. For example, “The addition of biological, evolutionary, and cognitive hypotheses to the discussion of change thus offers literary historical and cultural studies a way to consider the universals of human cognitive processing as they function in their several contexts” (Spolsky 2003: 168; see also ibid.: 173–74).

Hogan (2003b: 4), for example, makes a book-length argument that literary universals, which always and everywhere structure works of literature, “are to a great extent the direct outcome of specifiable cognitive structures and processes applied in particular domains and with particular purposes.” “Universalism versus particularism” is thus “a false dichotomy,” and the cognitive and literary-cultural disciplines are “not contradictory, but complementary” (ibid.: 10, 16; see Spolsky 2002: 47). More narrowly, Hart (2004: 95) has argued for the compatibility of cognitive linguistics and literary post-structuralism on the grounds of their shared theoretical premises:

Both, for instance, are dedicated to defining a post-rationalist and non-realist epistemology. Both privilege metaphor as the principal conduit of information. Both require the characteristic of openness within the knowledge and language systems that they envision and from this openness declare the normative status of change and multiplicity over stasis and unity. Finally, like poststructuralism, cognitive linguistics rejects the idealism inherent in essentialist theories of representation and meaning, offering the criterion of meaning *coherence*, or functional understanding, to replace notions of objective correspondences or literal “truth.”

While they may thus be theoretically commensurate, the two fields nevertheless have vast methodological and procedural differences that remain to be negotiated (if not resolved), and one may wonder whether, short of such negotiation, we can legitimately hope for anything more than disciplinary *interdiscursivity*, even within so restricted a range. As opposed to genuine interdisciplinarity, interdiscursivity always risks what Hans Adler and Gross (2002: 211) identify as “two common forms of disregard for the standards of the respective other discipline”:

On the one hand, literary scholars succumb to the seductiveness of scientific terms and import them into literary analysis with little consideration for their actual scientific use, treating them in effect with poetic license and happily engaging in creative analogies.¹⁹ . . . In the reverse direction, one encounters a

19. As do critics of such procedure, including Adler and Gross, who here characterize cognitive scholars as creative writers, a metaphorical association that is soon dropped for the much less flattering one of “kidnapping,” with its implications of lawless use of force for economic gain. The metaphors of the interdisciplinary debate merits a study of its own (see Gross 1997 for starters). Metaphors of economic opportunism and illegal appropriation abound: Sternberg (2003a: 309–10) speaks of “tourists . . . shopping around for ideas and other bargains, or looking for import or export opportunities, each in a different part of the respective foreign land”; Richardson (2004a) of “a collection of disciplinary nomads or interdisciplinary squatters, passing through the same territory on occasion . . . but passing one another, as it were, often in the night”; Abbott (2006: 714) of “a bunch of scholar-pirates who plunder for their purposes troves of hypotheses, bright ideas, and yes, rigorous scien-

specific type of prejudicial discrimination against literary terms: the tendency to regard terms of literary scholarship as reducible to their everyday understandings and to assume unquestioningly that scientific terms, in contrast, are inevitably precise, nonfigurative, rigorously descriptive, and backed up by empirical knowledge.

Though Adler and Gross do not mention it, Simon's cognitive-scientific bid to annex poetics perfectly illustrates these "reverse" forms of other-disciplinary disregard, for which reason he appears liable to the fourth charge, that of *disciplinary imperialism*.

1.4. *Disciplinary Imperialism*

The objection to the "reconstruction" of poetics by the cognitive sciences may ultimately be cast in terms of the benefactor's ill-motivated disciplinary assumptions and intentions. Brain science, Kathleen Biddick (1996) observes, was conceived as part of a rationalist program expressly designed for the "practical" purposes of domination,²⁰ and it came of age in the nineteenth century by colonizing territories of brain and mind (e.g., phrenology, Broca's and Wernicke's areas) in microscopic parallel to European operations around the globe. The field has thus from the start been allied with and infected by an intellectual and sociopolitical culture of imperialism, and Simon's takeover bid, friendly or not, is at some level only another manifestation of the same hardly disinterested impulse, which needs to be exposed and resisted (even where the science per se does not). Further evidence of an ideological cover-up (if not quite a conspiracy) comes from the fact that Simon misrepresents his own field as essentially unanimous with respect to the key terms and understandings that he would now "helpfully" export to literary studies. For, as Paul Miers (1994) rightly remarks, "nowhere in Simon's piece will the literary critic untutored in cognitive theory find any indication that a great debate is presently taking place regarding the nature of information processing and the coherence of the notion of the symbol as a fundamental unit of representation." Suvir Kaul (1994) interprets Simon's reticence about cogni-

tific work"; Karl Eibl (2007: 421), characterizing Kelleter's take, of "the redskins of scientism and the aesthetes in the circled wagons." Such metaphors index a good deal of anxiety about economic profit and loss through territorial conflict, suggesting the lurking and generally unacknowledged *institutional* dimension to the ongoing debate. For a preliminary analysis of the kinds of institutional pressures at work here, see Gumbrecht 2007; Richardson 2004a.

20. Thus René Descartes (1999: 44): "It is possible to find a practical philosophy by which, knowing the force and actions of fire, water, air, the stars, the heavens and all other bodies that surround us, as distinctly as we know the various crafts of our artisans, we would be able to use them in the same way for all the applications for which they are appropriate, and thereby make ourselves, as it were, lords and masters of nature."

tive science's unsettled differences as symptomatic of a struggle for institutional survival in the face of emerging competition:²¹ Simon "represses the key fact that criticisms contend because their practitioners derive their intellectual and pedagogical energies from socio-cultural identifications and constituencies that struggle for economic and political power in the world about us." Thus whether construed as an interdisciplinary power play or an intradisciplinary last gasp, Simon's cognitive science of poetics appears to be shot through with suspect motives, soft-pedaled aggressions, and suppressed anxieties.

A linguistically inflected version of this anti-imperialist critique faults Simon for what he uncritically exploits in the very act of staging his takeover, namely, the culturally mediated discourse practices upon which his and all texts depend. Assuming that the analysis of such practices properly falls within the disciplinary purview of literary and cultural studies, Helga Wild (1994) wonders whether "literary theory [might] just as well underlie cognitive science and provide the principles of its functioning[.] After all, the knowledge and achievements of science come to us as descriptions, case studies and histories, in article and book form, in short, as texts." Brian Cantwell Smith (1994) accordingly sets about the deconstruction of Simon's "master narrative," exposing the "amazing ruse" whereby "the text's power, such as it is, depends on an essential and paradoxical unclarity" in key terms and definitions (e.g., "meaning"), which only pretend to scientific rigor but in fact trade upon the reader's (culturally regulated) folk conceptions. Sylvia Winter (1994) likewise objects to Simon's persistent "a priori of acculturalism" or "supraculturalism," which posits both writer and reader as somehow "*pre-existing* the cultural-semantic field by which alone we can become 'individuals' and . . . 'communities' of symbolic kin." Translating the literary into the "now globalized" "public language" of the "order of [scientific] knowledge," Simon suppresses the cultural dimensions not only of literature but of the mind that it differentially expresses.

Although these various "anti-imperialist" critiques have had little impact upon subsequent cognitive literary studies, their outraged resistance to unilateral takeover and their salutary insistence on bilateral negotiation have been echoed for other reasons—though not perhaps as concertedly as one might expect and accordingly wish. Smith (1994) equably concludes that, because literary-critical *and* cognitive-scientific kinds of explanation "apply to the [verbal/textual] practice[s] of both fields," "a reflection of

21. Hubert Dreyfus (1996) notes the advent of new connectionist and embodied cognitive approaches as more powerful successors to Simon's "good old-fashioned AI," or computational, approach.

our practices through each other's lenses may for now prove more illuminating than premature" commitment to the models and methods of only one or the other. Winter (1994) seconds the call for a truly interdisciplinary practice "that is alone able to effect the bridging of [the two] fields" in so far as it could account not only for the cognitive fact of mental representation but also for "the culture-specific context in which it is induced by literary and other texts." This critical turn from the ideology to the very idea of interdisciplinarity is crucial, not least because Simon's reconstructive (or imperialist) approach had preemptively constrained discussion and evaluation into a one-way, cognitive science to/as poetics paradigm. Though the editors of the *Stanford Humanities Review* special issue were themselves convinced of the possibilities of two-way transfer (see section 2), neither they nor *any* of the roundtable respondents offers a specific proposal for the improvement (if not reconstruction) of cognitive science through the interventions of poetics.²²

2. Poetics as Cognitive Science

Though advocacy for the possibility of significant transfer *from* poetics *to* cognitive science has been a regular feature of cognitive literary studies virtually from its inception, substantial instances of such transfer have proved to be of comparatively rare occurrence. Spolsky (1993: 2), for example, opens *Gaps in Nature* by postulating a clear and decisive role for literary scholars in the interdiscipline, "for only they can bring to the debate a familiarity with complex texts and sophisticated interpretive practice by which the hypotheses generated by cognitive science may be rigorously challenged." This is a promising start, and there can be no question that Spolsky's subsequent analyses yield tantalizing hypotheses concerning, for example, the only partly bridgeable gap between visual and conceptual-linguistic architecture as a key to the problem of generativity in metaphor theory (*ibid.*: 129–30) or the role of "kinesthetic aspects of understanding" in narrative empathy and lyric iconicity (*ibid.*: 206).²³ Spolsky's book provided an early and ambitious model of interdiscursivity, but it gave no explicit indication of how exactly such intriguing proposals could feed

22. Paul Johnston (1994) points out that the "hope" of a "cognitive science" of literary criticism "is at least as old as Aristotle's *Poetics*" and was explicitly pursued as such by I. A. Richards and others long before the so-called "cognitive turn" in literature (see likewise Goodblatt and Glicksohn 2003). But Johnston does not consider what these earlier literary scientists may have to teach their latter-day counterparts; rather, "cognitive fields have much to tell us about the human capacity (and need) for poetry and art and music."

23. For developments of this very idea, see the articles by Freeman and Miall in part 2 of this issue.

back into the cognitive-scientific research on which they're only partly and rather generally (or "approximately") based. Spolsky may arguably be excused from the hard and tedious work of engineering specific scientific applications, but short of such *interdisciplinary* purchase, her hypotheses will be assessed for their *literary-critical* values, which aren't (or weren't then) always more obvious. This is hardly to belittle Spolsky's achievement—she was after all far ahead of the curve in fathoming the possibilities for cognitive literary studies, and her work has continued to provoke and inspire—but only to underscore the real and rarely surmounted challenges of interdisciplinary exchange.

In his response to Simon's one-way "Literary Criticism: A Cognitive Approach," Turner (1994a) dependably calls for two-way exchange, arguing, like Spolsky, that cognitive science can help persuade post-structuralist literary critics that writers and readers of literature are embodied subjects and effective agents and not just functions or products of discourse and that literary criticism in turn can help cognitive scientists understand phenomena that "have always been taken to be literary," such as metaphor, metonymy, irony, and narrative. Unsurprisingly, Turner refers to his own early effort in *Reading Minds* (1991), which "trie[s] to sketch a blueprint of this two-way bridge, and to erect a few candidate sections." Yet this is the very book whose leveling procedure Gross (1997: 292) criticized as threatening to establish a "one-sided" relationship between cognitive and literary studies, leading in principle to "the disappearance of literature in the mind."²⁴ Ironically enough, it is Turner's subsequent work with Fauconnier on conceptual integration or "blending" theory that has been more influential in cognitive literary studies, but typically as a one-sided affair. In other words, the cognitive-scientific model of blending facilitates (to a greater or lesser extent) literary-critical interpretation but with little challenge or augmentation to the blending model and its supporting theory, even where the literary evidence and analysis suggest the need for exactly that. Thus, introducing the essays in their special issue "Metaphor and Beyond," Monika Fludernik, Donald C. Freeman, and Margaret H. Freeman (1999: 383, 387, 392) gesture at the possibility of "a fruitful cross-disciplinary interaction," but they underscore the one-way nature of the

24. Turner (1991: 4, 48) provides grounds for Gross's concern with such assertions as "the study of literature must live within the study of language, and the study of language within the study of the everyday mind" and "the central fact of the humanities is the central nervous system." But it is worth noting that his purpose (at least occasionally) is to disclose in what exactly special literary effects consist—for example, in violations of constraints on metaphoric mapping that normally operate in "everyday" cognition (*ibid.*: 52 ff.). For a development of this proposal about the violation of mapping constraints, see Bruhn in part 2 of this issue.

actual achievement: the “issue illustrates successful application of cognitive approaches to the analysis of metaphor in literary texts” and “show[s] that conceptual integration is a structured and highly useful vehicle for the interpretative ventures of literary scholars.” As a result, “literary theorists have . . . profited from . . . Fauconnier and Turner’s work” (ibid.: 392), but it is not clear to what extent that work has reciprocally benefited from such transactions or—excepting Turner’s foregoing work on parable and projection²⁵—from literary theory at large.²⁶

In their special issue “Literature and the Cognitive Revolution,” Richardson and Steen (2002: 5) likewise set themselves the essentially unidirectional interdisciplinary task of “demonstrat[ing] that a cognitively informed close reading of cultural artifacts can not only aid in the interpretation of specific literary texts but can also help advance a more detailed understanding of the forces that both enable and constrain cultural change.” In many ways, the editors and contributors there are too preoccupied with anticipating and addressing the charges of redundancy, (in)differentiation, incommensurability, and disciplinary imperialism to spare much thought for critical evaluation and amendment of the adopted cognitive theories.²⁷ The same preoccupation dominates the Richardson and Spolsky collection *The Work of Fiction: Cognition, Culture, and Complexity* (2004). But in posing and answering the touchstone question, “What is the specifically literary job to be done here?,” Spolsky (2004a: ix) once again urges reasons for turning the interdisciplinary tables and reversing the direction of exchange:

One answer to this question is that while cognitive scientists, linguists, and even neurologists have already contributed foundationally to the emerging under-

25. In *The Literary Mind* (Turner 1994), on which see Sternberg 2003a: 319 ff.

26. For recent illustrations of the same one-way bias in interdisciplinary traffic, see Baker 2009; Gleason 2009; Sklar 2009. Two of the three essays explicitly raise some of the interdisciplinary issues and concerns I am canvassing here, and all three represent critically insightful applications of cognitive theory (and, in Sklar 2009, even psychometric method) to questions and problems in literary studies. Yet none of the three evaluates in any detail what its resulting analysis might mean for the imported theory. Specifically, of Howard Sklar one wants to ask, what does the empirical study of narrative sympathy have to offer experimental psychology at large and in particular? Of Timothy C. Baker, how might neuro-aesthetic hypotheses of representation and/or heightened cognitive activity be refined, complicated, challenged, etc., by expert studies in the literary object? Of Daniel W. Gleason, to what extent do the Imagist theory and practice of the ad hoc or unblended “visual template” constitute a provocation to conceptual metaphor and conceptual integration theories? For recent exceptions to the one-way rule, see Bruhn 2009a, part 2 of this issue; Freeman 2006.

27. Notice how all four charges are simultaneously addressed in the following: “Issues in literary history, far from being occluded by approaches that recognize the validity of human universals and species-specific cognitive mechanisms, can be productively reopened in ways that have eluded criticism that relies on purely constructivist notions of the subject” (ibid.).

standing of how story-telling and the visual arts work within human life and human cultures, they have rarely even noticed, much less found any way of considering, the extraordinary complexity and creativity of the historical, philosophical, and artistic texts with which historians, philosophers, and critics of the visual and verbal arts are trained to work. Since it is, however, precisely this complexity that is the most interesting and the most mysterious characteristic of literary texts and of visual works of art for the question at hand, the habitual and indeed necessary reductionism of these more empirically oriented disciplines has made them unfit to pursue this task unaided. What is generally considered the “scientific approach,” precisely that methodological keystone that has supported the construction of our current understanding of human cognition, has also prevented scientific researchers from dealing with the issues that cultural historians spend years learning to respond to, namely the utter uniqueness of the most highly valued texts and works of art.

Spolsky denies the redundancy charge (“already contributed foundationally”) and concedes the (in)differentiation and incommensurability charges (“necessary reductionism,” “unfit to pursue this task unaided”), thus also dismissing the imperialism charge by implication (insofar as science’s contribution is foundational and its reductionism necessary). From this point of view, the limitations reside on the other side of the disciplinary tracks (at least with respect to literature and other cultural products), and it is the scientists who await instruction and illumination from “historians, philosophers, and critics of the visual and verbal arts.” In illustration, Spolsky (*ibid.*: xii) points to several of the volume’s essays, whose “unprecedented suggestions of representational and interpretive failure . . . adumbrate . . . the future use of literary study toward further exploration of the limits of human symbolic cognition.”²⁸ In this and many other ways, Spolsky and the volume’s other contributors collectively suggest,²⁹ “Cognitive [literary] critics stand to contribute not only to literary studies but to the mind sciences as well” (Richardson 2004b: 3).

Such indeed was the original vision of the editors of “Bridging the Gap,” who suspected that the application of cognitive models to literature “would reveal a need for internal theoretical realignments or changes of focus for cognitive science itself. The extension of cognitive science’s theories to

28. See likewise Spolsky in this issue.

29. And to a large extent *only* suggest but do not yet demonstrate, with the important exception of Hogan (see 2004: 47), whose contribution to the volume reflects the genuinely two-way engagement in evidence throughout his work and in his interdisciplinary collaboration with the research group of the cognitive psychologist (and novelist) Keith Oatley. “I envision the following analyses as part of an ongoing research program—not only in literature, but in cognitive science and the psychology of emotion. They are not an application of cognitive principles to literary works, but a development of cognitive principles through the study of literature” (Hogan 2003b: 15).

these new ‘phenomena’ might thus be greatly enhanced if built upon the analysis of the structure of the text—the territory of many literary critics’ expertise” (Franchi and Güzeldere 1994a). Their next paragraph imagines an example of such “enhancement” that has since been powerfully realized by Sternberg, most pointedly in the two-part, book-length essay that forms the target of my second key moment. Franchi and Güzeldere (*ibid.*) invite us to

think, for example, of the models of “story understanding” elaborated by cognitive scientists to explain the thinking processes that underlie the correct interpretation of short tales; it is conceivable that an application of these models to the narrative structure of short stories and novels could provide useful insights into the models’ adequacy and explanatory power. On the other hand, such an application would be greatly improved if it were to take into account the work on the internal structure of narrative prose that has been carried out in the literary field.

Already “conceivable,” this project was another seven years in the making, but in the end with results to match those envisioned. What Sternberg (2003a, 2003b) offers in the two parts of “Universals of Narrative and Their Cognitive Fortunes” is not only an exemplary confirmation of Franchi and Güzeldere’s specific predictions with respect to cognitive-narratological work but also an exemplary illustration of the kind of interdisciplinary performance outlined in my epigraph. Here a master poetician and historian of literature accepts the challenge and sets out to show—through wide and careful reading in the other discipline, detailed analysis and exemplification, and thick description and argumentation—just what literary-critical expertise, properly so-called, has to contribute to the science of the (narrative, literary, discursive) mind.

2.1. *Optional versus Constitutive Interdisciplinarity*

Sternberg’s (2003a: 299n2) case opens where it should, with a consideration of the rationale supporting the interdisciplinary effort that is claimed to underlie cognitive literary studies, “claimed” because on examination “the need for doubling the viewpoint on the interdiscipline—its traffic, promise, conditions as well as actual respective performances”—becomes abundantly clear. Jackson (2002: 163) had already articulated the question of “interdisciplinary necessity” as a version of my value-added question but in terms that showed a baffling (though hardly idiosyncratic) failure of interdisciplinary vision. For Jackson (*ibid.*: 177), literary phenomena are so much one-off, unrepeatably affairs that the normally “dialectical relationship between theory and practice,” where each refines the other in cycles of reciprocation, “cannot be the case with cognitive literary studies because

the originating [cognitive] theory cannot, even in principle, be recursively affected by the investigation.” As a result, “if we . . . find the text somehow undermining the theory, we will do mental work to bring the interpretation around to the theory or else give up and start over with some other approach” (ibid.). But the first of the proposed options amounts to the leveling strategy whereby the data are coerced into conformity with the model and its hypotheses (see section 1.2), while the second willfully overlooks their real mismatch and the (at least apparent) explanatory inadequacy of the borrowed theory. Sternberg (2003a: 352) specifically objects to this “unequal role assignment” involving “the automatic casting of the ‘humanistic’ partner in the role of poor relation: testee, borrower, applier, at most elaborator of hard cognitive science.” Overlooked in such a casting decision are the enormous theoretical and practical resources of Jackson’s own field, what Sternberg (ibid.: 301) terms its “enlistable collective knowledge,” peerless in its own right, and “the qualified practitioner’s know-how.” Concerning and even constituting the “unique” cognitive phenomena of literature, such otherwise unavailable knowledge and know-how are in fact “indispensable” to a wide range of cognitive research programs, with “story research” being the leading and representative example (ibid.).

Sternberg does not mean “indispensable” in any loose or simply idiomatic sense—it is not merely that cognitive science would “do well” to consult the fine things said and done throughout the history of literature and criticism. Rather, if it wishes to explain the mind’s pervasive and polymorphic encounters with, upon, and through discourse, cognitive science has *no alternative* but to consult the traditions of discourse analysis and expertise that are represented by such fields as, in the words of my epigraph, “theory of literature, literary criticism and interpretation, literary and cultural history, semiotics of culture, linguistics, rhetoric and communications.” Short of such consultation, the models of mind science will inevitably simplify matters and thereby miss or distort the real complexities of human cognition in both its quotidian operations and a fortiori its distinctively or *extraordinarily* literary ones. Whereas literary scholars may go about their business perfectly well (and have for millennia) without consulting the latest in theory of mind or neuronal group selection research, the scientists of everyday cognition, which includes the daily kinds of reading and other discourse encounters all of us undertake, finally cannot dispense with the interdisciplinary alliance.³⁰ Sternberg (ibid.: 302, 304) puts the

30. Indeed, with *all* such alliances: “That the [cognitive scientist’s] disciplinary object of study [mind] intersects with everything in human experience, narrative included, only means that its students can bring to every resulting interdiscipline part of the equipment” (ibid.: 304).

point in no uncertain terms: Because “nothing in their mother disciplines qualifies cognitivists for analyzing discourse, narrative or otherwise,” their “choice lies between demanding partnership with the native research community and happy-go-lucky unprofessionalism” with its predictably facile results. Optional to literary scholars, the interdiscipline of cognitive literary studies is “necessary” or constitutive for cognitive science (ibid.: 303).³¹ Indeed, even with regard to “the very mental aspect relevant to the mind/discourse encounter”—in other words, to the cognitive scientist’s proper object of study itself—“the supposed experts on it still have more to learn from the heritage of poetics and aesthetics than to teach. Unexpected, certainly unflattering, but demonstrable nevertheless” (ibid.: 353).

And demonstrate Sternberg does, at length and with concrete results that repeatedly satisfy the value-added criterion. Whereas Simon proposed to “clarify” (and succeeded at reductively simplifying) key concepts of literary criticism, Sternberg applies himself to the complication of central cognitive-scientific concepts, such as “cognition” itself, “mental representation,” “ambiguity,” and of course “narrative.” Sternberg (ibid.: 313) outlines this program in terms that, to revert to our Stanford categories, reassert the redundancy and (in)differentiation charges against cognitive approaches and deny the incommensurability charge³² (telltale phrases emphasized):

The mind’s very encounter with discourse ranks high among the losses incurred [in cognitive work to date], because the question *already features* in poetics since classical literary theory, under assorted guises, as well as in the early and modern study of visual art. It repeatedly features there, moreover, with an eye to *the difference*, even in reality effect, between art and the life it “imitates.” If less oblivious, cognitivist newcomers to the encounter in question *might thus be spared the fallacy* of lumping together world and discourse world, what we mentally image (“represent”) as observers and as processors of another’s text-mediated image: an error in ontology whose massive chain reaction will emerge in force throughout. If less oblivious, again, they *would know better* than to set cognition against (or at least above) emotion, or to premise the well-formedness of dis-

31. Writing in the same year, Hogan (2003a: 2) comes to a similar conclusion about optional versus constitutive interdisciplinarity: “In short, the arts are not marginal for understanding the human mind. They are not even one somewhat significant area. They are absolutely central. Put differently, if you have a theory of the human mind that does not explain the arts, you have a very poor theory of the human mind. Indeed, I would go so far as to say that literary study is likely to survive anything, though it will be impoverished (not to mention boring) if it ignores important intellectual developments. However, cognitive science cannot afford to ignore literature and the arts.”

32. As for the ideological imperialism charge, Sternberg would point to the culture of “scientism” that has made for cognitive-scientific presumption and literary-critical deference. His therefore may be counted as a work of ideological exposure.

course, or to flatten out story to its actional structure, or to mistake notorious variables for laws, culture for nature.

The theoretical interventions prefaced here are rendered necessary by a “neglect of definitional groundwork” that “has yet become the rule in the field” (ibid.: 331). Of course, such groundwork would amount to an admission of the constitutive need of the interdiscipline and a first step toward its formation. Sternberg, who does not have to, takes a giant step and several large strides more in that direction.

2.2. Narrative

What is (a) narrative? Obviously central to literary studies as to narratology proper and explicitly addressed by Aristotle in his field-constituting *Poetics*, this definitional question has been endlessly revisited and richly complicated in the course of literary(-critical) history. Little wonder, then, that theorists untrained in literature and its criticism, working just this side of *ex nihilo* with concepts formulated in their own lifetimes by computer scientists and cognitive psychologists, would come up with answers that fall considerably short of the mental object in question. And yet, this object has been faithfully described, patiently analyzed, and cooperatively theorized to the extent that, in the hands of someone as well-read and practiced as Sternberg (2003a: 338), the necessary distinctions and nuances with respect to it may be interrogatively multiplied at once:

Failing either [definitional] consensus or, often, self-consistency on what's-what within narrative and why, how would [cognitive] analysts model “story” knowledge, well-formedness, understanding, inference, tempo, valuation, recall? The chain reaction . . . again overtakes every lower-level aspect and element: how, if at all, do they enter into the fuzzy storiness (and/or/versus the narrative and discourse classes)? Take orality, fictionality, interestingness, causality, problem solving, the Freytag pyramid of exposition-complication-resolution, for example. Are they invariant, variable, necessary, sufficient, conventional, exemplary, (sub)typical?

The passage is dense but necessarily so and invaluable for what it teaches the thoughtful reader in a few breaths: that narrative is a hierarchically organized, multidimensional phenomenon that develops and transforms simultaneously (along) a plethora of parameters, some generic (but nonetheless adaptable and multifunctional), others optional (but newly determined and disposed in narrative encounter). Before one can answer any of these ultimately indispensable questions, Sternberg insists, one needs a working definition of the term *narrative* that can accommodate the whole class and not only the critic-stipulated “typical,” “conventional,” or otherwise “exem-

plary” instances thereof. Only on the basis of such a definition can narrative be distinguished from, and systematically related to, what it is not.

Here the wisdom of beginning the interdisciplinary enterprise with narrative theory and moving by patient steps to cognitive studies becomes evident: narrative may be precisely defined as a subclass of discourse that arises in the interplay of two temporal sequences, one discursive, the telling of the story in voice, print, or image, the other actional, the story that is thereby told. This generic *twofold* of representing séquence and represented sequence establishes a complex *manifold* of relations that may be variously and parametrically characterized. There are, for instance, experiential and/versus actional dynamics. The former sort consists in the dynamic experience of the mind as it processes narrative discourse (whether in creation or reception), including its sense- or coherence-making operations, with their cognitive-affective correlates suspense, curiosity, and surprise. As opposed to this experiential dynamic, the actional sort consists in the inferred dynamics that animate and motivate the represented action unfolding in the story world, including not only its temporal movement from beginning through middle to end but also the causal, intentional, and affective energies that (are understood to) force it along that trajectory. Kinds or levels of dynamic may thus be reconceived in terms of their underlying logic, a parametric reformulation that reveals the important hierarchical relation between the two levels: “story-world chrono-logic varies with story-telling teleo-logic” to demonstrably Protean effect (Sternberg 2003b: 538). But by failing to begin with these fundamental distinctions, cognitive narratologists set off a “chain reaction” of misapprehension—and therefore *missed* apprehension—which cascades through all subsequent questions and issues, beginning with that “disciplinary shibboleth ‘mental representation’” (Sternberg 2003a: 354).

2.3. *Mental Representation*

Sternberg is not alone in faulting the term *mental representation* for being a “nonstarter,” “an empty substitute or at best a prerequisite or lowest common denominator, for the assorted type-specific effects producible on the mind in and through representation” (ibid.).³³ In this case, however, the call for *differentiation* proceeds from the principled difference “between the mediate and the immediate” (ibid.: 320), evident not only in the felt differences between, say, actually being in a fire as opposed to reading about one in a book or seeing one in a movie but also in these latter cases in the vital difference between the *immediate experiential* and the *mediated*

33. For a more recent and more radical critique, see Spivey 2007.

actional levels of narrative. Consider, for example, the qualitative difference between your direct experience of suspense, curiosity, and surprise in response to a narrative and your “representation” of those feelings as belonging to a character within it. If your own cognitive-affective experiences happen to be coincident with those unfolding in the character’s experience, you may indeed fail to discriminate between the two. But wherever the telling deviates from and disorders the told (as it so often does), the experiences will be readily distinguished: for example, Othello’s curiosity (about Desdemona) and surprise (about Iago at the end) correlate with but hardly equate to our suspense (about Othello) and curiosity (about Iago).³⁴ Considering that “psychology must depend on level of ontology,” there is therefore a necessary threefold distinction to bear in mind: among first-order reality, the reality of direct sense experience; second-order reality, the reality discoursed about, including the represented experiences and affections of characters and personae; and third-order reality, that of discourse-mediated affects, including the felt experiences of narrative suspense, curiosity, and surprise. Furthermore, these distinctions are best borne in mind by being *kept in play*, as they always are in the “online” comprehension of (literary) narrative. Yet “cognitivism tends to isolate the world discoursed about from the discourse about the world and the world of discourse—particularly the action from the entire (con)text, as if it were real” (ibid.: 319).

2.4. Ambiguity

Equally compromised by this isolated focus on the second of three hierarchically organized and co-implicated levels of reality is the cognitivist account of ambiguity, which forms the cornerstone of cognitive aesthetics in general.³⁵ Broached already by Simon and variously developed thereafter, the theory of ambiguity in narrative has been hobbled from the start by the identification of ambiguity with uncertainty and nonclosure in the action and semantics of the represented world alone. Here anew the corresponding distinctions between experiential and actional dynamics, on the one hand, and determining teleo-logic and determined chrono-logic, on

34. Hogan (2003a: 148–50) makes a similar point about the need to distinguish the reader’s and the characters’ emotional appraisals of the developing action, even where the reader supports or “shares” a particular character’s goals with respect to possible actional outcomes.

35. See, e.g., Deacon 2006; de Mey 2006; Zeki 2006, and consider the enormous range of phenomena being described, from neural patterns and conflicts to illusionistic conceptual blends to peculiar affects accompanying bisociation. As a blanket term covering all these phenomena, *ambiguity* loses any definitional precision and thus theoretical utility. Required are generically determined definitions of this pan-cognitive experience for each of the kinds in question, such as Sternberg provides for narrative.

the other, pay dividends. In its generic operation of “gapping” our emergent understanding of the story world action—concerning what happens next (suspense), what happened before (curiosity), and past happenings we hardly suspected (surprise)—narrative discourse always and everywhere proceeds on the basis of “the constructive role of ambiguation,” which prompts “our trial-and-error heuristics vis-à-vis every gap” (Sternberg 2003b: 542). Moreover, these heuristic best guesses are, strictly speaking, neither “uncertain,” if uncertain means without specification, nor subject to “resolution,” if resolution means the wholesale cancellation of the ambiguity and erasure of its peculiar effects. For the heuristic possibilities are typically arrays of determinate options, with the ones “that sooner or later turn out imaginary (unlikely, unveridical, unrealized, deliberately misleading) yet energiz[ing] and shap[ing] the experiential process, with bearings on the very product (insight, attitude, judgment, memory, recency effect at large) that the reader carries away” (ibid.). So ambiguity, a(n only apparently) paradoxical phenomenon of multiple determination, operates across levels and ramifies persistently in the experience and meaning of narrative discourse, regardless of the outcome of the story.

As just hinted, such an appropriately nuanced theory of ambiguity has striking further consequence with respect to *closure* in narrative, which is often simply assumed as a criterion of well-formedness in cognitive work but which has been a vexed and therefore productively complicated question in poetics. On the one hand, ambiguity is itself a form of closure, in this case, multiple foreclosure (beginning with actional and experiential possibilities that *are not* imagined as a [working-memory] consequence of those that *are*); on the other hand, the narrative closure of ambiguity remains an open, scalable variable all along the discourse sequence. Thus Sternberg (ibid.: 569): “Against the loose or wishful talk about it, ambiguity itself does not entail an open text, or mind, except comparatively speaking. It is instead a *pattern* of multiple (tense, divergent, either/or) signification, hence of multiple closure, and in sequence, of provisional multiple foreclosure en route toward anything from entrenchment to yet thicker entanglement to uniclosure: from persisting to going up to reaching the lower limit on the scale of open-endedness.” Ambiguity sustained, amplified, reduced, but ever-present in narrative structure and, in its affective traces, everlasting in narrative response: these are the hard-won insights that only long training and longer thought in poetics can produce.

2.5. Cognition

Perhaps Sternberg’s most devastating critique of the cognitive enterprise concerns its inexplicable inattention to the very mental phenomena it is

supposed to capture and explain. Focusing more or less exclusively on the story world's representation, its existents, events, and existential exponents, cognitive theorists have lost the(ir) mind, the very object of their study and alleged expertise. In narrative (as elsewhere), the essential cognitive stakes lie in the *interaction* at the discourse level, with its processing effects and affects stimulated by gaps and ambiguities, rather than in the *representation* at the story world level, with its derived action and chronological (non) closure. Emphasizing the second-order "mimetics of (verisimilar) action" over first- and third-order narrative "interactivity and experience," cognitive story analysis and narratology incur "nothing less than a switch back from mind to matter," and "mentalism evidently loses to representational formalism" (ibid.: 588, 599, 612). The cognitive program thus amounts to a translation of "Aristotelian 'mimesis' into explicit interiority [but] without the original's progressive unpacking," especially with regard to narrative's "impact" as a distinct kind of discourse (Sternberg 2003a: 354, 377; see also Sternberg 2009: 476 ff.). Yet it is precisely in the "impactive" or affective "teleologies [that] characterize the genre"—namely, "curiosity, suspense, surprise"—that "narrativity gravitates from 'mimetic' surface to mental interplay, from a given action per se to a threefold complex of time effects whose experiencing necessarily signals and sequences an action represented in, or below, an assortment of discourse forms" (Sternberg 2003a: 333). Put in other terms, the level of representation is continuously caused and conditioned by the level of discourse, the mental experience of which leads not only to the imaginative reconstruction of a "material" story world and an actional chronology, but at least as importantly and with the deepest interpenetration, to a ramifying series of affectively driven heuristic gambits about that world and action. It is not as though we have, on the one hand, a set of mental representations adding up to a story and, on the other, a set of mental reactions thereto. Rather, our integrated reactions to the discourse constitute the story as a series of emotion-laden alternative scenarios of its past, present, and future. To be sure, these scenarios make programmatic use of image and event schemata, semantic frames, situational scripts, and other conventionalized forms of conceptual structure, but these hardly begin to tell the story of narrative mentation, which is saturated with affect from start to finish.³⁶

Only with the necessary definitional groundwork in place do we discover and hold steadily in view the *mind* at work in and on (the) narrative; without it, we are condemned to a flattened and therefore inadequate

36. Thus if they were "less oblivious" to the "mandatory" other discipline of narrative poetics, cognitive scientists "would know better than to set cognition against (or at least above) emotion" (Sternberg 2003a: 303, 313).

theory of narrative, with unavoidable and pernicious consequences for our more general theories of representation, ambiguity, closure, and summing all, *affective* (or *affected*, if you prefer) cognition. This is the virtue of Sternberg's poetics as/to cognitive science transfer: it can save untold squandered hours, not to mention epidemic misunderstanding, in "false starts, bitter lessons, outdatings," and other errors already exposed and surpassed in the well-documented course of literary-critical history.

2.6. The IGEL (Non)Response

Given the number and scope of Sternberg's poetics-inspired interventions, one cannot help being surprised at the modest and often tangential, not to say inaccurate, responses given at the International Society for the Empirical Study of Literature and Media (IGEL) panel on "Universals of Narrative and Their Cognitive Fortunes." Organized by Els Andringa (2004) for IGEL's 2004 conference at the University of Alberta and titled "Perspectives on Three Decades of Cognitivist Efforts," the panel featured five capable respondents—the cognitive psychologists Gerald Cupchik and Art Graesser and the cognitive-friendly literary critics Elfenbein, Uri Margolin, and Richardson—whose comments were subsequently posted online. Admittedly, these are briefs for conference proceedings, and there was undoubtedly a felt pragmatic demand to say something new or to frame the discussion in a different way, but it is nonetheless true that a reader who took in these responses first would get only the barest sense (and that chiefly from Margolin) of what Sternberg achieved in his target articles.

Among the many factors at work in this collective underestimation, I cannot help but think that a more or less central one is the commanding difficulty of Sternberg's interdisciplinary vision, with its requirement—optional for literary studies in general but constitutive for genuinely cognitive approaches—of mastery in the home discipline and wide, critical reading in the other or associate discipline. Graesser (2004), for example, confesses to being "tantalized by prose that was dense with scholarly nuances and that challenged the working memories of virtually all of us readers. This is indeed scholarship at its finest" and—or rather *because*, Graesser implies—most demanding. Confronted with Sternberg's massive scholarship, even Richardson (2004a) comes away feeling, in his marvelously ambivalent phrase, "confirmed" in "my own amateurish sense" of matters cognitive-narratological.³⁷ Such comments index the difficulty

37. Against this self-deprecation, Sternberg (2004) commends Richardson's "own striving for a two-fold expert anchorage." For a prime illustration of the same, see Richardson in part 2 of this issue.

inherent not just in Sternberg's reach and style but in the very nature of the interdiscipline he means to challenge and improve.

The difficulty may also be registered in those moments where summary and elaboration turn into mischaracterization as a consequence of a failure to grasp and hold steadily in view just those distinctions that Sternberg labored to secure. For instance, Cupchik (2004) gets carried away by analogies to discursive phenomena at large into this multiply wrongheaded assertion:

The emergence of coherence therefore lies in the interplay of action and communication, of subject matter and style, of semantic and syntactic information. But such an interplay cannot be effective or complete unless the context of the subject matter is understood and the embedded code that defines the style is shared by creator and recipient. Only then can the dynamic of complementary relations unfold, prompting the recipient to adopt a meaningful perspective, and experience the richness of an aesthetic episode in shared contact with the artist or author.

Almost from the start, Cupchik loses sight of the peculiarly *narrative coherencings* that are the topic of Sternberg's articles, jumping instead to the superordinate category of discourse in general (as Sternberg 2004 observes in reply), which is in turn reduced to necessary but hardly sufficient conditions ("understood context" and a "shared code") and fettered with apparently normative demands for disambiguation and closure to boot ("coherence" in the singular, "effective" and "complete"). Elfenbein (2004), in a truncated version of his original response, advances challenges that are beside Sternberg's generic points. A good example is his enumeration of all the factors that go into the experience of reading that Sternberg's theory does not cover, including the reader's "background knowledge," "cognitive abilities," "physical state," "goals," "attitude," and "social context" (ibid.). To be sure, this variety must *also* be accounted for,³⁸ but it in no way obviates, as Elfenbein appears to believe it does, the possibility that narrative may be exactly defined in terms of its generic universals. If anything, the reverse: the sheer variety of extrageneric factors is precisely the reason that generic universals³⁹ are required—without them, such variously prepared readers could hardly reach even approximate agreement as to the nature, meaning, and effect of a given story. In any event, does not every (minimally competent, however otherwise conditioned) reader

38. See Allington 2006 for a study that makes some headway and Sternberg 2007: 684 for further enumeration of the multiple "frames" that must be in play.

39. Universal does not mean nonadaptable or unfunctional. On "contingent universals," see Bordwell 2008; Hogan 2003a: 133 ff., 2003b: 26 ff.

of an adventure wonder about and provisionally anticipate what will happen next? Again, does not every reader of a murder mystery try to figure out who done it? And who has not been jolted out of mistaken conception by the hideous revelation of Oedipus's double parentage? In each case, has not the narrative discourse itself been organized to prime just these effects? It is these specifically narrative effects/affects that Sternberg sets out to capture in a theory that embraces the genre's diversity without effacing its distinctiveness.

The IGEL response comes to significant point, however, in the contrasting comments of Graesser and Margolin, which return us to the incommensurability critique. Graesser (2004) faults Sternberg's grasp of "the goals and practice of science," which "always" proceeds by "reduc[ing] the problem to basic constituents rather than first trying hypothetically to elaborate all of the potential factors." There can be no question, however, of Sternberg's understanding of this procedure, especially in cognitive science: he critiques it explicitly in the course of advancing his own counterprocedure (see, e.g., Sternberg 2003a: 335, 368) with its minimal methodological corollary. As Margolin (2004) puts it, "In theorizing about narrative, one must start with a complex model including both discursive and mental features, or the exercise is doomed from the outset." But Margolin (*ibid.*) himself worries that the demanded complexity may not sort with the "strict methodological norms" of the sciences, leaving us with an either/or alternative between thin scientific generalization and thick critical description:

It is certainly the case that an enormous amount of work on text structures and the text/mind interface has been done in literary studies since Aristotle. Much of this traditional work is indeed not as systematic, explicit, etc. as current work in cognitive science, but this does not invalidate its results. There is also a general methodological issue at stake here: does formal clarity, explicitness, systematicity, etc. guarantee valid results, and does lack of the above invalidate any set of claims? And is there any correlation between the semantic richness of claims and the formal rigor with which they are expressed? Furthermore, what is preferable: a theory rich in interesting claims but formally loose or the opposite: formal rigor and limited informativity?

Searching questions these and ones that go to the heart of interdisciplinary conception. Do we proceed piecemeal, learning through simplified hypotheses about theoretically discrete components of (literary) cognition (e.g., event schemata, spatial reference frames, metaphorical mappings; working memory, attention, affect; mirror neurons, motor maps, limbic projections), adding them up and making adjustments in the end to arrive

at a full-scale model of human cognition? Or do we rather proceed in the reverse fashion, positing the complex entity from the start and remaining warily skeptical of any partial program that, in William Wordsworth's memorable phrase, "murders to dissect"?

The Romantic allusion is useful insofar as it reminds us of the central principle of organicism: the whole is at once the formal cause and the instrumental outcome of the differentiated parts. If this holds for the human mind, the danger in parceling lies in the fact that the parts, to use another Romantic term, "interanimate" one another, such that their living functions can be neither observed nor explained in isolation. The development of cognitive science from AI symbol processing and knowledge representation to embodied cognition and what is now termed the "aesthetics of human understanding" (Johnson 2007) makes a case in point.⁴⁰ This latest embodied, emotional, and ecological approach is typically presented as a multidimensional challenge to the earlier computational approach (see, e.g., Spivey 2007), demanding a radical restart on the cognitive project with a more complexly characterized object and correspondingly, as Margolin predicts, that much less "clarity, explicitness, systematicity" in its scientific pursuit. Here we return to the wisdom of my epigraph, with its insistence on the complex characterization of the literary object within ever-widening frames of the human sciences, from literary theory or poetics to the cognitive sciences. As Sternberg ably shows, the first of these disciplines, which is after all the oldest by far and by far the most richly developed, in fact offers a clarity, explicitness, and systematicity quite its own.

3. Poetics and/or Cognitive Science

If Sternberg's essays and the IGEL response only go to confirm Sternberg's (2003a: 324) view that interdisciplinary "command of the opposite number's metalanguage requires more than good intentions," my third key moment in the history of cognitive literary studies will illustrate the current status (in both senses of the term: "prominence," "condition") of the debate about exchange values. For its inaugural issue in 2007, the *JLT* commissioned an article from Kelleter on the topic of literary studies and science, which he supplied in the form of a critical review of cognitive and evolutionary approaches to literature. His target essay and the seven articles that respond to it (and to one another) in the next four issues of

40. For early poetic and aesthetic adumbrations of this late cognitive-scientific development, see the articles by Miall and Freeman in part 2 of this issue.

the journal (2007–9) return us, with apparent reason,⁴¹ to the position of incommensurability, announced already in Kelleter's title, "A Tale of Two Natures: Worried Reflections on the Study of Literature and Culture in the Age of Neuroscience and Neo-Darwinism." If key moment number three is any indication, the best-case scenario would seem to be not *interdiscipline* but a less ambitious and evidently less demanding *multidiscipline*, poetics and cognitive science, each with its own objectives and theories and methods to suit.

In Kelleter's analysis, all four of the Stanford critiques reemerge. The field of cognitive literary studies remains redundant with respect to other approaches, especially those of linguistic stylistics, only now the redundancy is motivated: "It's not as if we were unable to do this kind of thing [i.e., 'detailed and precise textual analysis of style and literary craft'] before cognitive [approaches to] poetics came along—the point is that literary professionals have widely *stopped* doing it," in favor especially of cultural studies approaches (Kelleter 2007: 156). This is, Kelleter allows, one aspect of the threefold value added by the cognitive approach, which marks, at least in theory, "a return to method, a return to literature, and—crucially—a return to fundamental questions about the status of literature among human activities." The problem is that the results so far have been "trivial" and "banal," with literary works and other cultural products leveled in "instrumental fashion" to the given model of general cognition (*ibid.*: 162; see sections 1.2 and 2 for important exceptions to Kelleter's polemically sweeping rule). In this, cognitive literary scholars—dubbed "neo-naturalists" by Kelleter (*ibid.*: 160) to emphasize their intent to ground humanist study in the natural sciences—fail to differentiate as they should between "facts" or "natural objects" and "artifacts" or "cultural objects," yet "there is a nontrivial difference between human artifacts and natural objects" and therefore likewise "between knowledge of his-

41. I say "apparent" because Kelleter and his respondents rather surprisingly neglect a prominent line of scholarship (e.g., Hart 2001: 327 ff.; Hogan 2003a: 194 ff.; Richardson 2004b: 12) that has critically distinguished between cognitive and evolutionary approaches to literature precisely on the basis of the explanatory role accorded to the biological with respect to the cultural. The absence of Spolsky (2002, 2003) in particular is puzzling, given that she argues explicitly for the productive parallels between Darwinian theories of (cognitive) variation and selection and Derridean and other post-structuralist theories of discourse and culture. Furthermore, it would appear that Spolsky's (2003: 162) yardstick for measuring the value added in cognitive and cognitive-evolutionary literary studies is calibrated pretty much like that of Kelleter and his allies in the *JLT* "controversy," according to degree of granularity: "If not all attempts to study literature in terms of cognitive science are equally useful, it is because of the level of generalization at which the less successful are articulated."

tory and knowledge of evolution.”⁴² Wholly ignoring the “cognitive cultural studies” negotiations worked out by Spolsky, Hart, Richardson, and others,⁴³ Kelleter (ibid.: 165, 173) emphasizes the incommensurability of scientific theory and literary object and the concomitant “risk” that “literary scholars engaged in a science of reading” will “los[e] sight of all those problems in their field that cannot be answered, or even formulated, in a scientific or empirical manner. For one, they risk a loss of interest in the *distinctiveness* and *historicity* of literature, or of any cultural phenomenon”; additionally, “literary scholarship risks surrendering entire traditions of research, together with time-tested methodological models, dedicated to the study of human culture as an imperfect realm of contingency, asymmetry, and untidiness.” For such loss, what gain? In Kelleter’s (ibid.: 175) view, little more than a scientific sleight of hand that substitutes the act of naming for that of explanation:

While the advocates of cognitive poetics may think they are participating in the exciting new knowledge of post-Cartesian science, they are participating in a history of terminological substitution (from mind/body to brain/body to mind-in-the-brain/body). . . . In the end, it doesn’t even matter which word is used for “the mind,” because the way neo-naturalists talk about—and hence think of—this concept is very frequently erroneous. For there is nothing *in* the soul; the soul *contains* nothing, just as the brain cannot *store* scripts and schemas. . . . Knowledge is not *in* the brain, and thinking is not done *by* the brain, but people need brains in order to think—in the same manner that they need eyes to be able to see (but it is not the eye that sees and looks, it is the embodied, living person). As Patrick Bateson and Paul Martin have pointed out, concerning another popular fallacy: “Genes make proteins, not behaviour.”⁴⁴

For Kelleter (ibid.: 176), what all this effectively means is that the “separate institutionalization” of poetics and cognitive science is unavoidable not because the two “realms of knowledge are . . . separated by an ontological difference or an unbridgeable institutional gap of understanding” but because each produces a form of knowledge that is, as we’ve heard more than once before, “categorically different from the other.”

Kelleter having set the *JLT* debate in these terms, it is striking indeed to observe in the sequel how they are taken up in contest but in the effort ironically fulfilled. For example, Karl Eibl, who is in fact singled out for praise by Kelleter, begins his defense of cognitive approaches agreeably enough

42. For some helpful reflections on this distinction, see Endres 2008.

43. For a comprehensive introduction to the field, see Zunshine 2010.

44. Conceptual metaphor and integration theorists have a similar unhelpful tendency to forget the metaphorical status of their terms and models (see Sternberg 2009: 493n32).

by insisting that the phenomena of literature and culture involve evolutionary *and* neurological *and* cultural factors and that all levels merit study and are theoretically interrelatable (if not reducible to a unity). His article then proceeds, however, to illustrate just the sort of leveling and trivializing that Kelleter posits as all too characteristic of the field. First, Eibl retreats to Leda Cosmides and John Tooby and the evolutionary theory of representational “decoupling,” which holds that “play” behaviors and “fictive” propositions may be entertained without (fully) engaging associated motor and emotional processes that *would* accompany real or factual instances of such behavior or utterance. Such decoupling of mental representation from actional and affective outcome is hypothesized to underlie literary representation and many other forms of “as if” thinking, and Eibl (2007: 431) accepts it accordingly and at once as “the technical foundation for such interesting things as reconstructing the problem-solving behaviour of others (ranging from theory of mind, with its enormous enhancement of our cooperative skills, to the study of history), the technical foundation for the counterfactual and the hypothetical—and the technical foundation for poetic fictions.” But at least for literary and cultural scholars like Kelleter, the vital questions concern literature *as* literature, literature *as generically differentiated* from these other “fictionalizing” tendencies. Here Eibl (*ibid.*) runs immediately into the now inevitable trouble, for without a working definition of what differential parameters constitute, and what others merely intersect with, literary phenomena, his theory cannot help but flatten and obscure critical distinctions and dimensions of literary experience:

A child in danger sets alarm bells ringing inside us, whether on the stage, in a novel, or in reality. A relative in danger (and the hero of a novel is something like an adopted relative) calls on our readiness to help and fight. The unknown other fills us with trepidation (and perhaps curiosity too), the thunder of Jehovah or Jupiter fills us with dread. Violations of biologically grounded taboos such as incest, fratricide, and patricide, or infidelity or treachery, place all righteous people in a state of appropriate disgust. In each case, the emotions involved stem, directly or indirectly, from the pool of primal emotions. It is little different on the cognitive front, where there are the schemata or expectations of “Gestalt” that lead us through a text—stories of departure and homecoming, of courtship and marriage, of war and victory or defeat, and so on. But, thanks to our ability to decouple, we do not react as we would to real events as these stories unfold; instead, we follow cognitions that develop out of them and can lead into very different contexts.

A theory of literature at this degree of resolution would find its own level in an introductory textbook for preteens, where it would placate parents and cultivate naive interest through drastic but age-appropriate simplifi-

cation. Does Eibl seriously recommend, or himself really feel, “righteous” and “appropriate disgust” in the face of Thomas Mann’s *Holy Sinner*, Kate Chopin’s “The Storm,” Lord Byron’s *Don Juan*? Is there really “little difference on the cognitive front” between, say, Joyce Carol Oates’s “Where Are You Going, Where Have You Been” and the newspaper accounts upon which it draws? No affective differences between pedophilia as represented in a novel (*Lolita*), pedophilia as enacted on the stage (*How I Learned to Drive*), pedophilia as perpetrated in real life? The reader will easily think of counterexamples, which for me, as for Kelleter and Sternberg, logically count as empirical data that immediately falsify the theory, if only in the “approximative” sense of calling it into question.

In his rejoinder to Eibl, Kelleter (2008: 139) accordingly observes that the crucial “question concern[s] the status and function of literary practice in the analytic mode promoted” by cognitive and evolutionary theories—that is, the question of what additional value accrues thereby to literary-critical understanding—and he restates his position with respect to the “universal anthropological” arguments advanced by another neoneurobiologist (in this case, David Sloan Wilson) to explain the enduring appeal of Shakespeare’s plays. Shakespeare succeeds so famously, the argument runs, because his plays focus on evolved and universal human dispositions. “The question of the universal success of Shakespeare’s plays cannot be answered in any satisfying way by identifying evolutionary themes within those works,” Kelleter (*ibid.*) remarks, for on this logic all works featuring human beings and their evolved capacities and interests would have universal success. We must also—and preferentially—“engage questions of canonization, interpretation, translation, popularization, mediation, promotion, cultural distinction, cultural politics, social politics, etc.—i.e. in historical questions.”⁴⁵ Engaging such questions, Kelleter again insists, will necessarily require the theories and methods of the institutionally separate but equal, but in these matters separate and superior, disciplines of the humanities.

Kelleter’s position is only bolstered by the remaining entries in “Controversy: Literary Studies and Science,” even where the writer’s stated intention is to challenge or modify it. Johannes Endres emphasizes the incommensurate principles that govern biological and cultural forms of evolution, the effects and products of which therefore require different explanatory approaches and apparatuses. “Cultural transformation processes distinguish themselves” from natural ones in critical ways: for

45. For a historically nuanced cognitive-literary explanation of Shakespeare’s ever-new appeal, see Hart 2004.

example, the “heritability” of acquired characteristics, the nonrandom (intentional) correlation of variation and selection, the dissociation of selection and “survival” from genetic reproduction (Endres 2008: 161). Such nontrivial differences lead Endres (*ibid.*: 163), like Kelleter before him, to question the “explanatory value of—fairly *general*—biological premises for—very specific—cultural phenomena.” More pointedly, Endres (*ibid.*) asks, can such premises give us better purchase on “historical and cultural phenomena . . . than theories of cultural mimesis, cultural memory, or discourse analysis (to name just a few)”?

Kilian Koepsell and Carlos Spoerhase raise the same value-added question, proposing as a test case the cognitive literary work of Gerhard Lauer, which imports the neuroscientific theory of mirror neurons to account for human mimesis, literary and otherwise. Mirror neurons, first experimentally identified in the F5 region of the macaque monkey cortex, have been shown to fire in response to purposive action, whether initiated or simply observed by the monkey. This indiscriminate neuronal “mirroring” of the actions of self and other is now hypothesized to underlie most if not all social behaviors of higher primates, including language, theory of mind, and affect in humans (see Braten 2007; Iacoboni 2008; Meltzoff and Prinz 2002). If this is so, Lauer’s argument runs, then mirror neurons must also play a leading role in our literary experience, which involves all these forms of social-interactive cognition and more. Citing Lauer’s article “Mirror Neurons: On Why We Enjoy Imitation” (2007), Koepsell and Spoerhase (2008: 364) write: “According to Lauer, processes of imitation can be set in motion not only when the actions of others are visually perceived but also when (literary) descriptions of others are read. Lauer links this belief to the hypothesis that literature consists of ‘stories to imitate’ . . . literature ‘feeds our imitation instinct. Mirror neurons explain why we need this sustenance and what conditions have to be met for literature to fulfill this function.’”

Well, not really: mirror neurons cannot explain our “instinct” or appetite for literature *as literature*, given that mirror neurons are supposed to be satisfied (i.e., made to fire) by *any* intentional behavior, from grasping a cup to following a gaze to speaking the name of action. Nor do mirror neurons explain the conditions that have to be met for literature to qualify as mirror neuron-generated imitation, unless the only condition we are talking about is the genetically determined sociality of the species, whereby all conspecific activity is, at least in principle, simulable. As Koepsell and Spoerhase (*ibid.*: 368n8) put it:

In so far as empathy and imitation are anthropological dispositions, the very ones on which culturality and sociality depend, literary communication cannot but presuppose their existence in the first place. This, though, does not tell us

anything about the specific role of literature. Even if literature turned out to be a form of training in which the ability to empathize and the ability to imitate can be honed through play (i.e., motivated only by ludic pleasure and aesthetic desire),⁴⁶ it would not be clear what distinguishes this kind of training from other kinds of training, art-related and otherwise, that are also based on empathy and supported by imitation. In short, even if the discovery of mirror neurons were to have implications for the foundations of culturality as a whole, Lauer's initial question—what is distinctive about (how we interact with) literature?—would present itself afresh.

So in turn would (and do) the theories and practices of literary interpretation that alone provide sufficient answers—or at least adequately differentiated models based on truly generic distinctions.

Coming to his own defense and that of cognitive literary studies in general, Lauer, as Eibl before, only sustains the prosecution's case. In particular, Lauer (2009: 149) jettisons any literary meaning of "generic" in favor of a more broadly "genetic" (more accurately epigenetic)⁴⁷ definition, with the usual fallout to—that is, of—the literary itself:

Results in the cognitive sciences are more qualified for explaining generic features of literature than individual ones. We are . . . able to explain why sticks can become horses or children are able to play role-games . . . why not everything becomes a theme in literature, but preferably those themes that deal with the common identification of intentions such as love stories; why narrative perspectives like the one in Goethe's *Werther* are an exception and authorial perspectives the rule; why rhythm and literature go together in all cultures; and many more aspects.

In the words of Sternberg's (2003a: 322) neat formula, originally directed at Turner but applicable to any such catchall endeavors, "What subsumes everything . . . confuses everything." Intent to prove "the actual explicative dimensions" and thus the nonredundancy of cognitive literary studies, Lauer (2009: 151) succeeds only in flattening the literary field to a unidi-

46. For the most recent entry in this line of thought, see Boyd 2009. For a thoroughgoing review of Boyd, see Mellmann 2010.

47. See Spolsky (1993: 35): "The brain is built . . . without detailed instructions about how the nerve endings will connect with other neurons or with muscles, but rather with the innate potential for new growth. This is the only way . . . that the animal would have evolved at all, because evolution selects for behavior which increase [*sic*] the species' chances of survival. The hypothesis of epigenesis, that is, that the structures of the organism are not all predetermined but instead grow toward effective behavior in response to the environment, is a leap of very great importance in the theory because it opens the way for an explanation of the way the physical structures and cultural ideas can interrelate." See Changeux 2002, 2008, for cognitive-neuroscientific discussions of epigenesis that do not slight the constitutive role of the sociocultural environment and thus the constitutive need for interdisciplinary partnership with humanists.

mensional lyric, dramatic, and narrative “continuum that ranges from the counting rhyme to ‘Wanderers Nachtlied’, from the role-playing games of children to Shakespeare, from fan fiction to Tolstoi.” Still worse, he exposes what Sternberg would call a “puritanical” and “package-dealing” desire to transmogrify available cognitive theories and data into normative declarations about literary creation and heuristics (“not anything becomes a theme,” “preferably,” “an exception . . . the rule”).

In Lauer’s vision of the poetics and/or cognitive science resolution that is worked out in various ways throughout the *JLT* “controversy,” cognitive literary studies will ally itself with experimental human sciences, with which it shares “closely overlapping” interests and which it aims to emulate in “methodical standards.” As it migrates toward the animating questions and validating criteria of such fields as cognitive and evolutionary anthropology, developmental and infant psychology, comparative ethology, the neurosciences, and even primatology, cognitive literary studies will progressively distance itself from the “historical-hermeneutic fields” of literary and cultural studies (*ibid.*). Writing in the same issue and taking Lauer’s part in the argument, Massimo Salgaro nevertheless disagrees with Lauer’s interdisciplinary arrangements, arguing instead that Lauer’s own research both coheres with and helpfully supplements the decidedly hermeneutic tradition of reader-response criticism dating back to the phenomenological approaches of Roman Ingarden and Wolfgang Iser. Though Lauer himself does not know it, by focusing “on the cognitive and emotional endowments which texts are expected to trigger in the reader,” he “fills the blanks in Iser’s theory,” particularly “the question why we read at all” (answer: our inborn “imitation instinct” based on mirror neurons) (Salgaro 2009: 162). Just consider what has been conflated and concealed in the passive construction “texts are expected to trigger.” It was precisely this textual trigger—with its constitutive structures, semantics, strategies, and summing these, phenomenological effects/affects in the reader’s experience—that Iser and Ingarden set out to describe and formalize in all its multidimensional complexity. This complexity may be correlated with complex mirror neuron systems but cannot be explained by them.

In the final entry in “Controversy: Literary Studies and Science,” Virginia Richter (2009: 376–77) proposes a compatibilist compromise. The “universalist interests” of the cognitive contingent and the “particularist” emphases of the historical-hermeneutic contingent may meet in their separate disciplinary journeys at a theoretical halfway house:

Lauer states that hermeneutic literary studies are *only* interested in understanding particular texts. By contrast, I argue that they take individual texts as their

starting point, but mostly in order then to pursue wider questions, sometimes to end were [*sic*] cognitive literary studies start: with a question about the anthropological functions and “uses” of literature. . . . Hermeneutics and cognitive literary studies are, so to speak, walking in different directions, but (still) along the same road. . . . [R]ather than argue [as Lauer does] that cognitivists should take the high road of true science while historicists go on staggering on the low road of hermeneutic interpretation, we should join forces. Both approaches have their methodological and theoretical strengths as well as weaknesses. Together, they could indeed contribute to an exciting remapping of the literary field. In fact, only together can they explore the “big question” that haunts the human sciences as well, the interdependence of nature and culture. (Ibid.)

This “both and” compromise is a grand and amicable conclusion, but in coming to it, Richter and the other contributors to the *JLT* series essentially excuse themselves from the hard work of cross-training that would stand for earnest on the interdiscipline’s promissory note.

Moreover, it is again notable, especially after Sternberg’s vigorous “counter-attack” (to recall Franchi and Güzeldere’s term for the poetics-as-cognitive-science paradigm), that *none* of the respondents in the *JLT* forum envisions any significant return for and upon cognitive theory as a result of its application in literary studies nor what it might itself learn in theory from the older and better-practiced discipline. Kelleter (2007: 155) sets the tone by omitting the possibility from the outset, explaining the neo-naturalist enterprise as unidirectional in transfer and goal: “Under such headings as *cognitive poetics*, *bio-poetics*, *literary Darwinism*, *empirical literary research*, etc., scholarly adaptations of—or to?—Darwinist and neurological concepts thus promise to fundamentally reorient the study of literature and culture.” Koepsell and Spoerhase (2008: 371) similarly envision a lopsided interdisciplinary affair, with one side only giving, the other only taking: the “transfer of knowledge can take place on various levels. It is, for example, conceivable that contemporary research in cognitive science could produce results suggesting that accepted accounts of the reception of literary texts based on poetics or rhetoric are misleading, or that the accepted terminological distinctions of literary theory are imprecise.” Here Lauer (2009: 146) is in full agreement with his likewise half-committed interdisciplinary critics, who all appear to see things on Simon’s (1994) terms: “I wish to show why it is productive for literary studies *not* to wait for developments in the cognitive sciences, but to get actively involved in these disciplines—and thereby change our own field.” The venerable disciplines stand to be corrected and changed for the good by the cognitive newcomers but not vice versa.

This collective failure of interdisciplinary imagination is disappointing, but it need not be discouraging. We have better models on record—

Sternberg has been the chief example here,⁴⁸ but I would also cite, for quality in their respective kinds, Margaret H. Freeman's (2009, 2011) work on poetic iconicity, Hogan's (2003b, 2004) work on literary emotions and literary universals, Richardson's (2001, 2010) work in cognitive historicism, Spolsky's (2001, 2004b) work on intermodal re-representation, and Barbara Maria Stafford's (1999, 2007) work toward a cognitive and cultural history of images—and they illustrate beyond doubt that the much that remains to be done can be done and is worth doing. Importantly, the history I have recounted here returns again and again to the priorities of, and the consequent priority of, the *literary* with respect to the *cognitive* in “cognitive literary studies.” No one would deny the necessity of human cognition for the production and reception of literary and cultural texts, that is, the *developmental* priority of cognitive skills in categorization, imagery, episodic memory, perspective taking, inferencing, and much more. The point is rather about *disciplinary* priority, by which measure the priority of poetics with respect to cognitive science is demonstrable not just in historical time but in theoretical purchase upon the literary object and its empirical effects. Translating this disciplinary knowledge into the dialogue that will constitute a genuine interdiscipline is the shared commitment of the essays that follow.

4. Cognitive Science as Poetics and Poetics as Cognitive Science

Seven essays were invited for this special double issue on exchange values between poetics and cognitive science from scholars whose long attention and various commitments to cognitive literary studies would ensure up-to-date, probing, and balanced consideration of the potential for productive knowledge transfer between the disciplines. The prospectus challenged authors to demonstrate and evaluate one or both of the possible directions of transfer as explicitly and specifically as possible:

In terms of the cognitive science-to-poetics transfer, we seek papers that apply or relate cognitive-scientific methods and models to literary works and theories with a view to evaluating (a) the portability of such methods and models, (b) their scope of impact, and (c) their necessity or non-redundancy with respect to traditional disciplinary approaches. In terms of the poetics-to-cognitive science transfer, we seek papers that investigate what, where, and how the theory, practice, history, and criticism of literature may contribute to theoretical and experimental programs in the cognitive sciences. (Bruhn 2010)

48. In addition to the essays discussed above, see especially Sternberg 2001 on inference, Sternberg 2007 on omniscience (with important implications for theory of mind), and Sternberg 2009 on narrative (and featuring a potent critique of the cognitive-linguistic program).

The focus on topic and text was otherwise left to each author's discretion, but the resulting essays nevertheless converge on a set of topics that are of central importance to both literary and cognitive research: affective, embodied, and distributed cognition; agency and intentionality; creativity and fictivity; genre; and metaphor. Read together under these rubrics, the essays join forces to illustrate a genuinely two-way exchange of considerable value—both immediate and indicative—for poetics and, even more so, for cognitive science. While cognitive theories and models redirect literary-critical attention to different or more clearly discriminated dimensions of the literary object, the resulting analyses, as Spolsky here again urges, are uniformly intended to “strengthen the theories they incorporate” and “move them toward greater subtlety.”

Spolsky's “An Embodied View of Misunderstanding in *Macbeth*” presents a first case in point. Updating J. L. Austin's speech act theory with Stanley Cavell's analysis of the performative dimensions and derelictions of “passionate utterance” and aligning both with cognitive-scientific theories concerning embodied, distributed, and social cognition, Spolsky reads *Macbeth* as a virtuoso representation of minds at their deeply complicated, always improvised, sometimes tragic work. As “an outsized version of common experience,” Shakespeare's play is an uncommonly clear record of varieties of multidimensional, provisional, and dynamically *revisional* thinking that constitute our social cognition and drive our social performances. Under competing pressures of desire, obligation, convention, and time, Macbeth and his lady struggle to control and conceal, yet simultaneously to communicate and coordinate, unspeakable passions. Their metacognitive self- and other appraisals (i.e., soliloquies) unveil the extent to which social action and utterance issue not from some unitary “simulation” of intended outcomes and other minds but from an always incomplete and continuously updated response to “distributed evidence,” which ranges from conflicting desires and intentions to embodied emotions and feelings to shifting sensations cascading in from the natural and social surroundings. Spolsky argues that “the literary complexity” clearly reveals “oversimplification” in the adopted theories of speech act philosophy and cognitive science. The testimony of Shakespearean drama suggests that con-fusion (of inassimilable components) and failure (issuing from conflicted, incomplete, and otherwise unsuccessful acts of cognition) deserve more prominent roles in philosophical and cognitive modeling of the social-performative mind.

Richardson pursues a similar line of argument in “Defaulting to Fiction: Neuroscience Rediscovered the Romantic Imagination,” in this case with respect to the cognitive system that enables memory, planning, and fiction making. Otherwise known as “imagination,” this system too always

operates under pressure and on the fly, retrofitting memories with later impressions and using the strictly *misrepresentational* result to compose possible futures and actual fictions. Richardson's focus is the cognitive-neuroscientific confirmation of an age-old intuition concerning the Janus-like conjunction of the powers of retrospection and prospection, an intuition that was clearly articulated in the empirical philosophies of Hobbes, Locke, and their followers and that was challengingly reconstructed in the literature and philosophy of the Romantic period. Unfortunately, this development in cognitive neuroscience must be characterized as a rediscovery rather than a recovery. For two critical considerations of the empirical and Romantic accounts have been all but left out of the reckoning in newer cognitive ones: the creative or *counterfactual* nature of memorial or retrospective representations and the consequent error-proneness of the prospective representations these "fictions" inform.⁴⁹ Richardson targets in particular the rhetoric of evolutionary adaptation with which neuroscientists and psychologists (and the literary critics who uncritically follow them) offer to explain the plasticity of memory as a resource for prospective planning of possible scenarios and outcomes. He appeals to the extensive documentary evidence of the literary-historical record, which presents a more sensitive anatomy and a less sanguine analysis of the (re)creative imagination. Like *Macbeth* in Spolsky's analysis, works such as "Tintern Abbey," "Frost at Midnight," *Emma*, and *Waverly* in Richardson's analysis stand as well-articulated models of the continuous and potentially catastrophic "interplay of memory and prospection" in human cognition, where the constitutive role of an ever-active imagination gives the lie to any crisp structural distinction of past and future, fact and fiction. If memory, planning, and social performance are in fact, like literature, imaginary, then the meticulously scripted evidence of literature, as well as the manifold theories that underlie and explain it, should be carefully investigated to expose and address "contradictions, lacunae, and oversimplification" in cognitive accounts of human imagination.

Abbott likewise calls upon the empirical evidence of the literary tradition to supply a deficiency in recent cognitive work on the "intentional stance" in literary cognition. In "Reading Intended Meaning Where None Is Intended: A Cognitivist Reappraisal of the Implied Author," Abbott

49. Likewise missing from recent cognitive accounts is a third critical consideration which arises from the first two: the possibility of *recognition*, that is, of a sudden and surprising realization that *corrects* a misrepresented past and a consequently illusory (understanding of the) present. This consideration too has a long pedigree in literary studies dating from Aristotle and is developed in specifically affective-cognitive terms by Sternberg (1978 [1971], 2003a, 2003b, 2009; see section 2).

offers a demurrer to David Herman's cognitive-narratological reduction of authorial intention to a hermeneutic schema of readerly know-how, that is, a pragmatic hypothesis of coherent design that assists in interpretation but that neither involves nor requires any real commitment to the *author's* intentionality per se. Abbott accepts this view of the role of the "intentional stance" in the reader's literary cognition as far as it goes, but he objects that that's not nearly far enough, not least because it fails to consider and accommodate millennia of expert testimony from writers and readers who view the matter more comprehensively and so quite differently. In the first place, "implied author"-type judgments persist beyond the reading experience and even in the face of disconfirming evidence, as a telling anecdote concerning the real author Samuel Beckett and his would-be interpreter Theodore Adorno amusingly illustrates. In other words, judgments of intentional design are not merely heuristic but rather foundational or apodictic, as the parallel cases of "ethical and legal thinking"—in which communicative acts are understood as intentional and therefore consequential—would likewise argue. It is evidently a requirement of our folk psychology that utterances have meaning because they're meant to—hence there is a "necessary intender" in our cognitive model of communication, which demands agency on both sides of the discourse encounter. However, these two modes of agency are asymmetrical, a fact reiterated throughout the literary-critical record but more or less neglected in cognitive work to date. Novelists, for example, have again and again testified to the unruly nature of literary creation, the tendency of characters and plots to escape authorial control and become self-determining. Though both are processes of discovery, creative inspiration thus differs from critical interpretation insofar as it involves intuitive rather than inductive or deductive processes of thought, "letting go" as opposed to "focused analytical work." From the author's perspective, the developing work is at some mysterious level given and thus "free" to mean what it will; this productive openness finds its receptive corollary in the readerly "freedom" to determine the intention(s) underlying the given work. The concept of an "implied author" is thus operative on both sides of the discourse equation but differentially, the author discovering and uncovering the implications of his or her authorship through creative inspiration and critical revision, the reader through heuristic assumption and methodical analysis. These cognitive processes are nonidentical yet intimately correlated, and their functional dimensions appear to issue from more deeply seated epistemological and ontological dispositions of the human mind. These demonstrable differences in function and disposition, Abbott argues, indicate that cognitive narratological proposals con-

cerning intentionality are in immediate need of literary-theoretical challenge and supplementation.

As his title “Placing Human Constants within Literary History: Generic Revision and Affective Sociality in *The Winter’s Tale* and *The Tempest*” makes clear, Wehrs joins Abbott in explaining generic variables in terms of genetic constants, here with special attention to representations of “affective sociality” or fellow suffering in literary romance. Through a capacious review of literary-historical and cognitive-scientific arguments about the role of emotion in social-moral appraisal and behavior, Wehrs distinguishes two competing constructions of affective sociality. One is based on self-conserving (i.e., egocentric or Machiavellian) motivations, the other on other-respecting (i.e., nonegocentric, possibly mirror-neuronal) motivations. Historically and philosophically, literary representations have been differently evaluated according to the degree to which they stimulate one or the other set of motivations and corresponding feelings and actions. But from Plato on, literature in general has been associated, for better or worse, with the nonegocentric emotion-arousal and processing tendency, which recognizes the desires and needs of others and in doing so compromises personal and political ideals of self-sufficiency.

Hence classical anxieties about the status and value of poetry in a well-regulated republic, anxieties that color the philosophical and literary developments of late antiquity and translate to the medieval romance. In this genre, “effects of power . . . and effects of goodness . . . substitute for and signify one another” to such an extent that the antagonistic other may be cast out not merely from the social consolidations of the inevitable conclusion but also and more generally from affective consideration altogether. This affective poetics of genre persists, Wehrs argues, until the decisive late-humanist, late-Reformation intervention of Shakespeare’s final romances. These plays stage the confrontation of “the good as absolute satisfaction of [personal/in-group] needs and desire, on the one hand, and the good as selfless concern for others, on the other,” and give the victory, both in the play and in the affective response it cultivates, to the last rather than the first. In this decisive literary-historical turn, the formative value of (embodied, enactive) literature is articulated in cognitive-affective terms and is emphatically confirmed (as in the metamorphoses of *The Winter’s Tale* and the masques of *The Tempest*). Story and performance are constrained by the cognitive correlates of their production and reception; but at the same time, and in response to changing cultural-historical conditions (such as the fragmentation of Christian culture in the Reformation era), story and performance reconfigure the relative weight and value of those correlates, environmentally “selecting for” and strengthening cog-

nitive dispositions that might otherwise languish because of a culturally enforced poverty of stimulation. Generic difference and development are therefore best characterized in the intersecting terms of cognition *and* culture, the one delimiting the field of possible experience, the other programmatically selecting therefrom.

Turning from the macrostructures of genre to the microstructures of diction and imagery, Miall offers a complementary analysis of and contribution to affective poetics. In "Wordsworth's 'First-born Affinities': Intimations of Embodied Cognition," Miall examines those leading ideas of Wordsworth's poetic theory and practice that run in "approximate" but nonetheless remarkable "parallel" to contemporary developments in cognitive neuroscience. Like present-day theorists of "enactive" (i.e., embodied and distributed) cognition, Wordsworth presciently emphasizes the constitutive roles of the body and its feelings in human responses to the natural and to social others. Miall shows Wordsworth to have been especially sensitive to, and his verse especially evocative of, "interoceptive images of the kinaesthetic and visceral body" that "most directly embody the animate, active forces that relate us to the one life of nature." This "animistic" imagery documents and communicates a preconscious empathic feeling of or for both agentive and nonagentive others, that is, the sort of feeling-based, other-oriented cognition that Wehrs argues to be the revolutionary affective issue of Shakespeare's late romances, only now extended to non-human, even inanimate objects as well. In company with Wehrs and Spolsky, Miall thus envisions a genuinely two-way exchange in which contemporary models of embodied, distributed cognition inform literary-critical analysis and interpretation but in such a way that the results further "illuminate the nature of . . . cognitive processes" and "the moral, cultural, and aesthetic experiences they make possible."

In "The Aesthetics of Human Experience: Minding, Metaphor, and Icon in Poetic Expression," Freeman likewise seeks to disclose the embodied and affective dimensions of human cognition, which are not, in phenomenological fact, separable from thought and mental representation but always part and parcel of them. Retracing a comparatively neglected strand of aesthetic theory that runs from Giambattista Vico to Benedetto Croce, Freeman argues that scientific methods and models alone can never yield an adequate account of these preconceptual dimensions of human cognition, because they cannot capture or observe the felt experience of consciousness. This is the special province and value of artistic expression of all kinds, whose alternative methods and models for representing human experience are thus essential to a fully fleshed cognitive science. As the systematic study of the cognitive, material, and structural conditions

that enable such expression, aesthetics is poised to contribute substantially to the science of cognition. Specifically, aesthetics can help discern how exactly sensation, feeling, and understanding are integrated in artistic representations and in aesthetic response. Freeman thus proposes the interdisciplinary study of “aesthetic iconicity,” that is, of the artistic structures by which and the cognitive correlates in which particular works *realize* the image-feeling-idea complex that is their creative inspiration and representational object. Her masterful analysis of the compositional process and revisions leading to the final version of “Dover Beach” reveals how verbal forms and structures—lexis, metaphor, rhythm, allusion, genre, and so forth—may be arranged and patterned to create what she calls, following Vico, “metaphors of identification.” Such metaphors evoke not just two conceptual or semantic domains but also and simultaneously preconceptual “images” of sensation and emotion. The imaginative fusion of sense impression with affective response—that is, aesthetic iconicity—is at once the poem’s conceptual theme and, thanks to its exquisite verbal artistry, its affective outcome. An aesthetic science that systematically catalogs the genera and species of such iconicity is essential to the cognitive enterprise, Freeman argues, not only for what it will reveal about the nature of artistic endeavor and experience but more generally for what it will disclose about the preconceptual content of human cognition.

Complementing Freeman’s study, my own article, “The Poetics of Analogy at the Limits of Blending Theory,” targets pre-conceptual *processes* of cognition that operate in the production and reception of novel metaphors. Lakoff and Johnson’s conceptual metaphor theory predicts a cognitive preference for metaphoric projections from source domains that are, with respect to their intended targets, more concrete and/or more strongly associated with the particular ground picked out by the metaphor. The theory allows, however, that these hypothesized “directionality constraints” may be systematically violated to potent cognitive effect. Extending my earlier study (Bruhn 2009b) of Percy Shelley’s analogical theory of mind, I argue that Shelley’s poetics of analogy valorizes just such violations and that literary criticism of his poetry provides a remarkably detailed and consistent account of the effects thereby produced: in particular, strong sensations of conceptual “motion” with a corresponding “evanescence” of image and idea. This description correlates suggestively with the theory of metaphor Shelley develops in his *Defence of Poetry*, which emphasizes the creative processes of human cognition rather than its representational products. Given that these processes are also the theoretical target of conceptual integration theory, I suggest that Shelley’s exemplarily deviant metaphors will repay careful cognitive-scientific study and

even experimental manipulation as models of limit-case conditions that evoke unusually dynamic (or process-oriented) cognitive experiences.

Taken together, these seven essays mark a significant advance toward a truly interdisciplinary alliance of cognitive science and poetics, one in which the exchange of theories, methods, and results will mutually enrich both fields. The case for a cognitive approach to literary studies is frequently made in terms of a natural-scientific complement or theoretical counterbalance to cultural studies and post-structuralism (e.g., Crane 2009; Hart 2001; Kelleter 2007; Richardson 2004b, 2010; Richter 2009; Spolsky 1993, 2002; Zunshine 2010), but the following collection emphasizes instead the *analytic* and (consequently) *interpretive* values that accrue. In virtually every essay, the author's informed understanding of cognitive-scientific hypotheses and models urges a return to some long-standing matter of literary-critical interest concern: the nature of the tragic flaw in the protagonists of *Macbeth* and of the affective heroics of those in *The Winter's Tale* and *The Tempest*; the impassioned, memorial, and metaphorical poetics of Romanticism; the problems of authorial intention and aesthetic effect; and so forth. Far from being redundant or reductive, the reinvestigation typically yields new or more sharply focused analyses and insights into celebrated literary works, long-standing cruxes, and diverse literary kinds.

Many of the essays import one or more cognitive scientific models or technical vocabularies to call attention to certain textual features and patterns and to specify, explain, or question critical responses to them. For example, armed with a variety of suggestive findings concerning the distributed nature of human social cognition, Spolsky and Wehrs advance strikingly parallel new analyses of what is called by one "failed attunement and expressive embodiment" and by the other "cognitive fallibility . . . and embodied susceptibility" in Shakespeare's dramas. In both cases, the evidence highlighted and the interpretations generated by the cognitive perspective offer a valuable corrective to readings of the plays in cultural and gender studies that fail to take into account the *cognitive* context(s) of human performance that Shakespeare so artfully and exactly represents. A related strand of cognitive research gives Miall new traction on the old issue of Wordsworth's pantheism, which he reinterprets in terms of an "animism" emanating from the embodied and affective dimensions of human cognition. The resulting analysis, Miall argues, foregrounds and helps explain a persistent ambiguity in Wordsworth's poetry concerning the location and nature of *agency* in the development of the human mind and in its perceptual and imaginative experience. In a similar fashion, I adopt a particular formalization of conceptual metaphor theory to give what I hope is a still

more precise anatomy of Shelley's much-discussed but conceptually elusive metaphors.

Literary theory and history also benefit from the challenge of interdisciplinary exchange, even where the resulting analysis reveals correctable shortcomings in the imported cognitive theory or apparatus. Driven by the limitations of a cognitive-narratological theory that he is otherwise inclined to accept, Abbott, for instance, reviews with newly motivated attention the literary evidence and literary-critical arguments for a more than functional conception of the "implied author." His effort brings to the surface a crucial asymmetry in the production and reception of fictional discourse, one that has important bearings on issues of intentionality in invention and interpretation for cognitive and literary theorists alike.

Similarly, the contrast between Romantic era and contemporary cognitive theories of memory and imagination leads Richardson to complementary analyses of the poets Wordsworth and Samuel Taylor Coleridge and the novelists Jane Austen and Sir Walter Scott. This involves a double pairing of figures and genres that are often treated in isolation but whose yoking together brings out otherwise indiscernible characteristics and continuities of Romantic discourse.

All of this argues, against early and often repeated objections (see section 1.1), the nonredundancy of cognitive literary studies with respect to the study of literature: seven articles here clearly answer the demand for literary-critical, literary-historical, and/or literary-theoretical "value added" in consequence of the interdisciplinary approach. Yet a large, indeed the preponderant measure of their value derives from the specifically *disciplinary* underpinnings of this interdisciplinarity, including above all an informed appreciation of the *differentia specifica* of literature. Nowhere here is the literary object flattened or otherwise distorted to fit the cognitive model; on the contrary, in every instance the cognitive model is required to adapt—for its own disciplinary good—to the literary example. This *constitutive* or necessary form of interdisciplinary calibration is possible because the fields of poetics and cognitive science are, in truth, far from incommensurate, even if they do not measure things (not even the same thing) in quite the same way. Abbott (this issue) puts the point succinctly: as the science of literary production and reception, poetics "harness[es] the empirical evidence of readers, texts, and writers to answer questions that apply to more than one instance."

The special nature, challenge, and value of this poetic empiricism are here perhaps most thoroughly illustrated by Freeman's cognitive-aesthetic analysis of "Dover Beach." The theorist or researcher who wishes to

address the cognitive dimensions and effects of such a poem will be in a hopeless situation if he or she cannot distinguish and systematically correlate its operative levels of structure, including patterns of diction and imagery, meter and rhythm, syntax, rhyme and other sound effects, discourse genre, and polymorphous metaphor (not just conceptual metaphor, but iconic—that is, phonemic, lexical, grammatical, allusive, and so forth—kinds as well). As Freeman so capably demonstrates, *all* of these levels of structure (and more) contribute in *integrated* ways to produce the poem's at once exceptional and unrepeatably but nevertheless actual and analyzable cognitive effects. The poetics of aesthetic iconicity thus inevitably precedes and enriches the cognitive theories that inform her analysis: indeed, as the orderly arrangements of my epigraph imply, such theories will be only and exactly as good as they are attentive and adequate to the real complexities of the human mind at play in the reading experience and at issue in cognitive (literary) studies.

Thus while it is fair to say that the interdiscipline's exchange values for poetics are considerable, it is equally fair to conclude with each and every essay in this special double issue that the exchange values are essential, which is to say indispensable, for cognitive science. If literary cognition involves and represents what Turner and fellow cognitivists term the "everyday mind," then it is that mind operating at unusual and therefore unusually revealing levels: thickly embedded, under pressure, self-deluding, most believing, other attending, at the origins or outposts of conception, in every permutation of metaphorical projection, from aesthetic iconicity to conceptual conflict and beyond—indeed, sometimes in all these conditions at once or in succession. Born as the systematic study of the relation of every kind of language form to representational and affective ends—and these are not really two ends but one and the same "cognitive" end—poetics is not incommensurate with cognitive science but rather its original form and, after millennia of development, its invaluable guide and inexhaustible resource. The interdisciplinary exchange variously undertaken and provocatively urged in this double issue may still be in an early phase, but there can be no question of its value and necessity, even though so very much remains to be done.

References

- Abbott, H. Porter
2006 "Cognitive Literary Studies: The 'Second Generation,'" *Poetics Today* 27: 711–22.
- Adams, Frederick
1994 "Simon Says," in Franchi and Güzeldere 1994b.

- Adler, Hans, and Sabine Gross
2002 "Adjusting the Frame: Comments on Cognitivism in Literature," *Poetics Today* 23: 195-220.
- Allington, Daniel
2006 "First Steps towards a Rhetorical Psychology of Fiction," *Journal of Literary Semantics* 35: 123-44.
- Andringa, Els, ed.
2004 "Perspectives on Three Decades of Cognitivist Efforts: Panel Discussion at the IGEL Conference 2004 with Gerald Cupchik, Andrew Elfenbein, Art Graesser, Uri Margolin, Alan Richardson, and Meir Sternberg," www.arts.ualberta.ca/igel/igel2004/debate.
- Baker, Timothy C.
2009 "The (Neuro)-Aesthetics of Caricature: Representations of Reality in Bret Easton Ellis's *Lunar Park*," *Poetics Today* 30: 471-515.
- Biddick, Kathleen
1994 "Imperial Machines/Jubilee Machines: The Empire of Memory in the Sciences and Humanities," in Franchi and Güzeldere 1994b.
- Bookstein, Fred L., and James A. Winn
1994 "Rhetoric of Evidence among Cognitive Scientists and Critics," in Franchi and Güzeldere 1994b.
- Bordwell, David
1985 *Narration in the Fiction Film* (Madison: University of Wisconsin Press).
2008 *Poetics of Cinema* (New York: Routledge).
- Borroff, Marie
1992 "Sound Symbolism as Drama in the Poetry of Robert Frost," *PMLA* 107 (1): 131-44.
- Boyd, Brian
2009 *On the Origin of Stories: Evolution, Cognition, and Fiction* (Cambridge, MA: Harvard University Press).
- Brandt, Line
2008 "Literary Studies in the Age of Cognitive Science," *Cognitive Semiotics* 2: 6-40.
- Braten, Stein, ed.
2007 *On Being Moved: From Mirror Neurons to Empathy* (Amsterdam: John Benjamins).
- Brewer, William F., and Edward H. Lichtenstein
1981 "Event Schemas, Story Schemas, and Story Grammars," in *Attention and Performance*, vol. 9, edited by John Long and Alan D. Baddeley, 363-79 (Hillsdale, NJ: Erlbaum).
- Brône, Geert, and Jeroen Vandaele, eds.
2009 *Cognitive Poetics: Goals, Gains, and Gaps* (Berlin: de Gruyter).
- Bruhn, Mark J.
2006 "Cognition and Representation in Wordsworth's London," *Studies in Romanticism* 45 (2): 157-80.
2009a "Romanticism and the Cognitive Science of Imagination," *Studies in Romanticism* 48 (4): 543-64.
2009b "Shelley's Theory of Mind: From Radical Empiricism to Cognitive Romanticism," *Poetics Today* 30: 373-422.
2010 "Exchange Values: Poetics and Cognitive Science (I)" (unpublished prospectus).
- Byrd, Don
1994 "Dead Linguistic Tokens and Unrepeatable Events," in Franchi and Güzeldere 1994b.
- Changeux, Jean-Pierre
2002 *L'homme de vérité* (Paris: Odile Jacob).
2008 *Du vrai, du beau, du bien: Une nouvelle approche neuronale* (Paris: Odile Jacob).
- Crane, Mary Thomas
2009 "Surface, Depth, and the Spatial Imaginary: A Cognitive Reading of *The Political Unconscious*," *Representations* 108: 76-97.

- Cupchik, Gerald
2004 "A Reflection on Sternberg's Narrative and Narrativity Concepts: Complementary Relations between Subject Matter and Style," in Andringa 2004.
- Deacon, Terrence
2006 "The Aesthetic Faculty," in Turner 2006: 21-53.
- de Mey, Marc
2006 "Mastering Ambiguity," in Turner 2006: 271-304.
- Descartes, René
1999 *Discourse on Method and Related Writings*, translated by Desmond M. Clarke (London: Penguin).
- Dreyfus, Hubert
1994 "Simon's Simple Solutions," in Franchi and Güzeldere 1994b.
- Dupré, John, and Regenia Gagnier
1994 "Not in Our Brains," in Franchi and Güzeldere 1994b.
- Eibl, Karl
2007 "On the Redskins of Scientism and the Aesthetes in the Circled Wagons," *Journal of Literary Theory* 1 (2): 421-41.
- Elfenbein, Andrew
2004 "Overview: Minding the Gap; Closure and Cognition," in Andringa 2004.
2006 "Cognitive Science and the History of Reading," *PMLA* 121 (2): 484-502.
- Endres, Johannes
2008 "I Can See Something You Don't See; or, There Is No Alternative to the Culture of Arguments," *Journal of Literary Theory* 2 (1): 157-66.
- Fludernik, Monika, Donald C. Freeman, and Margaret H. Freeman
1999 "Metaphor and Beyond: An Introduction," *Poetics Today* 20: 383-96.
- Foucault, Michel
1983 *This Is Not a Pipe*, translated by James Harkness (Berkeley: University of California Press).
- Franchi, Stefano, and Güven Güzeldere
1994a "Of Gaps, Bridges, and Close Encounters of One of a Kind: An Introduction," in Franchi and Güzeldere 1994b.
1994b "Bridging the Gap: Where Cognitive Science Meets Literary Criticism." Special issue, *Stanford Humanities Review* 4, no. 1, www.stanford.edu/group/SHR/4-1/text/toc.html.
- Freeman, Margaret H.
2006 "Blending: A Response," *Language and Literature* 15 (1): 107-17.
2009 "Minding: Feeling, Form, and Meaning in the Creation of Poetic Iconicity," in Brône and Vandaele 2009: 169-96.
2011 "The Role of Metaphor in Poetic Iconicity," in *Literary Metaphor after the Cognitive Revolution*, edited by Monika Fludernik, 158-75 (London: Routledge).
- Gleason, Daniel W.
2009 "The Visual Experience of Image Metaphor: Cognitive Insights into Imagist Figures," *Poetics Today* 30: 423-70.
- Goodblatt, Chanita, and Joseph Glicksohn
2003 "From Practical Criticism to the Practice of Criticism," *Poetics Today* 24: 207-36.
- Graesser, Art
2004 "Comments on Meir Sternberg's 'Perspectives on Three Decades of Cognitivist Efforts,'" in Andringa 2004.
- Gross, Sabine
1997 "Cognitive Readings; or, The Disappearance of Literature in the Mind," *Poetics Today* 18: 271-97.

Gumbrecht, Hans Ulrich

2007 "Response: An End to Literary Theory," *Journal of Literary Theory* 1 (1): 212–16.

Hart, F. Elizabeth

2001 "The Epistemology of Cognitive Literary Studies," *Philosophy and Literature* 25: 314–44.

2004 "Embodied Literature: A Cognitive-Post-Structuralist Approach," in Richardson and Spolsky 2004: 85–106.

Hogan, Patrick Colm

2003a *Cognitive Science, Literature, and the Arts: A Guide for Humanists* (New York: Routledge).

2003b *The Mind and Its Stories: Narrative Universals and Human Emotion* (Cambridge: Cambridge University Press).

2004 "Stories and Morals: Emotion, Cognitive Exempla, and the Arabic Aristotelians," in Richardson and Spolsky 2004: 31–50.

Holland, Norman

1994 "Reader-Response Already Is Cognitive Criticism," in Franchi and Güzeldere 1994b.

Iacoboni, Marco

2008 *Mirroring People: The New Science of How We Connect with Others* (New York: Farrar, Straus, Giroux).

Jackson, Tony E.

2002 "Issues and Problems in the Blending of Cognitive Science, Evolutionary Psychology, and Literary Study," *Poetics Today* 23: 161–79.

2003 "'Literary Interpretation' and Cognitive Literary Studies," *Poetics Today* 24: 191–205.

2005 "Explanation, Interpretation, and Close Reading: The Progress of Cognitive Poetics," *Poetics Today* 26: 519–33.

Johnson, Mark

2007 *The Meaning of the Body: Aesthetics of Human Understanding* (Chicago: University of Chicago Press).

Johnston, Paul

1994 "Laying to Rest the Old Dogmas of the New Criticism," in Franchi and Güzeldere 1994b.

Kaul, Suvir

1994 "Inverted TS; or, How Not to Build Bridges between the 'Two Cultures,'" in Franchi and Güzeldere 1994b.

Kelleter, Frank

2007 "A Tale of Two Natures: Worried Reflections on the Study of Literature and Culture in the Age of Neuroscience and Neo-Darwinism," *Journal of Literary Theory* 1 (1): 153–89.

2008 "The Polemic Animal; or, How I Learned to Stop Worrying and Love Partisan Politics: A Reply to Karl Eibl," *Journal of Literary Theory* 2 (1): 129–56.

Koepsell, Kilian, and Carlos Spoerhase

2008 "Neuroscience and the Study of Literature: Some Thoughts about the Possibility of Transferring Knowledge," *Journal of Literary Theory* 2 (2): 363–74.

Lauer, Gerhard

2007 "Spiegelneuronen: Über den Grund des Wohlgefallens an der Nachahmung," in *Im Rücken der Kulturen*, edited by Karl Eibl, Katja Mellmann, and Rüdiger Zymner, 137–63 (Paderborn, Germany: Mentis).

2009 "Going Empirical: Why We Need Cognitive Literary Studies," *Journal of Literary Theory* 3 (1): 145–54.

Margolin, Uri

2004 "Sternberg and Cognitive Science," in Andringa 2004.

2007 "Response," *Journal of Literary Theory* 1 (1): 196–207.

Mellmann, Katja

2010 "The Multifunctionality of Idle Afternoons: Art and Fiction in Boyd's Vision of Evolution," *Journal of Literary Theory*, www.jltonline.de/index.php/reviews/article/view/170/528.

- Meltzoff, Andrew N., and Wolfgang Prinz
 2002 *The Imitative Mind: Development, Evolution, and Brain Bases* (Cambridge: Cambridge University Press).
- Miall, David S.
 1994 "Beyond Cognitivism: Studying Readers," in Franchi and Güzeldere 1994b.
- Miers, Paul
 1994 "The Beginning of the End of the Hegemony of the Symbol," in Franchi and Güzeldere 1994b.
- Murray, Janet
 1994 "Some Steps towards the Middle," in Franchi and Güzeldere 1994b.
- Richardson, Alan
 2001 *British Romanticism and the Science of the Mind* (Cambridge: Cambridge University Press).
 2004a "Cognitivism Unbound: A Response to Meir Sternberg," in Andringa 2004.
 2004b "Studies in Literature and Cognition: A Field Map," in Richardson and Spolsky 2004: 1-29.
 2010 *The Neural Sublime: Cognitive Theories and Romantic Texts* (Baltimore: Johns Hopkins University Press).
- Richardson, Alan, and Ellen Spolsky, eds.
 2004 *The Work of Fiction: Cognition, Culture, and Complexity* (Aldershot, UK: Ashgate).
- Richardson, Alan, and Francis F. Steen
 2002 "Literature and the Cognitive Revolution: An Introduction," *Poetics Today* 23: 1-8.
 2003 "Reframing the Adjustment: A Response to Adler and Gross," *Poetics Today* 24: 151-59.
- Richter, Virginia
 2009 "'I cannot endure to read a line of poetry': The Text and the Empirical in Literary Studies," *Journal of Literary Theory* 3 (2): 375-88.
- Rotman, Brian
 1994 "Trapped in Hypostases," in Franchi and Güzeldere 1994b.
- Salgaro, Massimo
 2009 "The Text as a Manual: Some Reflections on the Concept of Language from a Neuroaesthetic Perspective," *Journal of Literary Theory* 3 (1): 155-66.
- Schendl, Herbert
 2002 "Mixed-Language Texts as Data and Evidence in English Historical Linguistics," in *Studies in the History of the English Language: A Millennial Perspective*, edited by Donka Minikova and Robert Stockwell, 51-78 (Berlin: de Gruyter).
- Schleifer, Ronald
 1994 "The Difficulties of Interdisciplinarity: Cognitive Science, Rhetoric, and Time-Bound Knowledge," in Franchi and Güzeldere 1994b.
- Simon, Herbert
 1994 "Literary Criticism: A Cognitive Approach," in Franchi and Güzeldere 1994b.
- Sklar, Howard
 2009 "Narrative Structuring of Sympathetic Response: Theoretical and Empirical Approaches to Toni Cade Bambara's 'The Hammer Man,'" *Poetics Today* 30: 561-607.
- Smith, Brian Cantwell
 1994 "Inside-Out, Outside-In," in Franchi and Güzeldere 1994b.
- Spivey, Michael
 2007 *The Continuity of Mind* (New York: Oxford University Press).
- Spolsky, Ellen
 1993 *Gaps in Nature: Literary Interpretation and the Modular Mind* (Albany: State University of New York Press).
 2001 *Satisfying Skepticism: Embodied Knowledge in the Early Modern World* (Aldershot, UK: Ashgate).

- 2002 "Darwin and Derrida: Cognitive Literary Theory as a Species of Post-Structuralism," *Poetics Today* 23: 43–62.
- 2003 "Cognitive Literary Historicism: A Response to Adler and Gross," *Poetics Today* 24: 161–83.
- 2004a "Preface," in Richardson and Spolsky 2004: vii–xiii.
- 2004b "Women's Work Is Chastity: Lucretia, *Cymbeline*, and Cognitive Impenetrability," in Richardson and Spolsky 2004: 51–83.
- Stafford, Barbara Maria
1999 *Visual Analogy: Consciousness as the Art of Connecting* (Cambridge, MA: MIT Press).
2007 *Echo Objects: The Cognitive Work of Images* (Chicago: University of Chicago Press).
- Sternberg, Meir
1978 [1971] *Expositional Modes and Temporal Ordering in Fiction* (Baltimore: Johns Hopkins University Press).
2001 "Factives and Perspectives: Making Sense of Presupposition as Exemplary Inference," *Poetics Today* 22: 129–244.
2003a "Universals of Narrative and Their Cognitive Fortunes (I)," *Poetics Today* 24: 297–395.
2003b "Universals of Narrative and Their Cognitive Fortunes (II)," *Poetics Today* 24: 517–638.
2004 "Narrative Universals, Cognitive Story Analysis, and Interdisciplinary Pursuit of Knowledge: An Omnibus Rejoinder," in Andringa 2004.
2007 "Omniscience in Narrative Construction: Old Challenges and New," *Poetics Today* 28: 683–794.
2009 "How (Not) to Advance toward the Narrative Mind," in Brône and Vandaele 2009: 455–532.
- Tallis, Raymond
2008 "The Neuroscience Delusion," *Times Literary Supplement*, April 9.
- Toolan, Michael, and Jean Jacques Weber
2005 "Preamble," *European Journal of English Studies* 9 (2): 107–15.
- Turner, Mark
1991 *Reading Minds: The Study of English in the Age of Cognitive Science* (Princeton, NJ: Princeton University Press).
1994a "Cognitive Science and Literary Theory," in Franchi and Güzeldere 1994b.
1996 *The Literary Mind* (New York: Oxford University Press).
- Turner, Mark, ed.
2006 *The Artful Mind: Cognitive Science and the Riddle of Human Creativity* (New York: Oxford University Press).
- Wild, Helga
1994 "Arti(fact) and Arti(fiction)," in Franchi and Güzeldere 1994b.
- Winter, Sylvia
1994 "But What Does 'Wonder' Do? Meanings, Canons, Too? On Literary Texts, Cultural Contexts, and What It's like to Be One/Not One of Us," in Franchi and Güzeldere 1994b.
- Zeki, Semir
2006 "The Neurology of Ambiguity," in Turner 2006: 243–70.
- Zunshine, Lisa, ed.
2010 *Introduction to Cognitive Cultural Studies* (Baltimore: Johns Hopkins University Press).