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Author(s): Jonathan Kramnick

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Critical Response

VII

Literary Studies and Science: A Reply to My Critics

Jonathan Kramnick

The responses to my essay on literary Darwinism present a welcome opportunity to engage its topic on broader terms. The essay focused on an academically marginal but publicly significant movement in literary studies, one that hopes to ground the study of literature on evolutionary psychology and so, on its view, to put our rickety discipline on the steady foundation of science. My argument against this movement challenged both its account of the science and its treatment of texts. And it did so with an end in view. Literary Darwinism is worth taking seriously for the same reason that it has gathered so much attention in the popular press. It asks us to think hard about our work and to consider any relation we might have to the social and natural sciences. How can we defend the aims and methods of humanities? How might we integrate research from other disciplines into the study of literary artifacts and culture? How finally might we expand our sense of humanistic research for the twenty-first century? These are all important questions to consider, and they extend beyond the local concerns of my initial argument. So while I take some time here to

I didn't thank readers of the original essay because there were so many that it seemed like overkill for a mere article. Since this has now continued into a second round, I'll take the chance to acknowledge those who read and commented on either the original or the rejoinder. These include Jerry Fodor, John Guillory, Colin Jager, Joshua Landy, Matthew McAdam, Robert Matthews, Natalie Philips, Deena Skolnick-Weisberg, Ellen Spolsky, Alan Thomas, Blakey Vermeule, Lisa Zunshine, and finally of course the editors of *Critical Inquiry*.

respond to the specific queries raised by my interlocutors, I try also to elaborate a few points about work between the disciplines and about the current state of science talk among humanists.

Such talk is not new. As John Guillory observed in these pages a decade ago, there is a sense in which the literary humanities constantly invoke a relation to the sciences as part of their rationale, their sense that they offer a distinct approach to a separate part of the world.¹ Literary Darwinism was born as a movement against this kind of distinction, at something like the high water mark of the 1990s-era critique of scientific epistemology.² Precisely when some humanists endeavored to deflate the empirical disciplines' pretensions to objectivity, a small group of critics moved in an altogether different direction. Thus for example Brian Boyd in the essay we quarrel over in our notes: "Until literature departments take into account that humans are not just cultural or textual phenomena but something more complex, English and related disciplines will continue to be the laughingstock of the academic world that they have been for years because of their obscurantist dogmatism and their coddled and preening pseudo-radicalism."³ The important part of this sentence is not the routine invective against jargon and politics so much as the reference to humans as "something more complex" than mere textual entities. In this view, humans are complex biological organisms evolved by natural selection, a proper understanding of which will correct for all the nonsense and excess that has driven our discipline off the rails. Here then was an interesting turn. While the contretemps with theory was by this time quite stale, the notion that evolutionary biology might serve as a corrective was comparatively new. Science would tell us why we've been making the mistakes everyone makes fun of us for, and it would get us to up to speed with what was going on everywhere else in the academy. "While the established forms of study of literature and cinema have been drifting into disarray, the

1. See John Guillory, "The Sokal Affair and the History of Criticism," *Critical Inquiry* 28 (Winter 2002): 470–508.

2. See for example Joseph Carroll's first book, *Evolution and Literary Theory* (Columbia, Mo., 1995), and Robert Storey, *Mimesis and the Human Animal: On the Biogenetic Foundations of Literary Representation* (Evanston, Ill., 1996), two polemics against the state of literary studies, as they understood it at the time, and attempts to bring in science to cure our ills.

3. Brian Boyd, "Getting It All Wrong: Bioculture Critiques Cultural Critique," in *Evolution, Literature, and Film: A Reader*, ed. Boyd, Carroll, and Jonathan Gottschall (New York, 2010), p. 198.

JONATHAN KRAMNICK is professor of English at Rutgers University and author most recently of *Actions and Objects from Hobbes to Richardson* (2010).

evolutionary analysis of human nature has been maturing.”⁴ Time to get with the program.

Or not. Two points here are worth remarking upon. First, the claim that the social and natural sciences are close to consensus on “the species-typical needs of an evolved and adapted human nature” and only us dithering humanists are holding out downplays the lively state of play on topics dear to many literary Darwinists, including especially ideas of mate selection, differential kin preferences, and innate sexual predispositions.⁵ Second, the notion that a “rapprochement with science” need be brokered by evolutionary psychology in particular skews the meaning of science to one subfield among the plenum.⁶ As G. Gabrielle Starr observes in her response (pp. 418–25), there’s no principled reason why this one approach should draw more attention from humanists than others in the vicinity. In fact, there’s good evidence that it hasn’t. Recent years have seen a vibrantly eclectic curiosity in quantitative, empirical, and otherwise novel approaches to literary study, from the digital humanities to the cognitive sciences to affect theory and beyond. To say that the business is theory-besotted and averse to things scientific is, to borrow an expression from Joseph Carroll, “boxing at shadows,” at a caricature of the profession that never was accurate and is now certainly behind us (p. 408). So what’s all the fuss?

Literary Darwinism’s real hostility may not be so much to theory as to an account of behavior it sees as at odds with what natural selection tells us about the human. “What the Darwinists have been doing all along,” writes Carroll in a very recent essay, “is using evolutionary psychology to examine the motivations of characters in novels, plays, and (less frequently) poems, concentrating chiefly on the sexual aspects of reproductive success but taking in also family dynamics, social dynamics, and survival issues such as acquiring resources and avoiding predators.”⁷ Readers new to this sort of language might well blanch. The point is not just to bring work from another discipline; it is to constrain what one might say in literary interpretation according to a biological explanation of psychology, the “motivations of characters” as they go about the struggle to survive, reproduce, or assist their kin. One goal of my essay was to place statements of

4. Boyd, Carroll, Gottschall, introduction to *Evolution, Literature, and Film*, p. 2. As much as I can, I will try to cite from collective and recent work, like this introduction to the anthology mentioned in both Boyd and Carroll’s responses.

5. Carroll, “The Cuckoo’s History: Human Nature in *Wuthering Heights*,” in *Evolution, Literature, and Film*, p. 370.

6. See Boyd, Carroll, Gottschall, introduction, p. 6.

7. Carroll, “Three Scenarios for Literary Darwinism,” *New Literary History* 41 (Winter 2010): 54.

this kind in their broader intellectual history and to discuss the work one would have to do to integrate the humanities into the evolutionary picture of human nature Carroll and his friends prefer. I argued that the focus on motive, “reproductive success,” and adaptation pushes Darwinian criticism toward the thematic and allegorical and away from form or the counterintuitive or simply the surprising. I will return to all these arguments below in my rejoinder.

In the present context, I want to say more up front about how this sort of criticism imagines its relation to the sciences. The presiding idea of bringing evolutionary psychology to literary studies comes from E. O. Wilson’s desire for consilience among the disciplines. “Within this consilient worldview,” write Boyd, Carroll, and Jonathan Gottschall in their latest anthology, “evolutionary biology is the pivotal discipline uniting the hard sciences with the human sciences and the arts.”⁸ At bottom is physics, in between biology and psychology, and at the top the literary and cultural disciplines. “Vertical integration”⁹ therefore uses the evolutionary science of mind to “shrink the space of possible explanation,” as Gottschall puts it, so that literary study stands on “the bedrock of evolution by natural selection.”¹⁰ “To qualify as Darwinist,” Carroll writes, “a reading would have to bring all its particular observations into line with basic evolutionary principles: survival, reproduction, kinship (inclusive fitness), basic social dynamics, and the reproductive cycle that vies to give shape to human life and organizes the most intimate relations of family.”¹¹ Putting aside for a moment the objections we might have to this language as a description of human biological nature, I would urge readers to ponder how consilience understands the relation between the humanities and the sciences as disciplines of knowledge. The idea is not of a two-way exchange on points of shared interest. It is rather that the terms of art used in biology continue to hold further up the pyramid of explanation. The kind of claim you can make about natural selection puts limits on what you can say about psychology and what you can say about psychology limits what you can do with literature.¹² Readers who find this alarming might take some solace that the view is out of favor in contemporary philosophy of science.¹³ It is

8. Boyd, Carroll, Gottschall, introduction, p. 3.

9. The phrase “vertical integration” is the preferred term of Edward Slingerland, *What Science Offers the Humanities: Integrating Body and Culture* (New York, 2008), pp. 9–11.

10. Gottschall, *Literature, Science, and a New Humanities* (New York, 2008), pp. 8, 13.

11. Carroll, “Three Scenarios for Literary Darwinism,” p. 59.

12. See for example Gottschall, *Literature, Science, and a New Humanities*, pp. 21–22.

13. See Jerry Fodor’s classic statement, “Special Sciences: (Or: The Disunity of Science as a Working Hypothesis),” *Synthese* 28 (Oct. 1974): 97–115, along with a more recent consideration by Barry Loewer, “Why There Is Anything Except Physics,” *Being Reduced: New Essays on*

also I think a poor model for sustaining curiosity and collaboration between fields of study or so I will try to show as I refine and extend my points from the original essay.

I would be surprised if the program of consilience gets that much traction, but I do think that the negative case puts in better light what are some avenues for, as it were, horizontal traffic between the disciplines. I'm going to try to keep that larger picture in sight during what might otherwise be a tedious series of clarifications. I'll begin with the semi-official complaints tendered by Boyd and Carroll, move to the friendly amendments of Paul Bloom and Blakey Vermeule, and draw to a close with the methodological and historical commentary of Vanessa Ryan and Starr. My point throughout will remain consistent. There's very good reason not to reduce literary interpretation, reading, or explanation to what goes on in other departments. At the same time, to propose a relation to the sciences is to ask what exactly it is that we do and how exactly might we make any contact with fields so different from our own. That should be exciting.

Literary Darwinism Unvarnished

I'm not surprised that Carroll and Boyd didn't like my essay. They are after all leading figures of the school of criticism that I was "against." Having read much of their work, I'm also not surprised by their tone. I was disappointed that they didn't respond to direct engagement on many particular issues, although I suppose I'm not surprised about *that* either. In any case, I'll try my best (again) to keep this section concerned with what really is at stake in this quarrel, but that is going to require me to clean up a few local misunderstandings and mistakes. It will also require my getting into the scrum in a way I usually don't like, so readers are invited to skip ahead if they find this sort of thing distasteful (as I do). Let me start with a quick précis of my argument. "Against Literary Darwinism" attempted to undertake a critical examination of the evolutionary movement in literary studies, focusing on its understanding of science and its claim that creating and appreciating art and literature are biologically specified adaptations. I argued that literary Darwinists have trouble showing either how the forms of literature performed one or another function in the long-ago past or how the mind could have an innate disposition to stories (or fictions or

Reduction, Explanation, and Causation, ed. Jakop Hohwy and Jesper Kallestrup (Oxford, 2008), pp. 149–63. For the consideration of the reduction/special science problem in particular relation to consilience, see Fodor, "Look!" review of *Consilience: The Unity of Knowledge*, by Edward O. Wilson, *London Review of Books*, 29 Oct. 1998, pp. 3–6.

narratives, as the argument is sometimes posed). I further argued that in place of either explanation literary Darwinism often shifts register to the thematic or moral, whether that is reading for content that would comport with its view of human nature or defining the function of literary fictions as virtuous and ennobling.

While I argued against this school of criticism, I also attempted to create something like a best-case scenario for what many readers might find a strange body of work. What kind of argument could show that a disposition to create and enjoy fictional narratives is an evolutionary adaptation? What might such an argument illuminate about literary form and history? To answer these questions, I began with some intellectual history, looking closely at how the revival of the theory of innate ideas (“nativism”) during the first cognitive revolution laid the grounds for the adapted theory of mind in evolutionary psychology. I paid special attention to the properties understood to define psychological traits as both innate and adaptive. Only then did I maintain that the Darwinists were in some trouble. Carroll and Boyd will have none of this, as one would expect. Their ways of rejecting my argument however are curious. Carroll responds only to one strand—my use of the term *modularity*—and lets the rest stand; Boyd says that evolutionary criticism (“evocrit”) really is about something else.¹⁴ Taken together, the complaints concern what I have to say about cognitive architecture, adaptation, and finally literary interpretation. I’ll take these one at a time while also folding them into a larger picture of where we are at odds.

Our disagreement substantially concerns the longstanding topic of innate knowledge and structure in the philosophy and science of mind. I suspect there is no small amount of talking past each other going on here, so I’ll stand back and clarify at least how I see things. Theories of the innate mind extend back to René Descartes and Plato and, more importantly in the present case, have played a special role in cognitive science since Noam Chomsky’s engagement with B. F. Skinner more than a half-century ago. The common ground is an emphasis on the organism rather than the environment as the source of knowledge and structure. “A first-pass characterization of innateness,” write the distinguished editors of a recent, multivolume consideration of the topic, “might take a cognitive mechanism, representation, bias or connection to be innate to the extent that it emerges at some point in the course of normal development but is not a

14. Boyd would prefer *evocriticism* to *literary Darwinism*, and yet the term seems not to have stuck, for I think obvious enough reasons. I will continue to use *literary Darwinism* because that’s the term that remains in public circulation. Nothing apart from the cadences of English turns on the difference.

product of learning.”¹⁵ On this view, much of what we know or how we act is not so much acquired as “grown” on specified routes and with greater or lesser sensitivity to context. The novelty of evolutionary psychology in particular was to tie nativism to a theory of natural selection. The innate mind is the way it is because it’s many features—from an ability to read the intentions of others to an understanding of basic physics and well beyond—were selected for deep in our evolutionary history. And these many features work the way they do because they function independently of each other. My ability to read the intentions of others for example hums along separately from my ability to speak and understand a language. Children acquire one before the other, can be good at one and horrible at the other, and so on. Evolutionary psychology of all varieties has continued to refine what the innate endowment amounts to, but in broad form the hypothesis and the means of its corroboration remain the same.¹⁶

I would have expected this part of the argument merely to be intellectual history, with the important disagreement concerning whether a disposition for stories could be innately specified and how far the evolutionary account of human nature really goes to explain any feature of literary culture or history we might care about. For example, Bloom, a helpful eminence from evolutionary psychology, responds in this issue with a qualified yes to the first question and a not very to the second. However, Carroll and Boyd object to the history and its picture of the current state of play in ways that are at turns odd or misleading. They take issue especially with my (alleged) characterization of the evolved mind as modular and my (actual) account of their problem as fitting a disposition to tell or listen to stories into an adaptationist account of cognition. These topics again risk some obscurity, so I’ll try to bring out the objection as clearly as I can. So, once again, modular theories of mind were a central feature of the nativist, cognitive turn of the 1950s and 1960s and fed directly into the birth of evolutionary psychology some thirty or forty years later. On this view, much of cognition works on independent routines and over separate domains, whether in a language organ if you’re Chomsky or a cheater detection module if you’re John Tooby and Leda Cosmides.¹⁷ According to the latter view, the mind consists of a “massive” bundle of modules, each selected as a response to a pressure presented by the Pleistocene environment in which the human species evolved. On the handy metaphor, our minds are like

15. Tom Simpson et al., “Introduction: Nativism Past and Present,” in *The Innate Mind*, ed. Peter Caruthers, Stephen Laurence, and Stephen Stich, 3 vols. (Oxford, 2005), 1:5.

16. See for example the discussion of Michael Tomasello below.

17. See Jonathan Kramnick, “Against Literary Darwinism,” *Critical Inquiry* 37 (Winter 2011): 320–21 n. 13, p. 327 n. 30.

Swiss Army knives, equipped with individual blades to perform one or another adaptive function. Modularity has been subject to serious review and critique over the years, much of which was too technical to go over in detail in the essay (although I covered it all in the notes). And much of which was not relevant, since my point was to consider, loosely and with some generosity, how to fit the adaptive picture of literature into a broadly conceived picture of the innate mind. Boyd and Carroll object to the relevance of the model and argue that literary Darwinism employs a different kind of evolutionary psychology. Both claims are spurious.

Carroll and Boyd each say for example that the “Swiss Army knife” picture has little bearing on their field.¹⁸ So what are we to make of Denis Dutton’s 2009 *The Art Instinct*, certainly the most widely read and influential study to date in Darwinian aesthetics and literary criticism, reviewed in every major daily, discussed on the *Colbert Report*, and featured (with accompanying animation) in the popular TED series of public lectures? Here are the opening sentences of his chapter wrapping up the discussion of fiction: “My approach has tended to model the human mind on the analogy of a multipurpose tool—a Swiss Army knife fitted by evolution with an assortment of mental blades and implements for solving specific problems of survival in prehistory. Conceived in this way, our minds evolved for causal and probabilistic reasoning about the normal furniture of the Pleistocene environment.”¹⁹ There we go. But there is more. Carroll and Boyd dissent from my use of major figures from the evolutionary psychology canon, such as Steven Pinker, David Buss, and Leda Cosmides and John Tooby. Yet all of them appear in Boyd, Carroll, and Gottschall’s most recent anthology of essays. Buss in fact has pride of place as the leadoff author, whose plenary essay, “Evolutionary Psychology: The New Science of Mind,” frames the entire volume. So the distance and revision here are a bit mysterious. My point in citing these figures finally was not only a matter of intellectual history; it was also one of live engagement. When I ask how a disposition for composing or listening to stories could have served an adaptive advantage I cite from Buss’s very recent treatment of adaptive structures of cognition, not in a popularized book for general readers, but rather (as Starr recommends) in a peer-reviewed, multiauth-

18. I don’t reference the metaphor in the original essay. Carroll and Boyd seem eager to bring it up; see pp. 399, 408.

19. Denis Dutton, *The Art Instinct: Beauty, Pleasure, and Human Evolution* (New York, 2009), p. 135. Dutton was along with Boyd, Carroll, and Gottschall the public face of literary Darwinism, authoring, in addition to *The Art Instinct*, several early essays central to the field, including those in both *The Literary Animal and Evolution, Literature, and Film*, and providing the journal he edited, *Philosophy and Literature*, as the major venue for publication in the field.

thored field-presentation from one of the most prominent evolutionary-psychology labs in the country.

The goal was to see how well literary Darwinism comported with the evolutionary picture of the mind it alleged to use. How accurate was my drawing of that picture? Carroll's opening reference to Ernst Mayr is not very helpful (p. 405). In fact it is inaccurate and misleading. Mayr does not, as Carroll claims, distinguish between "'closed' (equals modular) adaptive systems and 'open' (equals flexible) adaptive systems" (p. 405). Mayr's actual language, which Carroll does not cite, is quite different. His distinction is between the "programs" of entire creatures, not the architecture of their minds. Some "appear to be born with a genetic program containing an almost complete set of ready-made, predictable responses to the stimuli of the environment," and others (like us) seem to "have a great capacity to benefit from experience, to learn how to react to the environment, [and] to continue adding 'information' to their behavior program." Mayr says that the first have a "closed program" and the second "an open program," but nowhere does he refer to the open or closed nature of the cognitive structure that executes the program.²⁰ Carroll's "factual error" leads then to an historical mistake of some consequence, as the friends of modularity make precisely the opposite point he alleges for them (p. 405). The relative flexibility of human behavior, they say, depends upon the relative closure of the classic module. Here for example is the evolutionary psychologist Robert Kurzban from his 2010 monograph subtitled *Evolution and the Modular Mind*: "Clearly, *adding modules leads to increasingly complex behavior*. I italicized that last sentence because it's a little counterintuitive; modules seem like they're 'simple' instincts, and in some ways they are. But, clearly, *adding a lot of little specialized systems . . . adds flexibility* to behavior."²¹ Closed faculties of the mind create an open set of behaviors on this view because highly specialized subroutines get to "fight it out" among themselves rather than consult every existing belief before some action is taken.²² Carroll's mistake has the one virtue therefore of revealing the disjuncture of mental architecture and overt behavior central to the advent of

20. Ernst Mayr, "The Evolution of Living Systems," *Evolution and the Diversity of Life: Selected Essays* (Cambridge, Mass., 1976), p. 23.

21. Robert Kurzban, *Why Everyone (Else) Is a Hypocrite: Evolution and the Modular Mind* (Princeton, N.J., 2010), p. 25. Once again, I cover the history of modularity in the original; see Kramnick, "Against Literary Darwinism," pp. 320–22 and esp. nn. 12 and 13. For the present context, one should also see Dan Sperber, "Modularity and Relevance: How Can a Massively Modular Mind Be Flexible and Context-Sensitive?" in *The Innate Mind*, 1:53–68. I've provided the dates of the Kurzban book and Sperber essay as a response to Carroll and Boyd's mysterious periodization of the field, a periodization also disconfirmed by their own anthology.

22. Kurzban, *Why Everyone (Else) Is a Hypocrite*, p. 26.

cognitive science in the first place. In this case, the project is to show how internal structure and external behavior crosscut each other, but that is merely a single example of a larger attempt to account for the cognitive and neural antecedents to action, whether or not these antecedents are modular. One doesn't have to take on board the whole of every theory of cognition just to ask (as I did) how criticism fits in this picture.

My point was not of course to write a brief for modularity, nor was it to paper over debates in the science of mind. It was rather and once again to sketch out the background theory of the evolved mind to which literary Darwinism appeals. The example from Dutton shows this appeal in a kind of stunning fullness, but so too would Carroll and Boyd's various claims that all humans share an adaptive trait for producing and consuming stories, and so too (more controversially) would the various claims that species typical gender roles find their way into works of fiction. I emphasized that such a trait need not have all the features hypothesized by the long tradition of innate theories of mind, in part because such theories, like everything else, have been subject to refinement and change.²³ Nevertheless, it won't do just to stipulate the existence of some trait and then declare its adaptive function. One must satisfy at least *some* criteria. Boyd winnows these to the bone: "In the case of fiction, all that is needed is a predisposition and capacity to engage in fiction. That predisposition and that capacity are evident in spontaneous emergence and the continued compulsiveness of childhood pretend play," or, again, "all fiction needs is that deep-rooted disposition to engage in narrative—an already established competence—as play," and as therefore compulsively inviting" (pp. 402–3). Sparse and circular as these formulations are, they invite serious questions about, for example, the pace of emergence and its richness in relation to environment (the classic poverty-of-the-stimulus argument) and, most pressingly, about the nature of the trait itself. The first is an empirical question, with plausible experimental parameters, but answering it would depend on definitional work that is properly conceptual. You cannot look to see if all humans have some predisposition or capacity without establishing first what these are. Boyd and Carroll object to my use of the term *literary competence*. I did so only to place the argument in the history of theories of mind to which the claim might be said to belong. (Talk about linguistic competence, for example, led to famous questions and quarrels about the definition of language.) I would happily withdraw the term but not the question it was intended to ask.

23. Readers might consult *The Innate Mind*, esp. Simpson, "Towards a Reasonable Nativism," 1:122–38.

We might follow the lead here of Michael Tomasello, whom Boyd presents as a major influence (see p. 403). The essay on shared intention cited in Boyd's notes begins by stating, "if we want to know how people understand intentional action, we must first have a model of what intentional action is."²⁴ I ask much the same for the adaptive dispositions floated by literary Darwinism. Tomasello's recent book on cooperation, moreover, has at its core the classic argument that the environment is impoverished with respect to the state of "helping others" reached by babies at a point well "before most parents have seriously started to expect their children, much less to train them, to behave pro-socially." His aim is to define crisply the trait in question and then test to see if it is "a naturally emerging human behavior" or "a behavior created by culture and/or parental socialization practices."²⁵ Boyd's position on these matters is very hard to estimate. Rather than elaborate his main theses, he unfurls a roster of names, without so much as a word quoted or argument worked through, and (oddly) with the core disciplines wrongly identified.²⁶ The resulting far-rago is a kind of argument by misplaced authority. As far as I can tell, the gist of Boyd's argument is that we are not just transformed by stories, as everyone might agree, but *predisposed* to be transformed by stories, as a matter of biological fitness. His is another claim for an innate and adaptive competence and as such comes with the usual demands attached. My questions were designed to see how well he met them.

Boyd is clearly less comfortable with the whole Pleistocene Era mind business than either Dutton or Carroll and Gottschall (who title their recent coauthored study "Paleolithic Politics and British Novels of the Nineteenth-Century"). He is fond for example of the modish expression that our brains exhibit plasticity, especially in the early years of development, and he glances hurriedly at the work of Stanislas Dehaene to suggest this view as an alternative to stone-set modules. The brunt of Dehaene's interesting work on reading, however, emphasizes precisely the limits of plasticity. "Human brain architecture," he writes, "obeys strong genetic constraints, but some circuits have evolved to tolerate a fringe of variability."²⁷ This fringe allows humans first to learn to how read and then to do so effortlessly, but it must make do with limits imposed by antecedent

24. Michael Tomasello et al., "Understanding and Sharing Intentions: The Origins of Cultural Cognition," *Behavioral and Brain Sciences* 28, no. 5 (2005): 676.

25. Tomasello, *Why We Cooperate* (Cambridge, Mass., 2009), pp. 7, 13.

26. Neither Frans de Waal nor Sarah Hrdy are biologists. The first is a primatologist in a psychology department, the second an anthropologist. Tomasello is also an anthropologist, not a psychologist or a neuroscientist. Steven Mithen is an archeologist, not an anthropologist.

27. Stanislas Dehaene, *Reading in the Brain: The Science and Evolution of a Human Invention* (New York, 2009), p. 7. See also p. 120.

structure. Since the parts of the brain centrally involved with reading evolved for other purposes, such as object recognition, “writing systems must have evolved within our brain’s constraints.”²⁸ These constraints along with the plastic fringe compose, on Dehaene’s view, the relevant endowment for the recent, human technology of reading and writing. Boyd’s response seems confused about this sort of argument and has trouble representing some of my main points correctly. For example, when I say, “were the disposition to create or consume literature innate in the way argued by the literary Darwinists, it would be just as invariant across the species and across time as they maintain,” I do not mean, as Boyd has me saying, “literary Darwinists claim that literature is invariant across the species” (p. 403). That would be ridiculous. Rather the “it” refers of course to the “disposition.” (It is on the basis of *his* misunderstanding that Boyd says I show “multiple misunderstandings of evolutionary biology” [p. 404].) My argument therefore concerned the relation between uniform mental structures and varied cultural expressions, a longstanding topic in the tradition of thought to which Boyd appeals, and my question was whether the literary Darwinists could identify any universal rules beneath the diverse forms that literature and art take, as these sorts of claims are supposed to do.²⁹ My sense was no.

As part of my endeavor to make these claims comprehensible, I reconstructed the controversy over “adaptationism” from which evolutionary psychology emerged several decades ago as a more presentable descendent of sociobiology. This was again put forward as intellectual history and in fact drew on evolutionary psychology’s own quasi-institutional record as one major source. Boyd and Carroll respond in different manners to this part of the argument. Carroll objects that I don’t air his personal theory fully enough; Boyd objects that I bring up the well-known but to his mind passé critique presented by Steven Jay Gould and Richard Lewontin. Here perhaps more than anywhere else, it is a good idea to state clearly what this quarrel touches upon. The issues are large and risk getting lost in the back and forth. I do not say that literary Darwinism ignores the adaptationist controversy, as Boyd alleges. I say rather that it takes sides within it. I cannot imagine he or Carroll or the rest would deny such a thing. Fighting the fight against Gould and for Wilson is one of their major pastimes. Boyd is right that the controversy is old. That is why I quote from more recent criticism of the genetic foundations of evolutionary psychology, including

28. *Ibid.*, p. 8.

29. I was referring for example to Dutton’s use of the linguistic analogy early on in *The Art Instinct*, his claim that there is some sort of universal aesthetic grammar beneath the world’s varied forms of artistic expression. See Kramnick, “Against Literary Darwinism,” pp. 334–35.

those by biologists like Marcus Feldman and philosophers of science like Elizabeth Lloyd. And yet I'm not sure that anyone in the relevant fields is quite so confident that the quarrel was "resolved *within* biology against Gould and in favor of adaptationism" (p. 397).³⁰ The history of science is not a tennis match. This sort of rhetoric just underscores the point I was trying to make: adaptationist fundamentalism finds one of its last redoubts in the literary application of evolutionary psychology.

As it happens, some of the most notorious applications of neo-Darwinian ideas of adaptation to cognition and behavior landed squarely in the lap of literary Darwinism. For example, Gottschall is an avid defender of the adaptationist theory of rape, on which view males with a greater proclivity for sexual violence left more offspring than others, thus passing on their genetic material to the population and rendering the sad fact of rape among humans a result of natural selection.³¹ This theory has been intensely contested within biology and psychology, to say the least, as has the broader use of adaptationist reasoning to explain gender roles and sexual relations: the alleged preference of women for older more powerful men and men for younger more fecund women; talk about waist-to-hip ratios; and the like.³² Literary Darwinism takes much of this reasoning on board without a pause. I didn't dwell at great length on this reasoning in the original essay because it was in some ways low hanging fruit. But, considering Boyd's strong claim that his friends use only the most up-to-date and agreed-upon science, it is worth going over the record in greater

30. For a menu of responses from biologists and philosophers, see *Adaptationism and Optimality*, ed. Steven Hecht Orzack and Elliott Sober (Cambridge, 2001).

31. I refer to the authoring of one study that "may help explain the selective maintenance of adaptations directly or indirectly promoting rape behavior in our species" (Gottschall and Tiffany A. Gottschall, "Are Per Incident Rape-Pregnancy Rates Higher Than Per Incident Consensual-Pregnancy Rates?" *Human Nature* 14, no. 1 [2003]: 14) and another that would use this rape adaptation to explain the prevalence of wartime rape; see Jonathan Gottschall, "Explaining Wartime Rape," *Journal of Sex Research* 41 (May 2004): 129–36. The adaptationist theory of rape was advanced notoriously by Randy Thornhill and Craig Palmer, *A Natural History of Rape: Biological Bases of Male Sexual Coercion* (Cambridge, Mass., 2000). It is perhaps the most controversial part of the entire evolutionary psychology edifice. See for example Jerry A. Coyne and Andrew Berry, "Rape as an Adaptation," review of *A Natural History of Rape: Biological Bases of Sexual Coercion*, by Thornhill and Palmer, *Nature*, 9 Mar. 2000, pp. 121–22; Elizabeth Lloyd, "Science Gone Astray: Evolution and Rape," review of *A Natural History of Rape: Biological Bases of Sexual Coercion*, by Thornhill and Palmer, *Michigan Law Journal* 99 (May 2001): 1536–59; and Philip Kitcher and A. Leah Vickers, "Pop Sociobiology Reborn: The Evolutionary Psychology of Sex and Violence," in Kitcher, *In Mendel's Mirror: Philosophical Reflections on Biology* (Oxford, 2003), pp. 333–55. I would add these criticisms are from *within* the scientific community, from an evolutionary biologist—Coyne, author of the recent *Why Evolution Is True* (New York, 2009)—and philosophers of biology, Kitcher and Lloyd.

32. See Kramnick, "Against Literary Darwinism," p. 328 n. 32. A good example of the critique may be found in Kitcher and Vickers, "Pop Sociobiology Reborn."

detail. So then, in the essay on slash fiction that Boyd touts from his brand new anthology, the authors opine that romances “have great potential to illuminate female mating psychology” because their heroes “consistently possess the characteristics that would have reliably indexed high mate quality in the human EEA [the hunter-gatherer Environment of Evolutionary Adaptedness, or Pleistocene Era]: they are tall, strong, handsome, intelligent, confident, competent, ‘dangerous’ men whose overwhelming passion for the heroine ensures that she and her children will reap the benefits of these sterling qualities.”³³ Gottschall wraps up a survey of world folklore with the conclusion that “the vast majority of female protagonists are unmarried women at peak reproductive age,” that “when physical descriptions are provided, they are almost universally beautiful,” that “in comparison to her male counterpart, the female protagonist places greater emphasis on a potential mate’s kindness and control of social and material resources, and less emphasis on physical attractiveness,” that “she is less likely to actively pursue her goals [or] achieve them in ways requiring conspicuous courage or physical heroism,” that “she is solicitous of her family’s well being, devoting much energy to promote the welfare of her close kin.”³⁴ Carroll invokes, amidst a discussion of *The Picture of Dorian Gray*, the “Darwinian logic of differences in the reproductive interests of males and females”: On this “comprehensive and scientifically precise account” of human nature, “men tend toward promiscuous desire; women seek lasting relationships. Men are on average adapted preferentially to value youth and beauty in a mate, and women are on average adapted preferentially to value status and resources in a mate”; and, finally, since homosexual men care little for the domestic complaints of women, “male homosexual communities produce a culture of promiscuous sexual encounters.”³⁵ Well, so much for the idea that “evocritics” have quit the Stone Age.

The examples from the previous paragraph focus on applications of adaptationist reasoning to critical analyses of various kinds. Each would take an aspect of human nature allegedly set in the ancestral past and say that it has shaped both our present-day psychology and the events depicted in works of literature, whether romances, novels, or folktales. And each relies on a notion of a human nature that is, at best, controversial. My

33. Catherine Salmon and Donald Symons, “Slash Fiction and Human Mating Psychology,” in *Evolution, Literature, and Film*, pp. 474, 476–77.

34. Gottschall et al., “The Heroine with a Thousand Faces: Universal Trends in the Characterization of Female Folk Tale Characteristics,” *Evolutionary Psychology* 3, no. 3 (2005): 97.

35. Carroll, “Aestheticism, Homoeroticism, and Christian Guilt in *The Picture of Dorian Gray*,” *Philosophy and Literature* 29 (Oct. 2005): 294, 295, 286.

original essay looked more at the claim that a disposition to attend to or create stories or fictions or in looser formulations, simply literature, is itself an adaptation. My argument was that literary Darwinism had a difficult time specifying what about this disposition conferred a reproductive advantage long ago. This trouble was a kind of limit in principle. Literary forms exhibit design of all kinds, of course, but only the weakest analogy would maintain that such design has the features of a trait selected for survival. We have no sense if any feature of literary design responded to any selection pressure, in the Pleistocene or after. As evidence for this, I pointed to the scattering of arguments for adaptive function provided by evolutionarily inclined critics themselves.³⁶ No one function appears to agree with the other, and all could be performed by something else.

Neither Boyd nor Carroll responded to that part of the argument. Boyd's tactic is to soft-pedal his investment in adaptation. The adaptive function of literature, he says, is "just one of an open ended quiver of questions" (p. 400). Elsewhere he is less demure. He writes on the first page of *On the Origins of Stories* (2009) "that despite its many forms, art, too, is a specifically human adaptation, biologically part of our species," that it "offers tangible advantages for human survival and reproduction."³⁷ In an article clarifying the aims of his book, Boyd begins on the same note: "I argue in a book I've recently written, *On the Origin of Stories: Evolution, Cognition, and Fiction*, that art and storytelling are adaptations," that they are "features that natural selection has designed into humans over time because they led to higher rates of survival and reproduction."³⁸ I'm not sure what lies behind the coyness now, apart perhaps from an effort to get away from all the talk about cavemen. According to Dutton at least, viewing the arts and literature as adaptations leaves that kind of talk hard to avoid: "A thoroughgoing Darwinism makes a specific demand: nothing can be proposed as an adaptive function of fiction unless it explains how the human appetite for fictional narratives acted to increase, however marginally, the chances of our Pleistocene forebears surviving and procreating."³⁹ In for a penny, in for a pound. Boyd swerves around this concession by alluding (again quickly) to the prospect of multilevel selection as the reason for the prevalence of storytelling and fictions. The idea is that natural selection sometimes favors genotypes that benefit groups even at the

36. See Kramnick, "Against Literary Darwinism," pp. 330–31.

37. Boyd, *On the Origin of Stories: Evolution, Cognition, and Fiction* (Cambridge, Mass., 2009), p. 1; hereafter abbreviated OS.

38. Boyd, "The Art of Literature and the Science of Literature," *American Scholar* (2009), www.theamericanscholar.org/%20the-art-of-literature-and-the-science-of-literature/

39. Dutton, *The Art Instinct*, pp. 109–10.

expense of individuals. On Boyd's view, for example, the storytelling disposition might have been selected for its ability to sustain shared attention and cooperative behavior (see p. 401; see also *OS*, pp. 69–79). Or it might have been selected for the benefit of the individual whose plasticity gets a nice workout (see *OS*, p. 94). In either case, the function for which “the arts and literature” were selected is nowhere more than guessed at or declared. My original essay raised this objection to the vague use of adaptation proffered by Boyd, Carroll, Dutton, and others and did so using the precise terms of those responsible for defining psychological phenotypes as adaptations in the first place.⁴⁰ Once again, neither Boyd nor Carroll responds to this challenge.

In his classic study, *Adaptation and Natural Selection* (1966), G. C. Williams cautions at the outset that “adaptation is a special and onerous concept that should be used only where it is really necessary.”⁴¹ Like Dutton and Boyd, Carroll seems not to have heeded this warning. Indeed he wears his adaptationism on his sleeve. His complaint here is just that I didn't go over his particular theory finely enough. So to repeat, Carroll believes that “literature, specifically, produces subjectively modulated images of the world and of our experience in the world,” that the “disposition for creating such images would have solved an adaptive problem that, like art itself, is unique for the human species: organizing motivational systems disconnected from the immediate promptings of instinct,” and therefore that literature and other arts fulfill “a vital adaptive function” insofar as they “fashion an imaginative universe in which the forces at work in the environment and inside the mind are brought into emotionally meaningful relations to one another.”⁴² Readers may or may not be moved by this account as an expression of sentiment, but as with Boyd's quite different set of claims there is little in it to mount a consilient reduction of literary criticism to the sciences of mind or body. Nothing in the language of emotional meaningfulness translates into an explanation in the vocabulary of psychology, let alone biology.⁴³ As Starr puts it, this is a deductive stipulation passing as inductive science. Hence there is (again) no way to adjudicate between Carroll's belief that literature provides an emotional skein to brute existence and Dutton's that liter-

40. See Kramnick, “Against Literary Darwinism,” pp. 329–33.

41. George C. Williams, *Adaptation and Natural Selection: A Critique of Some Current Evolutionary Thought* (Princeton, N.J., 1966), p. 4.

42. Carroll, “An Evolutionary Paradigm for Literary Study,” *Style* 42 (Summer–Fall 2008): 122, 128, 127; hereafter abbreviated “EP.”

43. On the difficulty of attaching literary form to adaptive function, see Kramnick, “Against Literary Darwinism,” pp. 329–30.

ature was useful for counterfactual role playing or Vermeule and Dutton's that literary language was a kind of courtship ornament or Boyd's that stories and other art forms hold our attention and so "make the most of the brain's plasticity" (OS, p. 94). Each is merely one belief asserted against another.

Carroll's language of emotional meaning may not provide the sort of consilient bridge to the social and natural sciences he claims, but it does seem resonant with an older and well-worn sense of the literary as secular redemption. Literary experience makes bare living significant and good. In the original essay, I argued that there is a kind of slip here from the historical meaning of adaptation as performing a function in our evolutionary past to a nonbiological sense of adaptation as uplifting and good for you. (Bloom makes a similar point.) I further argued that this slip characterized literary Darwinism's place in the culture wars as a self-styled defender of aesthetic and literary value. I won't dwell on this slip now. Carroll and Boyd seem to concede the point. But it does bring me to the status of evolutionary readings. I wrote in the essay and again here that I wanted to "take seriously" the Darwinian program in the humanities. That entailed showing the program in what I assumed was the best possible light and examining closely the claim that literature might be an adaptation or that evolutionary psychology might provide a ground for literary study. While I quoted from readings of Charles Dickens and Jane Austen near the end to illustrate my point about the bald recourse to theme, I avoided what I thought might be easy shots at some of the low lights of Darwinian criticism. Boyd seems to think that I fear quoting from the storehouse of such criticism lest my readers are convinced of the riches that lay inside: "Just what is Kramnick afraid that readers may discover if they read the work he prefers not to mention?" (p. 404). Well, I'll let readers decide. Selections from the treatment of Oscar Wilde, folklore, and slash fiction may be found above. Here are some additional gobbets from the studies that Boyd himself recommends:

Judith Saunders on Edith Wharton: "When he committed himself to long-term mating and paternal investment, Archer gave up other reproductive options (specifically, abandonment of his pregnant wife in favor of a socially rebellious, reproductively risky involvement with Ellen), options that now appear more gloriously adventurous than the ones he chose. If his satisfaction in the choices he has made seem somewhat tepid, it is partly because he is able, with his human brain, to imagine alternative routes in life. Having employed what Dawkins calls the 'domestic bliss strategy' rather than the 'he-man strategy' he cannot help but contemplate the

‘magnificent’ thrills he might have enjoyed had he made wilder, more ‘ruthless’ choices.”⁴⁴

Gottschall on Homer: “Homer’s world is inhabited by men like Achilles—men who are gentle apes and killer apes, striving to accomplish, conquer, and possess, all in unconscious obedience to life’s prime directive: be fruitful and multiply.”⁴⁵

Marcus Nordlund on Shakespeare: “Today, some four hundred years after Shakespeare wrote these lines, we can add what neither Albany nor his famous author could possibly have known: that the tree of life from which Goneril seeks to extricate herself is the result of a natural process of selection that has been at work for billions of years. From the majestic perspective of evolutionary time, mankind is not even a branch on this single tree, but a newly sprouted twig that may one day give rise to new and unanticipated life forms. And while contemporary disdain may not come to ‘deadly use,’ as Albany puts it, this book rests on the conviction that students of human nature who ‘contemn their origin’ come perilously close to willful blindness.”⁴⁶

Carroll on Brontë: “Catherine and Heathcliff achieve consummation not in a reproductively successful sexual union but in the commingling of rotted flesh. If necrophilia can reasonably be characterized as a pathological disposition, the empathetic emotional force that Brontë invests in the relationship between Catherine and Heathcliff can also reasonably be characterized as pathological.”⁴⁷

Boyd on Homer: “Homer expects his audience to feel the force of the comparison [between the time Odysseus has spent apart from Telemachos and a bird torn from its young]. The universality of the emotion, the fact that it can rend the heart even of a vulture, does not make it seem in the least commonplace. On the contrary it signals that the love of parent and child is so central to life that we can recognize it even in an almost alien species—let alone in our two heroes. Homer is closer than chronology would suggest to the Darwin of *The Expression of the Emotions in Man and Animals*. Although these are not Homer’s or Darwin’s terms, this emotion has deep evolutionary roots and deep neural routes. It goes to the heart of the mind” (OS, pp. 291–92).

44. Judith Saunders, *Reading Edith Wharton through a Darwinian Lens: Evolutionary Biological Issues in Her Fiction* (Jefferson, N.C., 2009), p. 100.

45. Gottschall, *The Rape of Troy: Evolution, Violence, and the World of Homer* (Cambridge, 2008), p. 163.

46. Marcus Nordlund, *Shakespeare and the Nature of Love: Literature, Culture, Evolution* (Evanston, Ill., 2007), p. 88.

47. Carroll, “The Cuckoo’s History,” p. 378.

I could go on like this. But I expect that is enough to respond to Boyd's insinuation. I argued in the original essay that avowedly Darwinian criticism tends toward a familiar set of themes, locating our alleged nature at work in some text or offering literature as a kind of evolutionary therapy. At its worst, I said, this kind of criticism uses plot summary to recapitulate the obsessions of pop-evolutionary psychology itself, including especially the decoding of outward behavior as the canny reproductive strategy of sometimes selfish, sometimes cooperative genes. Readers will make what they will of the passages above and those cited in the essay. As for the wider context, I'm not sure if this is what Wilson meant by consilience, but there would seem to be little room left for anything to be independently confirmed or discovered by criticism and then brought to a conversation with other disciplines. In any case, the patience wears thin.

Psychology and Literary Criticism, a Second Pass

Literary Darwinism may simply be too hostile to the history of its own discipline and too selective in its use of others to achieve the ends it desires. Bloom and Vermeule hold a different view of the relation between evolutionary psychology and literary studies. Each has commitments that I do not share (and who doesn't?), but both ask good questions about minds and texts and do so in a spirit of curiosity and engagement worth emulating.

Bloom's most important observation comes I think at the very end. There may be good reason he says for evolutionary psychology to care about work in literary studies but less for literary studies to care about evolutionary psychology. This is a refreshing reversal of the common order of exchange. Bloom has an independent research question about why humans have developed what he considers to be an instinctual attraction to "imaginative pursuits," including those of stories and music (p. 388). He understandably believes that literature departments might know something about how stories work, just as he and his colleagues know something about how minds work. So he believes as a consequence that evolutionary psychology cannot "safely ignore" the input of literary criticism in shaping its theory of storytelling (p. 393). Criticism after all deals with what stories are. In contrast, evolutionary psychology traffics in the etiology of behavior. So one person's theory about something like the evolution of storytelling should do little to constrain another's treatment of literary artifacts, history, cultures, and the like. Not so in reverse.

Now why is that exactly? Bloom has not had a conversion to literary criticism or, as far as I know, started to regret his graduate training. I take the point rather to follow from the fineness of the explanatory grain and

the reach of disciplinary vocabulary. Unlike Carroll and Boyd, Bloom knows by the language of his discipline what it means to offer an argument for psychological innateness or adaptivity or byproducthood. (He is already distinguished for having offered several notable ones.)⁴⁸ So he needs no help from us when it comes to setting the parameters or conditions for what would count as a good explanation in psychology. The grain of explanation with respect to properties and predicates of mind is as fine as it could be. Rather more coarse would be the grain of the stories themselves, the very things that minds of a certain kind are supposed to pick out or enjoy or create. So if one is curious to know how and why a capacity with stories and other art forms develop, Bloom says, then one should consult with those who know something about these forms. The model in other words is of a kind of horizontal traffic between the disciplines, not a reduction of the one to the other. In this case, the direction moves from criticism to psychology, but that has to do with the nature of the question asked. It needn't always be so.

I'm inclined to think this is the right way to consider interdisciplinary research, especially the further away the terms and taxonomies of each discipline are. Starr makes a very useful observation along these lines, which I'll have more to say about near the end: if the effort to pose a problem from one discipline in the terms of another results in an interpretation that fails to satisfy either, perhaps the act of consilient reduction is at fault. I would for example guess that the evolutionary readings I've sampled from above provoke a negative reaction in many. That is either because Gottschall is correct, and the humanities suffer from "pervasive rot," or because an entire sensibility and mode of expertise have been jettisoned.⁴⁹ I have a strong hunch which is the case.

Bloom's comments on adaptation have an oblique relevance to this question. He makes a point similar to mine that adaptation is not a term to throw around. In this respect at least, he stands in a line extending back to the original Gould and Lewontin critique and for that matter to Williams. The point of identifying by-products and spandrels was to throw the random, accidental, and messy into what might otherwise be conceived as a narrowly teleological process. Bloom is right that I don't offer any independent theory of how storytelling or the imagination and the like are by-products. That is because I have no such theory. The existence and etiology of behavioral traits seem altogether too large and fuzzy to matter

48. See for example for example the studies of language and religion cited in Kramnick, "Against Literary Darwinism," pp. 328 and 340 nn. 34 and 65.

49. Gottschall, *Literature, Science, and a New Humanities*, p. 3.

for anything that I might be interested in. Bloom is therefore wrong to say that I take on the view of Pinker that the arts are like cheesecake, something we get for free by tweaking pleasure-seeking circuits evolved for other purposes. This view holds little interest for me because it assumes that the rest of the organism is an innate and adapted machine and because it presents a metaphor that I don't think goes very far to help with the kind of formal and historical topics we care about in the literary disciplines.⁵⁰ I suspect that Bloom disagrees with the first objection, as is his prerogative, but I think he might agree with the second. So, much would appear to lie behind his own criticism of the idea of an aesthetic sweet tooth, namely, that it misses what is sour or rough or aversive or difficult or counterintuitive. And in this way he shows himself already to have a good ear for crossdisciplinary conversation, as these are likely to be among the first objections raised by those whom Bloom might wish to talk to.

Bloom thinks there's no reason why an evolutionary theory of storytelling need impinge on literary studies, although again he thinks the converse is not true. Literary criticism might provide a taxonomy and language for the objects his trait expresses, produces, or picks out. Obviously enough Carroll, Boyd, Scalise, Dutton, and others disagree. They think that evolutionary biology provides a taxonomy and language for what literary objects can do or be. Taking Bloom's synecdoche of a "Jane Austen scholar," we might look at two examples of where this leaves us. According to the literary Darwinists we should not say, "the Austen heroine chooses to embark on life as a person who already displays in ovo the most dreadful features of Miss Bates. Like some suddenly disenchanted princess who assumes, as her authentic form, that of a toad unlikely *ever* to be kissed, she gives up style to become the 'bad subject' style had for a time held in abeyance."⁵¹ We should say instead, "Austen herself grasps with a singular acuity the governing power of the somatic and reproductive foundation of human action. . . .The women want wealth and status in their men, and the men want youth and beauty in their women."⁵² I suspect Bloom knows that it is the former kind of thing that might be shuttled over to his enterprise to interesting effect. I'd be curious to know what he would make of it. All the loose talk about reproductive foundations though is another thing en-

50. I cite Pinker's cheesecake metaphor in the footnotes of my original essay to establish the state of play around evolutionary accounts of the arts, that is, as intellectual history; see Kramnick, "Against Literary Darwinism," p. 332 n. 45. I put it in the footnotes because it has had less influence on literary Darwinism than other views, doubtless because it doesn't rank the arts among the adaptations.

51. D. A. Miller, *Jane Austen, or The Secret of Style* (Princeton, N.J., 2003), p. 47.

52. Carroll, *Literary Darwinism: Evolution, Human Nature, and Literature* (New York, 2004), p. 207.

tirely, a kind of glomming onto works a view of human nature ostensibly poached from elsewhere. This is the view I characterized at the very end as pabulum and tender hearted. I did so because it made tendentious use of the metaphor of adaptation for baldly moralizing ends: first by locating its favorite kind of behavior in texts of its choosing and then by claiming that literature has made us fully human.

I was a little taken aback then that Bloom found that part of the essay to be “another battle in the Science Wars,” since I was concerned there exclusively with how literary Darwinism panned out as a method of close reading and literary analysis (p. 392). That part of my argument only touched on the science, with the closing suggestion that the failure of literary Darwinism to make its case might open up new space for dialogue. As elsewhere in the essay, the effort was to take the science seriously. On occasion, psychology, cognitive science, or philosophy of mind seem to provide an appropriate vocabulary for work in our discipline. I laid out a few instances of this kind of work in the original essay, and I’ll do so again below. I have no grand account of when or how this sort of traffic happens. At the same time, I’m not sure that the evolutionary origin of behavior is an optimal case, as Bloom might agree. Vermeule might agree, too, or not. Her response is appealingly agnostic on the relevance of evolutionary psychology “to the kinds of art objects that humans make” (p. 427). This is appealing because Vermeule seems willing both to accept a challenge to ideas she’s valued and to revise positions she’s publicly held. We should all be so generous and open-minded. I would like to grouse around the premises and arguments she disagrees with, however, and to ask how far sexual selection theory, as she has reconstructed it, could really go to describe language use of any kind, including in the works of drama and poetry she cites.

Vermeule’s agnosticism extends only to the relevance of evolutionary psychology for the humanistic disciplines. She is a believer when it comes to the psychology itself. She states this in two crisp formulations, each corresponding to a distinct horn of the dilemma. Here is the first: “evolution is undisputedly the scientific ground on which academic psychology proceeds. In a broad sense, all psychology is now evolutionary psychology” (p. 427). Here is the second: “As a story about the mind [evolutionary psychology] is true; more details are emerging all the time to buttress its central claims” (p. 427). We may classify the first as an historical claim about the state of play in psychology departments and the second as a metaphysical claim about the science itself. All academic psychology (in a broad sense) is evolutionary psychology, she says, and evolutionary psychology provides a *true* picture of the mind. Vermeule is right to think that

I'm not comfortable with either claim. But that matters only with respect to the interdisciplinary landscape they sketch. Vermeule's worry is that an agreed-upon and true description of the mind might have little bearing on literary study. Any reach from literary study to the sciences of mind, on this view, would have to be to some version of evolutionary psychology since that psychology is at once pervasive and true. I think this view both undersells the diversity of cognitive science, much of which proceeds independently of any evolutionary framework, and oversells the verdict on evolutionary psychology, at least some of which has proven tremendously controversial. Interdisciplinary scholarship might well progress on topics ranging from perception to consciousness to neurophysiology to the emotions and beyond while keeping the principles of evolutionary biology no closer than the laws of physics. Indeed it already has.⁵³ At the same time, scholars and students curious about current work on the mind needn't worry that loose talk about the Pleistocene Era, male sexual violence, and innate gender roles has somehow been validated as true.

The drama Vermeule sets up is whether sexual selection theory—true in its own vein she thinks—might help to explain rarefied artifacts like Alexander Pope's heroic couplets. Sexual selection theory posits that many behavioral traits should be conceived as courtship ornaments rather than mechanisms for survival. On this view, the relevant selection pressure for the persistence of a trait comes from within the population rather than the exogenous surround. In fact, a sexually selected trait may pose a deficit for other kinds of fitness; a peacock's tail slows down the peacock and so helps his predators but excites enough peahens for the trait to persist. Vermeule interprets this story to imply that ornaments are exciting precisely because they are costly. The peahen believes that the peacock's tail indicates his virility, since any fowl with such long plumage must have considerable strength to sacrifice so much speed and still not be eaten. Vermeule's question about the relevance of this subtheory of natural selection to the reading of Pope further depends on one particular hook. She thinks that some varieties of language—nicely turned heroic couplets, for example—might be examples of costly signaling elaborated within human speech. Garden-variety natural selection chooses language simply for communication, but sexual selection (on her view) places a premium on needless linguistic decoration. The laborious artfulness of the couplet form—the balanced iambs and poised caesurae—signal the fitness of the maker, who must possess an abundance of intellect to incur such costly display.

53. I cited from representative work in Kramnick, "Against Literary Darwinism," pp. 346–47; several more may be found below.

Vermeule offers this account in the spirit of a thought experiment and with some understanding of its vulnerability. It is to her mind, however, the kind of acquaintance that the sciences of mind might have with the practice of literary study, so it is I think worth going over with attention. The largest concern might simply be one of scale. To fit the couplet form or lines of Restoration comedy (Vermeule's other example) to a story about fitness display we have to keep several large-scale historical phenomena idling in the background: the mechanism of sexual selection for the distribution of traits; the evolution of language for the conveyance of information; the development of ornamental constraint seemingly for its own sake; and the massive and evolutionary last-minute transformation imposed by reading and writing. When these phenomena make contact with specific examples, very tough and odd questions emerge. One begins to feel a bit silly for asking them. The peacock's tail is a uniform feature of peacock anatomy, coded in some manner by the peacock genome. It exists because peacocks with long, ornamental tails reproduced more than those without (not because the tail helped to ward off predators, so the story goes, but because it signaled the bird's fitness). In contrast, the number of heroic couplet composers is so infinitesimal in the population—a minuscule portion of the already tiny number of the literate—that Vermeule must be considering the practice a particular example of something more wide spread, perhaps a universal disposition toward costly linguistic display. So couplets are importantly distinct from peacock tails as kinds, even granting Vermeule's account. One is a phenotypic trait; the other is a (contingent and indirect) product of a phenotypic trait. Much follows from this difference. For one, when we inquire about a peacock's tail, we point to precise phenotypic properties like color, length, and weight. When we ask why Pope wrote heroic couplets, we may point to precise features of his poetry—iambic pentameter, closed rhymes, and end-stoppedness, for example—but these are at best contingent and indirect products of a (psychological) phenotype whose properties we may only infer. The relation between the supposed trait and actual lines of a poem remains an entirely open question. So we don't know for example how a disposition toward costly linguistic constraint might issue into, let alone explain, something like "or stain her Honour, or her new Brocade/ Forget her Pray'rs, or miss a Masquerade."⁵⁴ And from the other direction, we cannot glean from one or one hundred couplets properties of an internal, mental predisposition. Is the couplet used as evidence for a trait we cannot

54. Alexander Pope, *The Rape of the Lock*, vol. 2 of *The Poems of Alexander Pope*, ed. Geoffrey Tillotson (New Haven, Conn., 1940), canto 2, ll. 107–8, p. 164.

quite identify or the trait used as an explanation for a couplet whose ornament is otherwise inexplicable? We seem caught in a kind of circle.

A number of related problems emerge when we touch the niceties of any one case. I was surprised for example how much Vermeule's reading turned on content as well as form. If I understand the argument correctly, costly signaling goes on despite my best or worst intentions. The motive is properly unconscious and belongs finally not so much to me as to my genes. It therefore shouldn't make a difference if I'm trying to pass off how short and misshapen I am, or if I'm in the business of cuckolding my friends by feigning impotence, or for that matter if I'm writing a blank verse epic about the fall of man. What *should* make a difference is the costliness of my language. So why does the subject matter of the examples hew so closely to the subject matter of the theory? Pope's couplets make up for his ironically scant fitness; Horner's dialogue seduces Lady Fidget and Mrs. Pinchwife. In other words, the contents of the biography and the plot of the play echo the transmillennial narrative of sexual selection. So, too, with the example of the Restoration court. According to the theory, the pressure of competition stretches over a subjectively incomprehensible reach of time: the precise duration it takes for the peacock tail to evolve. In contrast, the pressure on the Earl of Rochester to write better than the Earl of Mulgrave was sharp and short. The effect in all three cases is a kind of allegorizing of sexual selection itself, in which instance the events in a life or the activity of courtiers or the plot of a play represent elements of a process that occurs (if at all) without the awareness of its agents and over very long stretches of time.

The burden of this allegory is to bring together as legible figures a buried and universal motive (demonstrate fitness by costly display) and a lengthy and imperceptible process (evolve traits by sexual selection). Vermeule is rightly concerned with the kind of interpretive difficulties the allegorical move entails. She bundles them into a worry that it may not be "fair to describe Pope's elaborately wrought couplets as little more than chat-up lines or as instances of fitness display" (p. 430). I'm inclined to think this worry may be expanded considerably. The evolutionary interpretation of behavior of all kinds always looks below overt belief to a different and ostensibly deeper level of explanation. An agent's consciously available motives are one thing and those of the "mammalian endowment" something else entirely, hence the repugnance Pope might feel in response to the interpretation Vermeule has offered of his writing (p. 430). Every problem I've identified here, should it be a problem, descends from this basic structure. That is because the motives attributed by evolutionary psychology, along with the temporal duration in which it must operate, are disjointed

from available features of the language. Even the “expressive nonsense” said to mark verse in contrast to the communicatively sleek and adaptive nature of other forms is abstracted from any particular feature or rule (p. 429). In other words, allegory steps in because it presents in linguistic form the otherwise irretrievable disposition for costly display and the otherwise unimaginable stretch of evolutionary time. And yet it does so at a cost, for it removes our attention from the disposition or the process to their redaction. Vermeule mentions in passing that critics might “wince” at the suggestion that poetry is a kind of peacock’s tail (p. 429). I think we might take such wincing as dispositive, as an indication that our consideration has been taken to something else entirely.

We can get around the recourse to allegorical representation of evolutionary principles however by moving out of the shadowy realm of motive and looking elsewhere for contact with other disciplines. My discomfort with the claim that evolutionary psychology is both true and pervasive is (again) most centrally concerned with the kind of map it provides for getting acquainted with what’s going on elsewhere. Rather than attending to what might be hidden, for example, we might stick closer to the surface features of the couplets themselves and simply ask how minds encounter or create such artfully put together things. How does rhyme integrate auditory information? How do we peel a three-dimensional, colored piece of china from two-dimensional, pallid words on a page?⁵⁵ These are hard and interesting questions. There are many others like them in the vicinity, but I see no reason why they need to be framed in a story about buried motives or unimaginable scales of time.

Moving Forward

In different ways, Ryan’s and Starr’s responses are closest to the perspective of the original essay, so I will integrate them into my closing remarks on interdisciplinarity. Carroll complains that I only gesture toward a research project at the end. That is entirely correct. All anyone can do, I think, is look around to discover common areas of interest or points of contact and then see where they lead. A lot of that is just looking over the shoulders of others.

Ryan is on the right track I think to consider the relation between literature and psychology historically not because the historical perspective should have ultimate, explanatory power but rather because it is a perch

55. See for example Elaine Auyoung, “The Sense of Something More in Art and Experience,” *Style* 44 (Winter 2010): 547–65; Alan Richardson, *The Neural Sublime: Cognitive Theories and Romantic Texts* (Baltimore, 2010), pp. 138–57; and Elaine Scarry, *Dreaming by the Book* (Princeton, N.J., 1999).

from which the literary humanities might begin to contribute something of its own. For Ryan, this is a matter of the interaction between theorists of the mind and writers of realist fiction during the nineteenth century. Ryan points illustratively to crosscurrents between literary evocations of mind-edness and psychological theories during the period: Crichton-Browne and Thomas Hardy, George Eliot, and James Sully. I share her interest in this regard, although by dint of specialization my examples and the questions they raise are mostly from a century or two earlier. The moral she draws is twofold. She first points to the commonality of today's evolutionary critic's notion of universal human nature with Victorian ideas of the same. Indeed Carroll has also made this point, although his idea was to confirm the intuitions of the novelists he likes, whereas Ryan's is to query the notion's validity.⁵⁶ To historicize by her light is to pull out the rug. I agree. But Ryan's most interesting point moves in a different direction. This is where she shows how some of the nineteenth-century theorists of mind alight on literary form to illustrate what is distinctively missing or unresolved in their own more abstracted or expository work. Her example is Sully's interpretation of Eliot's fiction, and she focuses on the particular work reading calls upon the mind to do. All of this is somewhat sketchy, but even so the point radiates outward. The "bidirectional exchange" between Eliot and Sully looks at science to understand the reading of fiction and fiction to see the workings of mind (see p. 416). Seen this way, the work of critics might plausibly be to examine puzzles that properly straddle more than one way of understanding or method of analysis.

I've coaxed Ryan only slightly to get to this particular point. I'd like to see where it goes. Remaining entirely within the historical perspective in which most literary study operates, we may still provide a unique vantage on problems that range beyond the ordinary purview of criticism, not because we have some decisive primacy over other fields, but simply because problems always look different when approached from separate angles. Consider for example the so-called hard problem of consciousness: how could a physical system give rise to conscious experience? How can something like a conscious agent be made from mere matter? According to Thomas Nagel's famous essay on bats cited by Starr in her response, no amount of objective data from neuroscience is going to tell us what it is like to be a subject with a point of view. The objective stance leaves something out. This insight is shared, tweaked, and explored by literary writers ranging from Margaret Cavendish to Ian McEwan and well beyond. Think of McEwan's Dr. Perowne, staring at Baxter's brain and wondering how the

56. See for example Carroll's discussion of Bronte in the article cited above.

soft tissue could yield the troubled experience of the infirm criminal, or the multicolored half-beast, half-human denizens of Cavendish's *Blazing World*, each with an experience relative to its unique perceptual organization. Two writers committed to a physical understanding of person and mind. The one uses free indirect discourse to turn first-person experience into third-person form; the other appends a work of fiction to a philosophical treatise. Ryan closes her response with remarks that I think might help set these moves in their proper light: "literature renders the familiar world unfamiliar and thus allows us to see aspects we may not have noticed before" (p. 417). The rendering in the two cases I've so quickly passed over amounts to formal experimentation in point of view, precisely at moments—the late seventeenth century, the early twenty-first century—when the very question of having a point of view takes center stage in philosophy and science.

Looking at McEwan or Cavendish this way takes from our current mind-talk a set of terms that might get at what these writers are up to. The vocabulary of hard problems and the relations it defines come from philosophy of mind and cognitive science. At the same time, some formal strategies we are attuned to as critics seem poised to engage what these disciplines find so intractable. That is at least one way to imagine interdisciplinarity. Doubtless there are many others. One of my points in the original essay was that literary scholars interested in cognitive or other kinds of science are not obligated to take on board a series of assumptions about human nature or to go to war with the best of their discipline or (again) even to pose their terms in an evolutionary vocabulary. I'm very glad that Starr contributed a response, since she has gone considerably far already to show all this to be true. Her own work draws from cognitive neuroscience and has proceeded modestly in collaboration with those who work on the brain. This is surely one plausible model for work between very different fields of study on questions that concern both. Starr's comments on the promise, concerns, and limits of this kind of work are all salutary and worth deferring to. One is the deceptively simple recommendation for critics to be skeptical of studies that evade the process of peer review. The advice is deceptively simple because, not only does it guard against explaining away complicated phenomena, but also because it moves appropriately from the actual procedures of one discipline to another. (Much the same from the opposite direction with the selecting judiciously from the pieces of Austen criticism I presented earlier.) The further insight Starr draws from this caution is to be wary of conclusions that violate the intuitive insight of the discipline itself, that grate against its shared language and mode of expertise. This is to suggest again that we take

our wincing to bear judgment of an important kind, unless one really does think we are mired in pervasive rot; in which case, all bets are off. Starr's point here cuts in two directions. On the one hand, it suggests that literary criticism and theory as currently practiced have disciplinary credibility worth bringing to the table. On the other, it provides recourse to critics responding with skepticism to those who would use the authority of another discipline to grind an axe of one or another kind.

The sharpest point Starr raises relevant to the present conversation, however, might be in her account of the fundamental relation between talk about evolution and work in the humanities. One consistent strategy of the literary Darwinists is to suggest that you are either with them or some sort of dualist. Either you believe that literary criticism should be folded into evolutionary psychology, or you believe that products of the mind, like Cartesian mental substances or Christian souls, are separate kinds of things entirely. (Hence for example Carroll's admonition that I believe biology to be one subject and history another.) The move derives from their interpretation of Wilsonian consilience as "an integrated body of knowledge extending in an unbroken chain of material causation from the lowest level of subatomic particles to the highest levels of cultural imagination" ("EP," p. 105). Statements like this would have a commitment to there being nothing over and above the physical world translate into a very particular way of studying literature. But a set of facts about the physical world need have no bearing on a set of readings. The mistake consists in viewing *knowledge* as "extending in an unbroken chain of material causation" rather than simply the *world* itself so extending, that is, in conflating epistemology with ontology, our system of understanding the world with the composition of the world itself.⁵⁷ One departs not at all from a physical view of the world to respect and, when possible, bring together the different methods and vocabularies of its disciplines.

Starr has this in view when she observes that "just because all human behavior ultimately must supervene on the evolved human brain does not mean that evolutionary psychology, as it currently stands, is the only game in town when it comes to explaining human behavior" (p. 421). The point should be dwelled upon and absorbed. To be committed to the physical world being the whole world and to all life having evolved by natural selection does not commit one to the further view that mental states reduce to, let alone are *identical* with, the neuronal states that accompany and

57. On the tendency of consilience to conflate metaphysical reduction (the world is physical) with epistemological reduction (all explanation is a physical, or in this case an evolutionary biological/psychological, explanation), see Fodor, "Look!" and Loewer, "Why There *Is* Anything Except Physics."

correlate with them.⁵⁸ Starr points to Nagel's canonical remarks on this topic, but the insight extends from Hilary Putnam and Donald Davidson to David Chalmers and well beyond. Much follows. If explanation in the terms of neuroscience is not identical with explanation in the terms of psychology, then biology need not envelop psychology nor psychology the study of culture. In fact, interdisciplinary links between one field of study and another go on precisely because of the failure of consilience, because there is no unity of knowledge across the diversity of the world. The curious need to look to see how things are done elsewhere.

I raise such abstract concerns as I get to the end because writers like Carroll and Boyd would claim that only a unified picture of knowledge—consilience—fits with a unified picture of being. Science has brought everything together, and only us stubborn humanists are holding on to worn-out theories and blinkered readings. “Evolutionary biology [is] the pivotal discipline uniting the hard sciences with the social sciences and the humanities” (“EP,” p. 105). Starr's response is a helpful rebuttal of this view because she makes use of her own collaborative work with neuroscientists to show how one might bring together disparate kinds of explanation. This is again a type of horizontal rather than vertical integration. It assumes that criticism has a proprietary language and mode of expertise that cannot be duplicated or reduced to the language of other disciplines. So while she and her colleagues are interested in using methods like fMRI to examine how “the brain evaluates the pleasure of art [by] using circuitry for processing reward,” she also understands that “you get more explanatory power about a work of fiction or poetry from criticism” (p. 423). The particular example may be extrapolated. Starr has pointed to a single research problem that draws upon several kinds of expertise. Much the same can be said for work bringing the quantitative methods of the digital humanities to close reading or other aspects of cognitive science to humanistic endeavor. The results in these cases should be invigorating, not dispiriting.

There's no need to give up what we do well should we care to look at what others do. There's no need to, and it's probably a mistake.

58. Starr invokes *supervenience*, a term of art from analytic philosophy that implies a nonreductive dependency relation between levels of explanation (say neurophysiology and the mental, as the case may be). It is revealing that while *supervenience* is in ubiquitous use among philosophers of science and mind, *consilience* seems nowhere to be found but on the pages of literary Darwinism.