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II

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Critical Inquiry

II

For Evocriticism: Minds Shaped to Be Reshaped

Brian Boyd

Evolutionary criticism argues that evolution has shaped human minds to be partially reshapable, not least by our species-wide predisposition to culture, to art in general, and to literature in particular. Evocritics¹ show how the fact that human minds owe their structure to evolutionary pressures makes a difference to literature—to features of human minds and behaviors that literature deploys, represents, appeals to, engages, and modifies.²

At least, that's how I understand what we do. Jonathan Kramnick understands "literary Darwinists" differently: as committed to (1) a narrow

1. Not for the first time, I wish to resist the term *literary Darwinism*. Evolutionary biologists and psychologists do not call themselves biological Darwinists or psychological Darwinists, and for good reason; theirs are open, scientific, relentlessly critical research fields, not discipleships of a foundational sage such as Marx or Freud. I will refer to the research program others and I advocate as evocriticism and leave the program that Jonathan Kramnick (see n. 3) deprecates as literary Darwinism. The term *evocriticism* also allows room for others interested in evolutionary approaches to the arts, such as anthropologists of art (like Ellen Dissanayake), film critics (like David Bordwell, Torben Grodal, and Murray Smith), and philosophers of art (like Denis Dutton and Stephen Davies).

2. Dozens of books have been published in the area; to save space, I omit full references. The Wikipedia entry for "Darwinian literary studies" currently lists thirty-five books; a recent bibliographic survey can be found in Joseph Carroll, *Reading Human Nature: Literary Darwinism in Theory and Practice* (Albany, N.Y., 2011) and an extended bibliography in *Evolution, Literature, and Film: A Reader*, ed. Brian Boyd, Carroll, and Jonathan Gottschall (New York, 2010), which also includes some of the best work (to 2008) in the field.

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and controversial evolutionary psychology, whose controversial nature we ignore; (2) an untenable modular view of the mind, whose modules were shaped in the Pleistocene and have not changed since; (3) the adaptive value of a modular “literary competence”; and beyond that (4) a purely thematic approach to literature incapable of attending to form, variation, or history.³ I do not recognize our work in his version.

Since much of what follows will performe be negative, in negating Kramnick’s negative account of evocriticism, let me first just offer a sampler of the positive, from the opening of an essay “On the Origin of Comics,” which, with the help of evolutionary and cognitive principles, explains the emergence of comics as a mass art in the 1890s and explores other possibilities for comics in the twenty-first-century avant-garde, for instance:

Evolution lets us see comics, like almost anything human or even alive, in a panoramic context but also in extreme close-up, as close as a comics artist trying to grab readers’ attention in *this* frame or with *that* angle. And it can zoom smoothly between these two poles. Evolution offers a unified and naturalistic causal system from the general to the very particular. Far from reducing all to biology and then to chemistry and physics, it easily and eagerly plugs in more local factors—in a case like comics, historical, technological, social, artistic and individual factors, for instance—the closer we get to particulars. Evolution accepts multilevel explanations, from cells to societies, and allows full room for nature *and* culture, society *and* individuals.⁴

In what follows I will show first, with respect to (1), that what Kramnick reports as controversial in biology has long ceased to be so but that he has ignored the real continuing controversy within the evolutionary sciences

3. See Jonathan Kramnick, “Against Literary Darwinism,” *Critical Inquiry* 37 (Winter 2011): 315–47; hereafter abbreviated “ALD.”

4. Brian Boyd, “On the Origin of Comics: New York Double-Take,” *Evolutionary Review* 1, no. 1 (2010): 97.

BRIAN BOYD, University Distinguished Professor of English at the University of Auckland, is best known as a Nabokov scholar (eight solo books, including a two-volume biography, and eight edited volumes). Since 2000 he has also worked on evolutionary approaches to literature, including *On the Origin of Stories: Evolution, Cognition, and Fiction* (2009) and the coedited *Evolution, Literature, and Film: A Reader* (2010). He has completed a follow-up to *On the Origin of Stories*, on Shakespeare’s sonnets and lyric verse in general, entitled *Why Lyrics Last: Evolution, Cognition, and Shakespeare’s Sonnets* (2012), and is also working on *On the Ends of Stories*.

of the mind, where the most active evocritics occupy a position quite different from the one he assigns to us in (2). He turns up to the wrong battlefield; no wonder he finds it easy to attack opponents who aren't even there.

Kramnick has at least taken the trouble to read much of the material he mischaracterizes before dismissing it. This offers an advance on earlier reactions, like that of Louis Menand, who in 2004, after asking what was needed to stir literary studies from what he described as their doldrums, affirmed that what they do *not* need is “consilience, which is a bargain with the devil.”⁵

Kramnick's most insistent rebuke to literary Darwinists is that they ignore the controversy within the evolutionary sciences of the mind, presenting it “as ordinary and agreed-upon science,” when, however, it is no more than “one particular view of the mind” (“ALD,” p. 317). In fact he himself ignores the central and active disagreement within the field of evolutionary psychology and therefore places evocritics right where they do not belong.

In order to suggest that there is still a live controversy about adaptationism at the center of evolutionary biology, a controversy that “literary Darwinists” supposedly ignore, Kramnick has to adduce the critique of adaptationism by Stephen Jay Gould and Richard Lewontin in 1979 against E. O. Wilson and Richard Dawkins.⁶ But this is no longer a controversy. Even those critical of evolutionary psychology, like David Buller, whose critique Kramnick welcomes, conclude: “Gould's arguments fail to show that there is anything wrong with adaptive reasoning in Evolutionary Psychology.”⁷ A sympathetic summary of Gould's career recognizes that “Gould does not leave behind an alternative to Darwinian orthodoxy.”⁸ A

5. Louis Menand, “Dangers within and Without,” *Profession* (2005): 14. Kramnick calls my response to Menand “quite intemperate” (“ALD,” p. 343 n. 73)—as opposed to the temperateness of the dismissal, without argument or evidence, of “a bargain with the devil”?

6. See Stephen Jay Gould and Richard C. Lewontin, “The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme,” *Proceedings of the Royal Society of London* 205, no. 1161 (1979): 581–98. For perspectives on the debate, from the sociology of science, see Ullica Segerstråle, *Defenders of the Truth: The Sociobiology Debate* (Oxford, 2000), and, from the philosophy of biology, see Kim Sterelny, *Dawkins versus Gould: Survival of the Fittest* (Cambridge, 2001).

7. David J. Buller, *Adapting Minds: Evolutionary Psychology and the Persistent Quest for Human Nature* (Cambridge, Mass., 2005), p. 91.

8. David F. Prindle, *Stephen Jay Gould and the Politics of Evolution* (Amherst, Mass., 2009), p. 219.

recent compendium on evolution notes: “Adaptation is being studied at least as intensely as ever.”⁹

Far from ignoring the adaptationist controversy, as Kramnick claims, evocritics have dealt with it repeatedly.¹⁰ Gould earned renown for vivid, memorable examples and analogies, like the spandrels of San Marco, and, although these have made much less difference to evolutionary theory than he hoped, evocritics have been aware they have been “influential” *outside* biology, and may well be known to many readers who have not heard both sides of the debate and do not realize it was resolved *within* biology against Gould and in favor of adaptationism.

Not only does Kramnick wrongly claim that literary Darwinists ignore this old controversy, he himself ignores an ongoing and far more relevant controversy within the evolutionary study of human nature. He aligns literary Darwinists with “scientists like Leda Cosmides and John Tooby, David Buss, Steven Pinker” (“ALD,” p. 317; see also pp. 328–29, 334, 346); he declares that we “squeeze from the school of Pinker and Buss” our “story about literature” (“ALD,” p. 344). In fact for many years people working in the area have distinguished between a broad field of evolutionary inquiry into human nature, evolutionary psychology (ep), and a much narrower patch within that field, Evolutionary Psychology (EP; also called narrow school or High Church Evolutionary Psychology), defined best by the work of Cosmides, Tooby, and Buss.¹¹ Kramnick misleadingly obscures the state of the field by overlooking this distinction and this debate.

He cites Buller as offering “a balanced critique” (“ALD,” p. 328 n. 32) of evolutionary psychology. Buller emphasizes that he is criticizing narrow EP, not broad EP. He accepts EP as a valid field, like others who have been prominent critics of EP, such as Frans de Waal, who affirms in the midst of a critique of EP that nevertheless there is “no way around an evolutionary approach to human behavior” and predicts that “50 years from now every psychology department will have Darwin’s bearded portrait on the wall.”¹²

9. Joseph Travis and David N. Reznick, “Adaptation,” in *Evolution: The First Four Billion Years*, ed. Michael Ruse and Joseph Travis (Cambridge, Mass., 2009), p. 129.

10. See Carroll, *Literary Darwinism: Evolution, Human Nature, and Literature* (New York, 2004), pp. 227–45, and Boyd, *On the Origin of Stories: Evolution, Cognition, and Fiction* (Cambridge, Mass., 2009), pp. 36–37.

11. See *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, ed. Jerome H. Barkow, Leda Cosmides, and John Tooby (New York, 1992); David M. Buss, *The Evolution of Desire: Strategies of Human Mating* (New York, 2003); *The Handbook of Evolutionary Psychology*, ed. Buss (Hoboken, N.J., 2005); and Cosmides and Tooby, “Neurocognitive Adaptations Designed for Social Exchange,” in *The Handbook of Evolutionary Psychology*, pp. 584–627.

12. Frans B. M. de Waal, “Evolutionary Psychology: The Wheat and the Chaff,” *Current Directions in Psychological Science* 11 (Dec. 2002): 187, 190.

Another advocate of broad EP who criticizes narrow EP is biologist David Sloan Wilson.¹³ Wilson has worked with evocritics for almost fifteen years, as the PhD advisor for one of the most active, Jonathan Gottschall, as the coeditor of *The Literary Animal*,¹⁴ which Kramnick calls a “manifesto” of literary Darwinism (“ALD,” p. 316 n. 1), and as the first biologist invited to give a keynote at a literature and evolution conference.¹⁵ No biologist has worked more closely with evocritics, yet no biologist has more persistently criticized the key tenets of narrow EP.

The most active evocritics have themselves contrasted ep and EP for many years and, along with others, have criticized central tenets of EP for more than a decade.¹⁶ How has Kramnick not noticed all this, or why has he seen fit not to mention it?

The key tenets of EP questioned by evocritics and others include, especially, the notions of the “massively modular” mind and of the Pleistocene as the prime Era of Evolutionary Adaptedness (so that we therefore have Stone Age minds), both stressed by Cosmides and Tooby.¹⁷ In criticizing these and other EP claims, evocritics have joined biologists such as de Waal, Sarah Blaffer Hrdy, psychologists and neuroscientists such as David Geary, Michael Tomasello, and Jaak Panksepp, anthropologists such as Robert Boyd and Steven Mithen, and philosophers such as Buller and Kim Sterelny.¹⁸ Wilson’s essay “Evolutionary Social Constructivism,” which explains culture as an evolved means for responding more quickly to environmental change than genes can allow, appeared both in *The Literary Animal* and in *Evolution, Literature, and Film*.¹⁹ He declares that as a con-

13. See David Sloan Wilson, *Darwin’s Cathedral: Evolution, Religion, and the Nature of Society* (Chicago, 2002), p. 238 n. 17.

14. See *The Literary Animal: Evolution and the Nature of Narrative*, ed. Gottschall and Wilson (Evanston, Ill., 2005).

15. At the Lorentz Center, University of Leiden, Dec. 2007.

16. See references to Carroll’s, the earliest (from 1998), in his “An Open Letter to Jonathan Kramnick,” pp. 406–7.

17. See Cosmides and Tooby, “Evolutionary Psychology: A Primer,” www.psych.ucsb.edu/research/cep

18. See De Waal, “Evolutionary Psychology”; Sarah Blaffer Hrdy, *Mother Nature: Maternal Instincts and How They Shape the Human Species* (New York, 1999); Wilson, *Darwin’s Cathedral*; David C. Geary, *The Origin of Mind* (Washington, D.C., 2005), hereafter abbreviated OM; Michael Tomasello, *Origins of Human Communication* (Cambridge, Mass., 2008); Jaak Panksepp and Jules B. Panksepp, “The Seven Sins of Evolutionary Psychology,” *Evolution and Cognition* 6, no. 2 (2000): 108–31; Peter J. Richerson and Robert Boyd, *Not by Genes Alone: How Culture Transformed Human Evolution* (Chicago, 2005); Steven Mithen, *The Prehistory of the Mind: The Cognitive Origins of Art and Science* (London, 1996); Buller, *Adapting Minds*; and Sterelny, *Thought in a Hostile World: The Evolution of Human Cognition* (Oxford, 2003).

19. See Wilson, “Evolutionary Social Constructivism,” in *The Literary Animal*, pp. 20–37 and in *Evolution, Literature, and Film*, pp. 111–22.

sequence of culture, humans, far from being stuck with Stone Age minds, “experience evolution in hyperdrive,” a phrase I happily appropriate.²⁰

Carroll and I have especially favored the model of David Geary, with its steady incline from hard mental modularity to soft, reshapeable modules to general intelligence. In a chapter on “The Evolution of Intelligence” I spend one paragraph on Cosmides and Tooby’s Swiss Army knife model and the rest of the chapter summarizing Geary’s much more flexible view of the mind.²¹ The flexibility of the mind (in Mithen and Geary) has been central to Carroll for over a decade,²² and the plasticity of the mind (in Norman Doidge, Stanislas Dehaene, Oliver Sacks, and “evo-devo,” evolutionary developmental psychology) has become increasingly focal for my work.²³

Evolutionary developmental psychology has moved away from nativism toward seeing initial predispositions or learning biases develop into specialized subroutines or behaviors,²⁴ a position that has been eagerly adopted by evocritics. Evocritics have also been receptive to the affective neuroscience of Panksepp, which challenges EP for its overly computational model of the mind.²⁵ Sociobiology and evolutionary psychology were made possible by the new recognition of the centrality of the gene, rather than the organism or the species, in natural selection. Although they focused often on cooperation, Evolutionary Psychologists have tended to resist the idea of multilevel selection, of selection at the level of groups as well as organisms and genes (as proposed by Sober and Wilson; Wilson and Wilson; Boyd and Richerson).²⁶ Multilevel selection is now recognized as “clearly important for understanding many adaptations in diverse sys-

20. Wilson, “Foreword,” in Barbara Oakley, *Evil Genes* (Amherst, N.Y., 2007), p. 16; see Boyd, *The Origin of Stories*, p. 27.

21. See Boyd, *The Origin of Stories*, pp. 42–50.

22. See references in Carroll, “An Open Letter to Jonathan Kramnick.”

23. See Norman Doidge, *The Brain That Changes Itself: Stories of Personal Triumph from the Frontiers of Brain Science* (New York, 2007); Stanislas Dehaene, *Reading in the Brain: The Science and Evolution of a Human Invention* (New York, 2009); and Oliver Sacks, *The Mind’s Eye* (New York, 2010).

24. See David F. Bjorklund and Anthony D. Pellegrini, *The Origins of Human Nature: Evolutionary Developmental Psychology* (Washington, DC, 2002), and Tomasello et al., “Understanding and Sharing Intentions: The Origins of Cultural Cognition,” *Behavioral and Brain Sciences* 28 (2005): 675–735.

25. See Jaak Panksepp, *Affective Neuroscience: The Foundations of Human and Animal Emotions* (New York, 1998).

26. See Elliot Sober and Wilson, *Unto Others: The Evolution and Psychology of Unselfish Behavior* (Cambridge, Mass., 1999); Wilson, *Darwin’s Cathedral*; Wilson, *Evolution for Everyone: How Darwin’s Theory Can Change the Way We Think about Our Lives* (New York, 2007); Wilson and Edward O. Wilson, “Rethinking the Theoretical Foundations of Sociobiology,” *Quarterly Review of Biology* 82, no. 4 (2007): 327–48; and Richerson and Boyd, *Not by Genes Alone*.

tems; research in this area is leading to far more nuanced and sophisticated interpretations of the evolution of sociality.”²⁷ Evocritics have eagerly taken to multilevel selection for its role in explaining the power that stories, overtly fictional or the unrecognized fictions of religion, can exercise on social cohesion.²⁸

Kramnick, then, rebukes us for ignoring a no longer live controversy that in fact we *do* address yet himself fails to acknowledge (a) the controversy between ep and EP, (b) the role of evocritics in critiquing the key tenets of EP, or (c) the extent to which evocritics have taken ideas from broader notions of evolutionary biology, psychology, and anthropology often at odds with EP assumptions.

To move to point (3) in my second paragraph, Kramnick also claims that the crucial question in literary Darwinism is the adaptive function of literature and that literary Darwinists argue for a modular “literary competence” (“ALD,” pp. 320 n. 13, 325, and throughout) that is universal, and therefore innate, and therefore adaptive and modular.

Some evocritics have indeed focused some of the time on the question of the possible adaptive function of literature,²⁹ but this has never been seen as *the* fundamental question for evocritics, just one of an open-ended quiver of questions. Some prominent evocritics, like Gottschall and Marcus Nordlund, have given it little attention—and, conversely, many non-evocritics from Aristotle on have, perfectly reasonably, also asked why we engage in literature and what benefits, if any, it confers.

“Literary competence,” a notion Kramnick attacks, is his term (and Jonathan Culler’s),³⁰ not ours. He presents it as a focus of literary Darwinism’s enquiry into the adaptive value of literature, as equivalent to the kind of modular mental capacity he says constitutes the main focus of literary Darwinist endeavors. But “literary competence” is not a prime focus of evocritics. What we *have* tended to focus on, *when* we consider adaptive value, is the human predilection for engaging in stories, from pretend play to full-fledged fiction, whether oral, written, enacted, filmed, drawn, or programmed.

Evocritics do not equate literature with stories or, in careful formulations, label literature universal or adaptive. They do tend to find *stories*

27. Travis and Reznick, “Adaptation,” p. 129.

28. See Boyd, *The Origin of Stories*, pp. 99–108, and Carroll et al., “Human Nature in the Nineteenth-Century British Novel: Doing the Myth,” *Philosophy and Literature* 33 (2009): 50–72.

29. See Carroll, *Literary Darwinism*, pp. 63–68, “An Evolutionary Paradigm for Literary Study” and “Rejoinder to the Responses,” *Style* 42 (Summer–Fall 2008): 103–35, 119–28, 349–68; Boyd, *The Origin of Stories*, pp. 69–125, 188–208; and Michelle Scalise Sugiyama, “Reverse-Engineering Narrative: Evidence of Special Design,” in *The Literary Animal*, pp. 177–96.

30. See Jonathan Culler, *Structuralist Poetics* (London, 1975).

universal and adaptive, but there are other aspects of literature, like verse and essays, that *may* be universal (as in the case of verse) or not (as in the case of essays). Against Kramnick's claims, evocritics do not assert that universality implies innateness and adaptiveness. Rather, universals satisfy one criterion for adaptiveness and may then be investigated to see if they satisfy the other criteria: if they (a) develop spontaneously, (b) show evidence of biological design, and (c) offer, on average, reproductive benefit. Verse, for instance, I argue is universal but neither adaptive nor innate, merely what Daniel Dennett calls a "good trick"³¹ that may be discovered, often independently, in culture after culture—in this case, because the verse line (spoken or written) as a unit of attention matches so closely the constraints of human working memory.³²

For some reason Kramnick chooses to advance, as a criticism of "literary Darwinist" claims that storytelling is adaptive, the fact that it involves and depends on other faculties of the mind or body (see "ALD," pp. 332, 340, 343). Of course it does. Our proclivity for storytelling depends on many other capacities of the mind, like perception, emotion, memory, and imagination. No evocritic I know would deny that many capacities of the mind feed into literature, any more than any biologist would deny that many capacities of body and mind, like respiration, digestion, circulation, perception, and attention, feed into locomotion—which hardly stops locomotion being adaptive. In the same way, the fact that many mental functions feed into, say, storytelling has no bearing on whether storytelling itself is adaptive.

Contrary to Kramnick's insinuations, no evocritic claims there is a separate module of literary competence sealed from other aspects of the mind. Indeed I make it quite explicit, to the point of treating them in successive chapters, that the capacity for fiction depends on capacities (shared to some extent by many species) for event comprehension, capacities (shared by fewer species) for event recall, and capacities (shared to a still more limited extent, and by still fewer species) for event representation before I address the unique capacity for event invention in humans.³³

Kramnick returns repeatedly to the claim that "it's a great deal easier to make a case for adaptive and other functions of mind feeding into a disposition to create and consume works of literature than it is for such a disposition itself to be an adaptation" ("ALD," p. 332; see also pp. 335, 336, 343, 346). But dispositions can be crucially adaptive—like the widespread

31. Daniel Dennett, *Darwin's Dangerous Idea* (London, 1996), p. 77.

32. Brian Boyd, "Verse: Universal? Adaptive? Aversive?" *Evolutionary Review* 2 (2011).

33. See Boyd, *On the Origin of Stories*, chaps. 10–12.

animal disposition to play, or the greater disposition for physical fighting, serious or play, among boys than girls, even before the onset of puberty starts to sharply differentiate male and female upper body strength. 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 the spontaneous emergence and the continued compulsiveness of childhood pretend play.

A predisposition can make all the difference—like a predisposition for proximity to others; less social animals in many species, such as canids, are at much higher risk of early deaths. Tomasello, whose work on the comparative cognitive development of chimpanzees and humans has been extremely influential among ep researchers, shows the cascade of effects, including language itself, that can arise from the unique human disposition to joint attention—yet another precondition for art that an evolutionary approach has been able to bring to light.³⁴ The fact that there are preconditions for art does not make art any less to some degree a matter of biology. On the contrary, without that unique evolved predisposition to joint attention, art could not have developed beyond the solipsism of early play. Yet art is not reducible to joint attention or to any other set of enabling conditions.

A slight disposition to play firmed, over many millions of years, into the compulsiveness play has throughout the mammalian line. Play motivates animals with flexible behavior to practice key responses like flight and fight in nonurgent situations so that their sheer present pleasure ensures that they refine their control and expand their flight-or-fight options in urgent situations. Other animals thrive by their physical skills—humans, uniquely, mostly by our mastery of information, especially social information. For any species, information can be handled efficiently in real time only when it falls into patterns of the kinds they naturally recognize. Just as animals, including humans, refine flexible physical skills through play, humans uniquely, naturally, compulsively refine their most important cognitive skills through art, through cognitive play with pattern, in their most important information modes: in sight, in sound, and in social information. In the particular art of fiction, from pretend play onwards, we learn to understand events and shift perspectives at a faster clip than usual, to enjoy simulations of a wide range of social situations, and to generate a wider range of options.³⁵

34. See Tomasello et al., “Understanding and Sharing Intentions,” and Tomasello, *Origins of Human Communication*.

35. See Boyd, *On the Origin of Stories*, chaps. 6, 12–13.

All fiction needs is that deep-rooted human disposition to engage in narrative—an already established competence—as *play* and as therefore compulsively inviting. Then present pleasure can train us for future needs, preparing the effects that recent research has begun to show fiction has on minds, on social cognition, perspective taking, and empathy.³⁶ Through playing with props and action as children and switching, as we grow older, to stories that may no longer need physical enactment—through our disposition to the social simulation of fiction—we learn the more rapid, efficient, and powerful comprehension of events, especially social events, and enable the more rapid generation of options. We reshape our minds,³⁷ as our evolved disposition to pretend play and fiction had shaped us to do.

Now to the last point, (4), in my second paragraph. Kramnick's final criticism of "literary Darwinism" is that it "has surprisingly little to say about literary texts or forms" ("ALD," p. 343). *Kramnick* certainly has surprisingly little to say about what evocritics have in fact written about literary texts and forms. He continues: "Anything it could say about such forms would have to be appropriate for a prehistoric culture whose language and stories are lost forever" ("ALD," p. 344). If this were true it would have been impossible for evocritics to write, as they have, about comics, film, and dystopian, utopian, and slash fiction. Something must be seriously wrong with Kramnick's position. And it is; see points (1) to (3) above.

Kramnick seems reluctant to name examples lest people seek them out and find something of value. He does not indicate that there are evocritical monographs on individual authors and genres from Homer and Shakespeare to Zamyatin and Wharton and essays on works by writers from Homer and Shakespeare, again, to Austen, Charlotte Bronte, Thomas Hardy, Oscar Wilde, Zora Neale Hurston, Vladimir Nabokov, Dr. Seuss, J. M. Coetzee, and Art Spiegelman, and studies of epic, drama, the novel, satire, verse, the sonnet, science fiction, and slash fiction.

Kramnick declares, "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" ("ALD," p.

36. See Jemeljan Hakemulder, *The Moral Laboratory: Experiments Examining the Effects of Reading Literature on Social Perception and Moral Self-Concept* (Amsterdam, 2000); Maja Djikic et al., "On Being Moved by Art: How Reading Fiction Transforms the Self," *Creativity Research Journal* 21, no. 1 (2009): 24–29; Raymond Mar, Keith Oatley, and Jordan B. Peterson, "Exploring the Link between Reading Fiction and Empathy Ruling out Individual Differences and Examining Outcomes," *Communications* 34, no. 1 (2009): 407–28.

37. Evidence has shown that simulation improves performance in nonartistic contexts, too; see Chris Frith, *Making up the Mind: How the Brain Creates Our Mental World* (Oxford, 2007), p. 106.

346). His confidence suggests a thorough knowledge of literary Darwinism, evolutionary biology, and evolutionary psychology. But where do literary Darwinists claim that literature is invariant across the species? Where does even narrow-school EP claim that *any* form of culture is invariant across the species? Why because something is innate would it have to be invariant in its expression? Head hair is innate in humans, in a uniquely human pattern, even down to species-typical (yet highly variable) patterns of male balding, yet is not uniform across the species, either in genetic expression or in cultural modulation. Genes encode for individual variation as well as species-typical features, and without that variation evolution by natural selection could not occur. Genes may also, as in the case of head hair, be subject to local selective pressures and, as long as geographical isolation persists, to lasting local variations. Many phenotypic features are a result of polygenic combinations that will result in the wide range of a normal distribution spread, and many traits, including psychological traits, have stable or frequency-dependent polymorphisms.

Kramnick tries in the sentence above to infer a conclusion from biological principles, but his multiple misunderstandings of evolutionary biology show he cannot do so. This is bad enough, but worse still is that he attempts to argue *in theory* how limited literary Darwinism must be while refusing to acknowledge the diversity of their practice, which he must know contradicts his abstract dictum. Evolutionary literary and film critics have often done work on literary variation, often at a fine-grained level, in local social and historical conditions, in Gottschall's work on *The Iliad* or Nordlund's on Shakespeare, or technological and economic conditions, in my work on comics, or individual authorial variation, in Carroll's work on Hardy or Wilde or mine on Seuss or Nabokov, or from specific technical devices, like my work on free indirect discourse or Bordwell's on shot-reverse shot editing or the cinematic gaze. Just what is Kramnick afraid that readers may discover if they read the work he prefers not to mention? That evolution offers unique insights into the emotions, or into the intricate entanglements of cooperation and competition, or into the costs as well as the benefits of evolving an imagination? That there might be something to learn from the idea that biology helps shape us, and shapes us, *inter alia*, to be reshaped by arts like literature and film?