Agonistic Structure in Canonical British Novels of the Nineteenth Century

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Historical and Methodological Context

Evolutionary Literary Study

Literature did not become the subject of an academic discipline until the last two decades of the 19th century and, until the 1940s, literary scholarship consisted chiefly of philological and historical scholarship and moralized aesthetic commentary (Abrams 1997; Graff 2007). During the 1930s, “The New Criticism” introduced methods for the intensive formal analysis of theme, tone, and style. During the late 1970s, “poststructuralism” or “postmodernism,” spearheaded by the “deconstructive” philosophy of Jacques Derrida, produced a revolution in literary studies. Deconstruction identifies language or “discourse” as the primary constitutive material of human experience. In its political aspect, poststructuralism seeks to undermine traditionally dominant terms in social, psychological, and sexual binaries: ruling classes versus the oppressed, whites versus people of color, colonialists versus colonized peoples, mentally healthy people versus the insane, law-abiding citizens versus outlaws, males versus females, and heterosexuals versus homosexuals. In modern Western civilization, science is itself a dominant cultural value and is contrasted with terms such as superstition, faith, ignorance, mysticism, and ideology. In its epistemological aspect, poststructuralist theories of science seek to undermine the ideas of “truth” and “reality” through which science claims normative epistemic authority (Gross and Levitt 1994; Gross et al. 1996; Fromm 1997; Koertge 1998;
Sokal and Bricmont 1998; Weinberg 2001; Parsons 2003; Boghossian 2006; Smith 2006).

Before the poststructuralist revolution, humanists for the most part felt that their own kind of intellectual activity—scholarly, impressionistic, intuitive, and discursive—was fundamentally distinct from the activity of the sciences, both the physical and the social sciences. The “two cultures,” as C. P. Snow (1993) designated them, were supposed to have different subject matters, to operate according to different rules, and to produce different kinds of knowledge. New Critics regarded literary texts as autonomous systems of meaning, independent of all external conditioning, either social or biographical. Poststructuralist theory expanded the notion of textual autonomy to include not just the isolated literary text, but also the whole textual universe—the world constituted by “discourse.” The idea of cultural autonomy brings “standard social science”—that is, nonevolutionary social science—into partial alignment with poststructuralism, and during the 1990s, poststructuralist theory began to seep over into anthropology. Much standard social science nonetheless remains epistemologically distinct from poststructuralism. Even when social scientists reject the idea that genetically transmitted dispositions influence culture, most still regard scientific methodology as a medium of objective knowledge about a real world that exists independently of cultural and linguistic constructs.

During the past two decades, a growing body of literary scholars has assimilated research in the evolutionary human sciences. Variously known as “literary Darwinists” “biocultural critics” or “evolutionary literary scholars,” these scholars have rejected the antirationalism of the poststructuralists and the blank-slate model of human nature that informs standard social science. They have rejected also the idea that science and the humanities form two distinct cultures, with different subject areas, different forms of knowledge, and different criteria of validity. In adopting the framework of evolutionary social science, the literary Darwinists adopt an overarching rationale for the integration of all disciplines under the canons of scientific criteria of epistemic validity. They believe that nature forms a unified causal network and that science provides an integrated understanding of that network. Nature forms a nested hierarchy in which more elementary causal forces constrain the organization of phenomena at higher levels. Thus, causal forces in physics constrain chemical phenomena, the causal forces in chemistry constrain biological phenomena, the causal forces in biology constrain human psychology, and the causal forces in psychology constrain all cultural products, including literature and the other arts.

In Consilience: The Unity of Knowledge, Edward O. Wilson (1998) identifies the humanities as the last frontier for bringing all possible phenomena within the scope of scientific understanding. Unlike poststructuralist theorists of science,
For the most part felt that more the less intuitive and personal and the more the intellectual, as C. P. Snow (1993) suggests, matters, to operate intuitions of knowledge. New meaning, independent scientific poststructuralist theories not just the isolated world constituted by "discourse"—that is, with poststructuralists, one sees over into anthropological epistemologically distinct cultures, with their different criteria of meaning, the human reality that exists poststructuralists reject the idea that still regard scientific real world that exists literary scholars who concur with Wilson do not seek to assimilate science to the theory of "discourse." Instead, they seek to bring all discursive and imaginative activity within the scope of subjects accessible to science. Like the majority of literary authors and theorists from the time of Aristotle until the poststructuralist revolution, they believe in "human nature." That is, they believe that humans in all periods and cultures display a common, basic set of motives, feelings, and ways of thinking (Brown 1991). The literary Darwinists look to evolutionary social science to provide the most thorough, detailed guide to the actual content and structure of human nature, and they use that guide in analyzing the content and form of literary depictions, the perspectives of authors, and the responses of readers.

Quantifying Literary Meaning

The advent of a new critical vocabulary naturally initiates a phase of redescriptive commentary on the standard body of canonical literary texts. Evolutionary literary critics have already had considerable success in gaining a sharper focus on the themes that provide the skeletal structure for a number of specific literary works (for examples, see Scalise Sugiyama 2001b; Carroll 2004, 129–145, 163–185, 206–113; Nordlund 2007; Saunders 2007; Gotschall 2008; Boyd 2009; Saunders 2009; Winkelman 2009; Boyd et al. 2010; Clasen 2010; Duncan 2010; Swirski 2010; Carroll 2011b, 2012a, 2012b; Clasen 2012; Jonsson 2012; Saunders 2012; Carroll 2013a, 2013b; Clasen 2014; Carroll 2015). This process has only just begun, and there are thousands of occasions legitimately open for the process of redescription within a more adequate critical vocabulary. Moreover, the source theories of evolutionary literary criticism are empirical and progressive. Evolutionary literary criticism can progress in tandem with the advance of knowledge in evolutionary social science.

The process of redescription within a vocabulary congruent with empirically derived knowledge is an important phase of Darwinian literary study. It is nonetheless a kind of study that accepts the limitations inherent within all purely discursive, humanistic commentary. It respects the canons of empirical probability, but it cannot submit its findings to impartial tests or assess alternative hypotheses by making predictions and analyzing data statistically. Consequently, it cannot produce empirically grounded concepts of its own.

In the research described in this chapter, we seek to bridge the gap between humanistic literary criticism and the empirical methodology of the social sciences. We produce data that can constrain interpretive criticism and that can also be incorporated into future empirical studies that quantify literary meaning. We make use of concepts available within evolutionary psychology, and
we aim to produce findings that can, in turn, contribute to the development of theory and research within evolutionary psychology.

Building on findings in the evolutionary human sciences, we constructed a model of human nature, incorporated the model in an online questionnaire, and used responses to the questionnaire to illuminate the evolved psychology that shapes the organization of characters in nineteenth-century British novels (Austen to Forster). We induced hundreds of readers to give numerical ratings to the attributes of hundreds of characters. Participants also rated their own emotional responses to the characters.

The questionnaire was designed to test one central hypothesis: the idea that "agonistic structure" shapes the organization of characters in these novels. Respondents identified characters as protagonists, antagonists, or minor characters. We delineate the features that distinguish these groups of characters, demonstrate that relations among the groups form a central organizing principle in the novels, and propose an explanation for the adaptive function of agonistic structure.

Agnostic structure has a wide conceptual scope in its own right, but in analyzing agonistic structure, we are also serving a deeper purpose. By constructing a research design that correlates the features of characters with the responses of readers, we seek to produce a first approximation to a universal set of categories for analyzing meaning structures in fictional narratives. We believe that literary meaning is a natural phenomenon. Like all other natural phenomena, it can be reduced to constituent parts, measured, and located precisely within the causal network of nature. This broad supposition stands in sharp contrast to a belief, common in the humanities, that literary meaning is illimitably complex and contains irreducible elements of the qualitatively unique (Goodheart 2007; Crews 2008; Deresiewicz 2009; Goodheart 2009; Smee 2009; Spolsky 2009).

No one study could confirm definitively that all literary meaning can be analyzed objectively, but individual studies can provide strong evidence that major features of meaning can be reduced effectively to simple categories grounded in an evolutionary understanding of human nature. By quantifying literary meaning, we are translating a naturalistic interpretive vision into empirical evidence that literary meaning is determinate, delimited in scope, and consistent with the knowledge of evolutionary biology.

Collecting Data

Consulting websites for English literature faculty at universities on several continents, we identified scholars interested in 19th-century British literature, especially fiction. We sent e-mails inviting these scholars to go to the website, select one or more characters, and fill out a questionnaire on each character selected.

Agnostic Structure in Canonica

Similar invitations were posted to individual authors. Approximately 519 responses received on 435 characters from 134 contributors. The study can be accessed at http://survey.html. (Please note that to collect data.) Many characters received coding, but the most popular character, Elizabeth Bennet in Pride and Prejudice, received 81 coding from 43 respondents. We averaged the results. The result in the total set of scores.

The respondents provided 465 (86%) were male and 341 (66%) ranged between 25 years and 65 years. The respondents had a bachelor's degree or doctorate. The quality of the respondents was well informed and took their time.

The scores on motives, the produced data that we conducted an analysis. The five personality decades of factor analysis (Winter 2008). In this chapter, we described protagonists and antagonists in term mating, personality, and main tendencies in the data.

The Research Design

The questionnaire was designed to discrete categories, accumulate, in protocol form, descriptive: an author, who is a person, describing persons, describing persons, and eliciting attitudes. The causal flow in Figures of the author, in the point in a causal sequence, normative values within designs or intentions of
Similar invitations were posted on listservs dedicated to the literature of the period or to individual authors in the period.

Approximately 519 respondents completed a total of 1470 questionnaires on 435 characters from 134 novels. A copy of the questionnaire used in the study can be accessed at http://www-personal.umich.edu/~kruger/carroll-survey.html. (Please note that the form is no longer active and is not used to collect data.) Many characters were coded multiple times. For example, the most popular character, Elizabeth Bennet from Jane Austen's *Pride and Prejudice*, received 81 codings. A little more than half the characters (53%) received only one coding. For characters who received multiple codings, we averaged the results. The results for any one character were counted only once in the total set of scores.

The respondents provided demographic information indicating that 178 (34%) were male and 341 (66%) were female. The majority of the respondents ranged between 25 years and 55 years of age. Eighty-one percent of the respondents had a bachelor’s degree or higher, 58% had advanced degrees, and 32% had doctorates. The quality of the data indicates the respondents were, on the whole, well informed and took their task seriously.

The scores on motives, the criteria for selecting mates, and emotional responses produced data that we condensed into smaller sets of categories through factor analysis. The five personality domains represent a condensation of traits from six decades of factor analytic studies (John and Srivastava 1999; Barenbaum and Winter 2008). In this chapter, further condensing the results, we compare only protagonists and antagonists, and we display the results only for motives, long-term mating, personality, and emotional responses. These results bring out the main tendencies in the data. (For details omitted here, see Carroll et al. [2012].)

The Research Design

The questionnaire was designed to reduce the components of human nature to discrete categories, reduce the categories to finite sets of elements, and simulate, in protocol form, the socially interactive situation of a fictional narrative: an author, who is a person, talking about characters, who are fabricated persons, describing those characters and their actions for readers, who are also persons, and eliciting emotional and evaluative responses to those characters. The causal flow in Figure 12.1 forms a feedback loop. The designs or intentions of the author, in the top left-hand corner of the diagram, are the starting point in a causal sequence. The end point in the sequence—the creation of normative values within the novels of a given culture—feeds back into the designs or intentions of the author. Authors determine a character's attributes...
such as sex, age, attractiveness, personality, motives, and preferences in marital partners.

Readers respond emotionally to characters, wish them to succeed or fail in achieving their goals, and recognize whether the character is a major or minor character. On the basis of those responses, readers decide whether the character is a protagonist, an antagonist, a good minor character (associate of a protagonist), or a bad minor character (associate of an antagonist). Protagonists and their associates embody the positive values that authors anticipate their readers will share with the authors. Antagonists and their associates elicit morally and emotionally negative evaluative responses. The array of positive and negative evaluations elicited from readers is the "ethos" of the novel. The common features in the ethos of multiple novels in a given period reflects the ethos of the culture as a whole. Readers form an imaginative community of shared experience in their responses to the novels. Authors are influenced by the ethos of the culture in which they live. They recognize the shared values of that culture and design characters who will elicit predictable emotional responses from their readers.

The four agonistic roles—protagonists, antagonists, good minor characters, and bad minor characters—were divided into male and female sets, thus producing eight character sets in total. Organizing characters into these eight sets forms an implicit empirical hypothesis: that agonistic structure, differentiated by sex, is a fundamental shaping feature in the organization of characters in the novels.

We predicted (a) that each of the eight character sets would be sharply defined by a distinct and integrated array of features, that these features would correlate in sharply defined ways with the emotional responses of readers, and that both

![FIGURE 12.1 Research design.](image)
the features of characters and the emotional responses of readers would correlate, on the average, with character role assignments; (b) that characters identified as protagonists, and their friends and associates, would have attributed to them, on average, the features to which readers are most attracted and most admire; (c) that characters identified as antagonists, and their friends and associates, would have attributed to them, on average, the characteristics for which readers feel an aversion and of which they disapprove; (d) that protagonists would realize most completely the approbatory tendencies in reader response; and (e) that antagonists would realize most completely the aversive tendencies.

Taken individually, each of these propositions might seem obvious, but only if one presupposes the validity of the terms protagonist and antagonist—the very terms our study was designed to test. To our knowledge, no previous empirical study has tested the validity of these terms. Their validity is not self-evident. One could argue reasonably enough that (a) novels reflect social and psychological reality, and that (b) in reality people are not divided into morally polarized groups. If this argument was correct, the characters in the novels would presumably display a complex and situationally contingent blend of morally valenced forms of behavior. One might then conclude that the terms protagonist and antagonist are bits of "folk" wisdom that fail to cut fictional narrative at its joints.

The four main categories on which we collected scores—motives, mating, personality, and emotional responses—should be able to give decisive evidence regarding whether agonistic structure forms a central structural principle in the novels. Motives are the basis for action in human life (McAdams 2009). Selecting a sexual or marital partner enters crucially into reproductive success and evokes, accordingly, exceptionally strong feelings (Buss 2000, 2003; Gottrichall and Nordlund 2006). Personality traits are dispositions to act on motives (Nettle 2007; McAdams 2009). Emotions are the proximal mechanisms that activate motives and guide our social judgments, including our judgments of imaginary people (Feagin 1997; Plutchik 2003; McEwan 2005; Ekman 2007; Oatley et al. 2012).

These four categories take in a broad swath of human experience, the depiction of characters in novels, and readers’ responses to those depictions. If the agonistic patterns produced by the categories had been vague in outline and inconsistent in their relations to one another, that result would have strongly suggested that agonistic structure does not account for much in the organization of characters in the novels. As it turns out, though, the patterns are not vague and inconsistent. They are clear and robust.

While testing for the validity of agonistic structure, we were also inquiring into the actual content of the attributes in characters that produce approbatory and aversive responses. Our most general supposition about those attributes was
that protagonists would have prosocial dispositions and that antagonists would not. Implicit in that hypothesis was the idea that the novels form a medium through which authors and their readers affirm their membership within a community dependent on shared norms of cooperative behavior.

Results on Motives, Selecting Mates, Personality, and Emotional Responses

Motives

The most comprehensive scientific concepts for the systemic organization of the phases and functional roles of human life derive from “human life history theory.” All species have a “life history,” a species-typical pattern for birth, growth, reproduction, social relations (if the species is social), and death. For each species, the pattern of life history forms a reproductive cycle. In the case of humans, that cycle centers on parents, children, and the social group. Successful parental care produces children capable, when grown, of forming adult pair bonds, becoming functioning members of a community, and caring for children of their own. “Human nature” is the set of species-typical characteristics regulated by the human reproductive cycle (MacDonald 1997; Kaplan et al. 2009; Carroll 2011a; Muehlenbein and Flinn 2011).

For the purposes of this study, we divided human life history into a set of 12 basic motives—that is, goal-oriented behaviors regulated by the reproductive cycle. For survival, we included two motives—survival itself (fending off immediate threats to life) and performance of routine work to earn a living. We also asked about the importance of acquiring wealth, power, and prestige, and about the importance of acquiring a mate in both the short term and the long term. In the context of these novels, short-term mate selection would mean flirtation or illicit sexual activity; long-term mate selection would mean seeking a marital partner. Taking account of “reproduction” in its wider significance of replicating genes one shares with kin (“inclusive fitness”), we asked about the importance of helping offspring and other kin. For motives oriented to positive social relations beyond one’s own kin, we included a question on “acquiring friends and making alliances” and another on “helping nonkin.” And finally, to capture the uniquely human dispositions for acquiring complex forms of culture, we included “seeking education or culture” and “building, creating, or discovering something.”

We predicted (a) that protagonists would be generally affiliative in their motives—concerned with helping kin and making friends; (b) that antagonists would be chiefly concerned with acquiring wealth, power, and prestige; and (c) that protagonists would be chiefly concerned with acquiring wealth, power, and prestige. Constructive motives: making friends, combining two motives of offspring or other kin and seeking mates. Helping nonkin: affiliative kin-related behavior.

Male and female life history also differ in their emphasis on social effort and on subsistence effort. Male protagonists are largely restricted and pronounced to a pronounced emphasis on social effort and to a pronounced emphasis on subsistence effort.
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(c) that protagonists would, on average, be much more concerned than antagonists or minor characters with acquiring education and cultural knowledge.

When we submitted scores on the 12 separate motives to factor analysis, five main factors emerged: social dominance, constructive effort, romance, subsistence, and nurture. Seeking wealth, power, and prestige all have strong positive loadings on social dominance; helping nonkin has a moderate negative loading. (That is, helping nonkin correlates negatively with seeking wealth, power, and prestige.) Constructive effort was defined most strongly by loadings from the two cultural motives, seeking education or culture, and creating, discovering, or building something and also by loadings from two prosocial or affiliative motives: making friends and alliances and helping nonkin. Romance is a mating motive, chiefly loading on short-term and long-term mating. Subsistence combines two motives: survival and performance of routine tasks to gain a livelihood. Nurture is defined most heavily by loadings from nurturing/fostering offspring or other kin, and that motive correlates negatively with short-term mating. Helping nonkin also contributes moderately to this factor, bringing affiliative kin-related behavior into association with generally affiliative social behavior.

Male and female antagonists both display a pronounced and exclusive emphasis on social dominance (Figure 12.2).

Male protagonists score higher than any other character set on constructive effort and on subsistence. Female protagonists score higher than any other character set on romance, but their positive motives are fairly evenly balanced among constructive effort, romance, and nurture. In these novels, female protagonists are largely restricted to the nubile age range. That restriction corresponds with a pronounced emphasis on romance as a motive.

**Figure 12.2** Motive factors for protagonists and antagonists.
Criteria for Selecting Mates

Evolutionary psychologists have identified mating preferences that males and females share and also preferences that differ by sex. Males and females both value kindness, intelligence, and reliability in mates. Males preferentially value physical attractiveness, and females preferentially value wealth, prestige, and power. These sex-specific preferences are rooted in the logic of reproduction and have become part of human nature because they had adaptive value in ancestral environments. Physical attractiveness in females correlates with youth and health—hence, with reproductive potential. Wealth, power, and prestige enable a male to provide for a mate and her offspring (Buss 2003; Gangestad 2007; Geary 2010). We anticipated that scores for mate selection would correspond to the differences between males and females found in studies of mate selection in the real world. Because protagonists typically evoke admiration and liking in readers, we anticipated that protagonists would give stronger preference than antagonists to intelligence, kindness, and reliability. We reasoned that a preference for admirable qualities in a mate would evoke admiration in readers.

We asked questions about selecting mates in both the short term and the long term. In the results of the factor analyses for mate selection, the loadings for short-term and long-term mating are almost identical and divide with the sharpest possible clarity into three distinct factors: extrinsic attributes (a desire for wealth, power, and prestige in a mate), intrinsic qualities (a desire for kindness, reliability, and intelligence in a mate), and physical attractiveness (that one criterion by itself).

We anticipated differences in mate preferences in the short and long term, but our respondents evidently read the question on short-term mating to mean something different from what we had in mind. We had in mind illicit sexual activity. But respondents gave scores on short-term mating to many characters who do not engage in illicit sex. In many cases, the respondents evidently interpreted short-term mating to mean any romantic excitement in its early phases, even for relations that eventually culminate in marriage. The scores on selecting mates in the short and long term are essentially equivalent. We give the results here only for the long term (Figure 12.3).

Female protagonists and antagonists both give a stronger preference to extrinsic attributes—wealth, power, and prestige—than male protagonists or antagonists, but female antagonists exaggerate the female tendency toward preferring extrinsic attributes. The emphasis female antagonists give to extrinsic attributes parallels their single-minded pursuit of social dominance. Female protagonists give a more marked preference than male protagonists to intrinsic qualities—intelligence, kindness, and reliability.
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Personality Factors

The standard model for personality is the five-factor or "Big Five" model. Extraversion signals assertive, exuberant activity in the social world versus a tendency to be quiet, withdrawn, and disengaged. Agreeableness signals a pleasant, friendly disposition and tendency to cooperate and compromise versus a tendency to be self-centered and inconsiderate. Conscientiousness refers to an inclination toward purposeful planning, organization, persistence, and reliability versus impulsivity, aimlessness, laziness, and undependability. Emotional stability reflects a temperament that is calm and relatively free from negative feelings versus a temperament marked by extreme emotional reactivity and persistent anxiety, anger, or depression. Openness to experience describes a dimension of personality that distinguishes open (imaginative, intellectual, creative, complex) people from closed (down-to-earth, uncouth, conventional, simple) people (John et al. 1988; Johnson and Ostendorf 1993; Costa and McCrae 1997; Saucier and Ostendorf 1999; Nettle 2007; McAdams 2009).

We predicted that (a) protagonists and their friends would, on average, score higher on the personality factor of agreeableness, a measure of warmth and affiliation; and (b) that protagonists would score higher than antagonists on openness to experience, a measure of intellectual vivacity.

Male and female protagonists are both somewhat introverted, agreeable, conscientious, emotionally stable, and open to experience (Figure 12.4).

Female protagonists score higher than any other set on agreeableness, conscientiousness, and openness, and they score in the positive range on stability. In personality, male protagonists look like slightly muted or moderated versions
FIGURE 11.4 Personality traits of protagonists and antagonists.

Emotional Responses

One of our chief working hypotheses is that when readers respond to characters in novels, they respond in much the same way, emotionally, as they respond to people in everyday life. They like or dislike them, admire them or despise them, fear them, feel sorry for them, or are amused by them. In writing fabricated accounts of human behavior, novelists select and organize their material for the purpose of generating such responses, and readers willingly cooperate with this purpose. They participate vicariously in the experiences depicted and form personal opinions about the qualities of the characters. Authors and readers thus collaborate in producing a simulated experience of emotionally responsive evaluative judgment (Bower and Morrow 1990; Grabes 2004; Mar and Oatley 2008; Oatley 2011).

We sought to identify emotions that are universal and that are thus likely to be grounded in universal, evolved features of human psychology. The solution was to use Paul Ekman’s (2007) influential set of seven basic or universal emotions: anger, fear, disgust, contempt, sadness, joy, and surprise. These terms were adapted for the purpose of registering graded responses specifically to persons or characters. Four of the seven terms were used unaltered: anger, disgust, contempt, and sadness. Fear was divided into two distinct items: fear of a character and fear for a character. "Surprise," like response to a situation rather than an emotion, was left out. Consequently, in place of the fourth item, which combines the idea of surprise with that something matters, we added, "Indifference is the flip side of surprise—what you might feel toward a character who is so ordinary that he is neither above nor below average."

Factor analysis revealed three factors: (a) dislike, which we call disliking a character, and which also correlates with anger; (b) sorrow, which in turn correlates with disgust; and (c) indifference, which correlates with happiness.

Male and female protagonists are both relatively extraverted, highly disagreeable, and low in stability and openness. On each of the five factors, the protagonists and antagonists pair off and stand in contrast to one another.

We predicted (a) that high scores on the dislike factor would be associated with low scores on the disliking factor; (b) that high scores on the disliking factor would be associated with low scores on the indifference factor; and (c) that the relation between the two factors would be stronger than the relation between either factor and the indifference factor.

We predicted (a) that male and female protagonists would differ in their emotional responses to characters; (b) that male and female antagonists would differ in their emotional responses to characters; and (c) that the emotional responses of male and female antagonists (male and female protagonists) would differ from each other.
and fear for a character. “Joy” or “enjoyment” was adapted both to make it idiomatically appropriate as a response to a person and also to have it register some distinct qualitative differences. Two terms, liking and admiration, served these purposes. “Surprise,” like “joy,” seems more appropriate as a descriptor for a response to a situation than as a descriptor for a response to a person or character. Consequently, in place of the word surprise, we used the word amusement, which combines the idea of surprise with an idea of positive emotion. One further term was included in the list of possible emotional responses: indifference. Indifference is the flip side of “interest,” the otherwise undifferentiated sense that something matters, that it is important and worthy of attention.

We predicted (a) that protagonists would receive high scores on the positive emotional responses liking and admiration; (b) that antagonists would receive high scores on the negative emotions anger, disgust, contempt, and fear of the character; (c) that protagonists would score higher on sadness and fear for the character than antagonists; and (d) that major characters (protagonists and antagonists) would score lower on indifference than minor characters.

Factor analysis produced three clearly defined emotional response factors: (a) dislike, which includes anger, disgust, contempt, and fear of the character, and which also includes negative correlations with admiration and liking; (b) sorrow, which includes sadness and fear for the character and a negative correlation with amusement; and (c) interest, which consists chiefly of a negative correlation with indifference.

Male and female protagonists both scored relatively low on dislike and relatively high on sorrow (Figure 12.5). Male and female antagonists scored very high on dislike—higher than any other set—low on sorrow, and somewhat above average on interest. Female protagonists scored high on interest, but male
protagonists scored below average on interest. They scored lower even than good minor males, although not lower than the other minor characters.

The relatively low score received by male protagonists on interest ran contrary to our expectation that protagonists, both male and female, would score lower on indifference than any other character set. We explain this finding by appealing to the psychology of cooperation. Male protagonists in our data set are introverted and agreeable, and they do not seek to dominate others socially. They are mild, pleasant, reliable, and intellectually curious. They are not very assertive and thus do not excite much competitive antagonism. They exemplify normative values of cooperative behavior. By integrating themselves so thoroughly into the group, suppressing or masking their desire for dominance, they diminish the level of attention that other members of the group give to them.

Conclusion

Agonistic Polarization

The characters in these novels display an integrated array of agonistically polarized attributes, and readers respond to those attributes in emotionally polarized ways. The antagonists are preoccupied with wealth, prestige, and power—egoistic striving wholly segregated from social affiliations. Male antagonists are indifferent to the personal qualities in their marital partners. Female antagonists choose partners solely on the basis of wealth and status. Antagonists are both emotionally isolated and also incurious. Protagonists cultivate friendships, seek romantic love, and pursue cultural interests. They are emotionally warm, conscientious, and broad-minded. The polarized emotional responses of readers correlate strongly with this integrated array of attributes. Readers respond with aversion and disapproval to antagonists and with admiration and sympathy to protagonists. We can reasonably conclude that, in these novels, agonistic structure—the polarized opposition of moral and personal traits in characters—forms a central organizing principle.

Determinate Meaning

Under the influence of deconstructive skepticism, literary theorists have often affirmed that meanings are inherently indeterminate because they are inescapably caught up in semiotic slippages that produce irreconcilable implications. As D. A. Miller (1988) put it: “Whenever a text makes confident claims to cognition, these will soon be rendered undecidable” (x-xi). Our findings lead us to a different conclusion.
Psychologists presuppose that when multiple respondents agree about features of people, those features actually exist. The subjects in this study are imagined people rather than actual people, but the principle is the same. We found high levels of agreement on the attributes of characters and thus assume those attributes actually exist in the characters. Moreover, we found a high degree of correlation between attributed features and the emotional responses of readers. If the features readers identify in characters actually exist, those features are determined by authors. Authors stipulate a character's sex, age, personality, motives, and criteria for selecting mates. They also stipulate the character's actions, which are based on motives and the personality dispositions that orient characters to motives. Our data indicate that readers largely agree in recognizing and identifying character attributes. If readers' emotional responses to characters correlate strongly with the characters' attributes, and if readers tend to respond in emotionally similar ways to those attributes, we can reasonably infer that authors have a high degree of control in determining readers' emotional responses.

Can any one set of descriptive and analytic terms (or their close synonyms) be used to define meaning in a given text; be assigned priority over other, competing terms; and be presented in such a way that the weight of empirical evidence confirms its validity overwhelmingly? The suppositions in most current literary theories tend to run strongly in the other direction. Case books on literary texts now typically contain essays representing various theoretical schools, most often deconstruction, psychoanalysis, feminism, and Marxism and/or New Historicism. That kind of pluralism suggests an underlying epistemological relativism. Using strong versions of Kuhn's theory of "paradigms," literary theorists have often affirmed that every structure of meaning changes systemically in accordance with the interpretive framework being used. In the most extreme version of this idea, meaning is always determined preemptively—essentially created—by an "interpretive community" (Fish 1980).

In our view, pluralism is not a coherent theoretical position. It is a rationalization of the epistemological disorder that characterizes most disciplines in the period before a paradigm has formed. A paradigm in science is a structure of theories that can provide the basis for a reasoned consensus among researchers committed to scientific criteria of epistemic validity. Reasoned consensus arises when a structure of theories is broad in scope, logically coherent, and concordant with empirical evidence. Paradigms are frameworks for continuing programs of cumulative empirical research. In our view, the evolutionary human sciences now provide an adequate basis for rational consensus. The evolutionary understanding of the adapted mind has clearly become a framework for a continuing program of empirical research.
Each of the theoretical schools currently active in literary criticism consists of propositions about matters susceptible to empirical confirmation or falsification: the nature of the human mind, the laws of social organization, language, sex, and gender. Some of these propositions are true, some partly true, and some false. The evolutionary understanding of human nature offers a vantage point from which to make reasoned assessments about what is true and false in the claims of the speculative theoretical schools. The evolutionary human sciences are grounded in evolutionary biology, itself firmly established as a scientific paradigm concordant with knowledge in the other sciences. Evolutionary biology has a prima facie epistemic validity that can be claimed by none of the competing theoretical schools in literary study. Whatever is empirically sound and conceptually rich in the speculations of other theoretical schools can be assimilated to the evolutionary paradigm.

For the first time in intellectual history, we have the basis for a rational interpretive consensus about the meaning of literary works. Within the framework of ideas provided by the evolutionary human sciences, meaning can become determinate from the lowest to the highest level of cognitive response: from the perceptual level to the level of analytic summary to the level at which the largest implications of these two lower levels are explained and linked with concepts across the whole field of the human sciences. (On these three levels of cognitive response, see Bordwell [2008, 43–53].)

We are not, of course, claiming that all writers are evolutionists. Historically, that is not even possible. We claim only that writers use the common idiom, that the common idiom contains determinate meanings, that all determinate meanings can ultimately be explained within the framework of evolutionary biology, and that evolutionary biology is a scientifically valid framework that encompasses and either subsumes or supplants all other competing theoretical systems in the human sciences.

Sexual Politics in the Novels

For several decades now, no feature in personal and social identity has received more critical attention than sex and gender. Much of this criticism has taken as its central theme struggles for power based on sex. Our data indicate that struggles for power based on sex are less important than the conflict between dominance and cooperation. Despite differences of sex, male and female protagonists are much more similar to each other than either are to male or female antagonists. Male and female antagonists, also, are much more similar to each other than either are to male or female protagonists. In the features that distinguish characters, being a protagonist or antagonist matters more than being male or female.
Our data suggest that in these novels conflict between the sexes is subordinated to their shared and complementary interests. In the agonistic structure of plot and theme, male and female protagonists are allies. They cooperate in resisting the predatory threats of antagonists, and they join together to exemplify the values that elicit readers’ admiration and sympathy. Both male and female antagonists are massively preoccupied with material gain and social rank. That preoccupation stands in stark contrast to the more balanced and developed world of the protagonists—a world that includes sexual interest, romance, the care of family and friends, and the life of the mind. By isolating and stigmatizing dominance behavior, the novels affirm the shared values that bind its members into a community.

Agonistic structure appears in many imaginative contexts. It shapes any ideology in which a protagonistic group characterized by prosocial dispositions is set in sharp contrast to an alien group that personifies a will to domination. One such ideological context appears in feminist commentaries on British novels of the 19th century. Feminist criticism characteristically displays an agonistically polarized vision of human sexual identity. Within that vision, “patriarchy,” the system of male domination, embodies the desire for social dominance as an end in itself. Patriarchy is thus a paradigmatically antagonistic force. The countering protagonistic force consists of a specifically female ethos of affiliative social interaction.

The agonistic structure of feminist theory incorporates two distinct concepts of human sexual identity. These two concepts are not logically consistent with one another, but they serve complementary imaginative functions. One concept is that “gender” consists exclusively of roles imposed arbitrarily by society and culture. The other concept is that males and females are radically separate forms of life characterized by independent and incompatible systems of affect, cognition, and value. The first concept is “constructivist,” and the second, “essentialist” (Martin 1994; Dierz 2003; Schore 2003; Vandermassen 2005; Gaard 2011). In the constructivist concept of sexual identity, the anatomical, physiological, and neurological differences between males and females, if they are not actually produced by culture, consist of merely physical features that have no significant impact on motives, emotions, or behavior. In the essentialist concept, male and female dispositions are themselves primary and irreducible constituents of the moral universe. The constructivist concept of sexual identity dislodges sexual identity from the causal constraints of human life history, and the essentialist concept identifies human sex differences as autonomous moral forces within an agonistically polarized field of action.

Both the cultural constructivist and the essentialist conceptions of human sexual identity make contact with important aspects of human sexual reality.
Sociosexual roles vary greatly from culture to culture, but each sex also has genetically transmitted dispositions that transcend cultural differences and constrain cultural formations. The longer, Darwinian perspective on human life history captures the elements of truth in both these observations and integrates those elements into a comprehensive and consistent understanding of human sexual identity. The complex functional structures that distinguish males and females at the present time are features that, on average, contributed most effectively to the reproductive success of their ancestors. The sexes are not separate and autonomous systems of motivation and affect. Males and females have co-evolved, in reciprocally causal ways under the constraining force of partially shared and partially conflicting reproductive interests. Human males and females are productively interdependent. Human sexual relations require humans to negotiate conflicts between reciprocal benefits and competing interests, and in that respect, human sexual relations are like all other affiliative human social relations, including those of parents and children.

Human life history entails species-typical differences in mating preferences for males and females. Those differences are reflected in the preferences in the males and females in our data set. Plots are based on motives and desires: sex bulks large among the motives that drive plots, and biologically based mating preferences infuse passion and interest into motives. These observations have important implications for the interpretation of sex and gender in the novels. A critic who registers the way evolved sex differences shape stories and infuse them with passion and interest is unlikely to speak of the novels in quite the same way as a critic who believes that sex roles are determined solely by social convention. So also, in discussing the sexual politics in novels, a basic difference opens up between critics who see sex as a powerful, primary force and critics who see it chiefly as a medium for the circulation of sociopolitical energy. In an obvious way, all sex is political. That is, all sex is bound up with social power relations. But sex is not merely a product of social power relations. No cultural or literary theory that overlooks the deep adaptive history of human mating preferences is likely to capture the real force of sexual passion in novels, and without getting the sexual passion right, one cannot get the politics right either.

Sex is interesting in itself, but we find a still deeper interest in the interaction between sex and agonistic status. Female characters prefer extrinsic attributes in their mates, and male characters prefer physical attractiveness. Well and good—just what, from an evolutionary perspective, one would expect. But that is not the whole story, or even the main story. The main story concerns the opposition between good and bad characters, both male and female. Among the good characters, esteem and gratitude count for something, and romantic love is possible. The bad characters are interested in neither love nor sex. They are interested only in power, wealth, and p

### The Adaptive Function

One of the most hotly debated issues is whether the arts fulfill potentially dominant social dispositions or are merely a product of social power relations. No cultural or literary theory that overlooks the deep adaptive history of human mating preferences is likely to capture the real force of sexual passion in novels, and without getting the sexual passion right, one cannot get the politics right either.

The ethos reflected in the novels engaged in our study would lend one adaptive social function. The ethos reflected in the novels engaged in our study would lend one adaptive social function. During an earlier period, theorists had repudiated social dispositions as ideological assumptions. The latest, 100,000 years on their symbolic orientation. By e...
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interacting impulses of dominance and affiliation have shaped the evolution of human political behavior. During an earlier phase of the evolutionary human sciences, sociobiological theorists had repudiated the idea of “altruistic” behavior and had restricted prosocial dispositions to nepotism and to the exchange of reciprocal benefits. In contrast, Boehm (1999) argues that at some point in their evolutionary history—at the latest, 100,000 years ago—humans developed a special capacity, dependent on their symbolic and cultural capabilities, for enforcing altruistic or group-oriented norms. By enforcing these norms, humans succeed in controlling “free
riders” or “cheaters,” and they thus make it possible for genuinely altruistic genes to survive within a social group. The selection for altruistic dispositions—and dispositions for enforcing altruistic cultural norms—would involve a process of gene-culture co-evolution that would snowball in its effect of altering human nature itself.

We can reason backward from our findings on agonistic structure to formulate hypotheses about functions fictional narratives might have fulfilled in ancestral environments. By identifying one of the ways novels actually work for us now, we can produce evidence relevant to hypotheses about the evolutionary origin and adaptive function of the arts. Agonistic structure is a central principle in the organization of characters in the novels. Taking into account not just the representation of characters, but also the emotional responses of readers, we can identify agonistic structure as a simulated experience of emotionally responsive social interaction. That experience has a clearly defined moral dimension. Agonistic structure precisely mirrors the kind of egalitarian social dynamic documented by Boehm (1999) in hunter-gatherers—our closest contemporary proxy to ancestral humans. As Boehm (1999, 2012) and others (Wilson and Wilson 2007; Gintis and Van Schaik 2012; Haidt 2012; Richerson and Henrich 2012) have argued, the dispositions that produce an egalitarian social dynamic are deeply embedded in the evolved and adapted character of human nature. Humans have an innate desire for power and an innate dislike of being dominated. Egalitarianism as a political strategy arises as a compromise between the desire to dominate and the dislike of being dominated. By pooling their power to exercise collective social coercion, individuals in groups can repress dominance behavior in other individuals. The result is autonomy for individuals. No one gets all the power he or she would like, but then, no one has to accept submission to other dominant individuals. Boehm (1999) describes in detail the pervasive collective tactics for repressing dominance within social groups organized at the levels of bands and tribes.

An egalitarian social dynamic is the most important basic structural feature that distinguishes human social organization from the social organization of chimpanzees. In chimpanzee society, social organization is regulated exclusively by dominance—that is, power. In human society, social organization is regulated by interactions between impulses of dominance and impulses for suppressing dominance. State societies with elaborate systems of hierarchy emerged only very recently in the evolutionary past, about 6000 years ago, after the agricultural revolution made possible concentrations of resources and, therefore, power. Before the advent of despotism, the egalitarian disposition for suppressing dominance had, at a minimum, 100,000 years in which to become entrenched in human nature—more than sufficient time for significant adaptive change to take place (Mithen and Harpending 2009).

In highly stratified human society specifically, then, that narratives emerged in and specifically embody the ethos of

Agnostic structure to participate in nonliterate cultures in face-to-face interaction in narrative is a cultural function. The Scope of C

On the basis of discussions about the literature, we reasonably suspect that literature is an adaptive function. Quite
take place (Mithen 1996; Klein 2002; Wade 2006; Mellars 2007; Cochran and Harpending 2009).

In highly stratified societies, dominance assumes a new ascendancy, but no human society dispenses with the need for communitarian association. It seems likely, then, that morally polarized forms of agonistic structure in fictional narratives emerged in tandem with specifically human adaptations for cooperation and specifically human adaptations for creating imaginative constructs that embody the ethos of the tribe.

Agonistic structure in these novels seems to serve as a medium for readers to participate vicariously in an egalitarian social ethos. If that is the case, the novels can be described as prosthetic extensions of social interactions that in nonliterate cultures require face-to-face interaction. If suppressing dominance in face-to-face interaction fulfills an adaptive function, and if agonistic structure in narrative is a cultural technology that extends that interaction by imaginative means, one could reasonably conclude that agonistic structure fulfills an adaptive function.

The Scope of Our Claims

On the basis of the data on this particular set of novels, we have drawn conclusions about the determinacy of meaning, sexual politics, and adaptive function. How far can we generalize from these conclusions to all literature? In every period and every culture? Logically, it is possible that no other literary texts anywhere in the world contain determinate meanings, display differences between protagonists and antagonists more prominent than differences between male and female characters, or fulfill any adaptive function at all. Hypothetically possible, but not very likely. If our arguments hold good for this body of texts, they demonstrate that determinate meaning is at least possible, that in at least one body of classic narratives, agonistic role assignment—being a protagonist or antagonist—looms larger than gender role assignment, and that the organization of characters in at least one important body of fictional narratives reflects evolved social dispositions that in ancestral populations fulfilled adaptive functions. It seems unlikely that in these three important respects this body of novels is wholly anomalous.

In proposing that agonistic structure in these novels fulfills an adaptive social function, we do not imagine we have isolated the sole adaptive function of all literature. Quite the contrary. Along with other evolutionary theorists, we strongly suspect that literature and its oral antecedents fulfill other functions. Even if it is only one among other possible adaptive functions for narrative and drama, could we reasonably conclude that agonistic structure is a human universal—a formal
structure that would appear in the narrative and dramatic productions in all cultures, at all periods, everywhere in the world? We have argued that the social dynamics animating these novels derive from ancient, basic features of human nature. Such features would, in all likelihood, appear in some fictional narratives in most or all cultures. If morally polarized agonistic structure is in fact a human universal, we would be interested to know how it varies in form in different cultural ecologies. Marriage—the "publicly recognized right of sexual access to a woman deemed eligible for childbearing"—is a human universal, but varies in form from culture to culture (Brown 1991, 136). We might expect agonistic structure, like marriage, to vary in form. These questions would make good topics of research for other studies. Until those studies are conducted, though, the topics are only a matter for theoretical speculation. For this current study, we can positively affirm only the conclusions we think our data allow us to draw.

Limitations in Our Analytic Model

In its most complete forms, Darwinist literary criticism would construct continuous explanatory sequences linking "inclusive fitness"—the "ultimate" causal principle in evolution—to particular features in an evolved and adapted human nature and to particular structures and effects in specific works of art. A comprehensively adequate interpretive account of a given work of art would take in, synoptically, its phenomenal effects (tone, style, theme, formal organization); locate it in a cultural context; explain that cultural context as a particular organization of the elements of human nature within a specific set of environmental conditions (including cultural traditions); identify an implied author and an implied reader; examine the responses of actual readers (for instance, other literary critics); describe the sociocultural, political, and psychological functions the work fulfills; locate those functions in relation to the evolved needs of human nature; and link the work comparatively with other artistic works using a taxonomy of themes, formal elements, affective elements, and functions derived from a comprehensive model of human nature.

In the current study, how far have we succeeded in approximating to this ideal of a complete critical account of the texts we discuss? We can identify specific areas in which we fall short of it. We did not aim at a universal, exhaustive explanation of the novels. We focused on only one specific large-scale element in the organization of characters: agonistic structure differentiated by sex. We did not construct a complete taxonomy of formal elements. More particularly, we did not incorporate ways of operationalizing some of the concepts that form the subject matter of narratology—for instance, the distinction between syuzhet and fabula or distinctions among different types of narrators. Insofar as
we are concerned with quantifying features in individual texts, the main gap in our research design is probably the absence of any means for registering verbal "style": diction, syntax, rhythm, metaphors, motifs, and figures of speech.

In practical reality, there are limitations to what can be done with any given protocol. At least one of us (Gottschall) concedes that certain kinds of literary problems might never be fully amenable to a quantitative methodology. At least one other of us (Carroll) believes that all mental phenomena, including those involved in the production and reception of novels, consist of states of the brain and are hypothetically susceptible to quantification. But here we enter the realm of science fiction—a genre that deliberately erases the boundaries between "reality" and what is only "hypothetically" possible.

If any such science fiction scenario could be realized, it still would not render the personal, subjective aspect of literary study obsolete. "Meaning" and "effect" are crucial elements of literary phenomenology, and meaning is always meaning for someone, some particular person; effect is always an effect on some particular person. Literary scholars explain their subjects, or try to, but they also register the value and significance of their subjects. Identifying large-scale patterns of meaning in the novels need not reduce our appreciation of the value and significance of the novels. Quite the contrary. The better we understand how the novels work, the more keenly we can appreciate their effects. True enough, when scholars succeed in narrowing the range of possibly valid conclusions, they reduce the sense of vaguely infinite potential in the world of literary response, but they also open up new possibilities for actual discovery—for deeper levels of explanation, more complete understanding.

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