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**PALAEOLITHIC POLITICS IN BRITISH
NOVELS OF THE NINETEENTH CENTURY**

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MOVING PAST THE TWO CULTURES

Scientists typically operate by formulating testable hypotheses and producing data to test the hypotheses. Students of literature, in contrast, usually proceed by way of argument and rhetoric. In their most scholarly guise, they aim at producing objective textual and historical information, but all such information must ultimately be interpreted within some larger order of ideas. During the first two-thirds of the twentieth century, the most prominent theoretical systems taken from outside the humanities and used for literary study were Marxist social theory, Freudian and Jungian psychology, and structuralist linguistics. Even in their own fields, these systems were only quasi-scientific, more speculative than empirical, and in literary study, they served chiefly as sources for imaginative stimulation. Most critics operated as eclectic free agents, gleaned materials from every region of knowledge—from philosophy, the sciences, history, the arts, and especially from literature itself. Though using selected bits of information from the sciences, students of literature commonly regarded their own kind of knowledge—imaginative, subjective, and qualitative—as an autonomous order of discourse incommensurate with the quantitative reductions of science.

Over the past three decades or so, these older forms of literary criticism have been superseded by a new theoretical paradigm designated variously as poststructuralism or postmodernism. The new paradigm incorporates psychoanalysis and Marxism in their Lacanian and Althusserian forms, but poststructuralists explicitly reject the idea that scientific methods secure the highest standard of epistemic validity. Instead, they include science itself within the rhetorical domain formerly set aside as the province of the humanities. As Stanley Aronowitz puts it, science “is no more, but certainly no less, than any other discourse. It is one story among many stories” (Aronowitz 1996, 192). Within the postmodern frame of thinking, it is not permissible to say that a given scientific idea is “true” or that it “corresponds” closely to a “reality” that exists independently of the human mind. Consider, for instance, Gowan Dawson’s commentary on efforts to integrate evolutionary psychology with studies in the humanities. As Dawson rightly observes, by adopting a “realist” or “objectivist” approach to science, literary Darwinism “undermines the entire premise of recent literature and science studies” (Dawson 2006, 306).

In his own work and that of his postmodern colleagues, Dawson explains, formulations implying that science constitutes an “intellectually authoritative mode of knowledge” have “long been proscribed” (Dawson 2006, 306, 308).¹

As literary culture has been moving steadily further away from the canons of empirical inquiry, the sciences have been approaching ever closer to a commanding and detailed knowledge of the subjects most germane to literary culture: human motives, human feelings, and the operations of the human mind (See Barrett, Dunbar, and Lycett 2002; Buss 2005; Buss 2007; Carroll 2008, 111–115; Carroll 2005; Dunbar and Barrett 2007; Gangestad and Simpson 2007). Evolutionary psychology and affective neuroscience have been penetrating the inner sanctum of the “qualitative” and making it accessible to precise empirical knowledge (see Damasio 1994; Davidson, Scherer, and Goldsmith 2003; Ekman 2003; Lewis and Haviland-Jones 2000; McEwan 2005; Panksepp 1998; Plutchik 2003; Tanaka 2010). Since the early 1990s, some few literary scholars have been assimilating the insights of evolutionary social science and envisioning radical changes in the conceptual foundations of literary study. These “literary Darwinists” have produced numerous theoretical and interpretive essays.² Until recently, though, most literary Darwinists have remained within the methodological boundaries of traditional humanistic scholarship. Their work has been speculative, discursive, and rhetorical. They have drawn on empirical research but have not, for the most part, adopted empirical methods. Instead, they have used Darwinian theory as a source of theoretical and interpretive concepts. With respect to method, then, their work is similar to that of old-fashioned Marxist and Freudian literary scholars.³

In the project we describe here, we aimed at moving past the barrier that separates the methods of the humanities from the methods of the social sciences. Building on research in evolutionary social science, we aimed to (1) construct a model of human nature—of motives, emotions, features of personality, and preferences in marital partners; (2) use that model to analyze some specific body of literary texts and the responses of readers to those texts, and (3) produce data that could be quantified and used to test specific hypotheses about those texts.

PROJECT DESIGN

We created an online questionnaire and listed approximately 2,000 characters from 201 canonical British novels of the nineteenth and early twentieth centuries (Austen to Forster). Using e-mail, we asked hundreds of scholars specializing in the novel to participate in the

1. For other postmodern commentaries on science, see Feyerabend; Latour and Woolgar; Levine; Peterfreund; Rorty; Smith; Woolgar. For critiques of postmodern conceptions of science, see Boghossian; J. Brown; Gross and Levitt; Gross, Levitt, and Lewis; Koertge; Sokal and Bricmont; Weinberg; E. Wilson.

2. See for instance Boyd 2009; Boyd, Carroll, and Gottschall (forthcoming); Carroll 2004; Cooke 2002; Gottschall and Wilson 2005; Fromm 2009; Nordlund 2007. For surveys of this work, see Carroll 2008; Carroll 2010b.

3. For arguments on using empirical methods to renovate literary study, see Gottschall 2008. For examples of evolutionary literary study by both humanists and scientists, see Andrews and Carroll 2010; Boyd, Carroll, and Gottschall 2010; Gottschall and Wilson 2005.

study. We also solicited participation from members of Web-based organizations devoted to nineteenth century literature (Victorian Literature on the Web, The Dickens Society, The Brontë Society, etc.). The pool of potential respondents thus consisted of people particularly interested in canonical British novels of the nineteenth century. We invited these potential respondents to visit our web site and fill out as many questionnaires of they liked. Each questionnaire (“protocol”) was devoted to a single character. Respondents selected a character from the list and answered a series of questions about that character. Approximately 519 respondents completed a total of 1,470 protocols on 435 separate characters.⁴

The questionnaire contains three sets of categories. One set comprises elements of personal identity: age, attractiveness, motives, the criteria of mate selection, and personality. (The sex of the characters was a given.) The second has to do with readers’ emotional responses to characters. We listed 10 possible emotional responses and asked readers to rate the intensity of their response on each of the ten emotions. The third set focuses on four “agonistic” role assignments: (1) protagonists, (2) friends and associates of protagonists, (3) antagonists, and (4) friends and associates of antagonists. Dividing the agonistic characters into males and females produced a total of eight character sets. We conducted statistical tests to determine which scores on various categories differed significantly among the character sets. The patterned contrast between protagonists and antagonists is a contrast between desirable and undesirable traits in characters—a contrast we reference as “agonistic structure.” We also calculated degrees of correlation among the various categories of analysis: motives, criteria for selecting mates, personality factors, and the emotional responses of readers.⁵

TESTING A HYPOTHESIS

The questionnaire we used to collect data is couched in everyday language and pitched at the level of everyday understanding, but it is also formulated within the framework of an evolutionary model of human nature. The questions we pose are thus situated at the point at which the evolutionary model converges with the everyday understanding. The questions register the everyday understanding, quantify it, and locate it within the context of empirical social science. Quantification enables us to give an objective, formal analysis of everyday understanding and to assess statistically the structural relations among its conceptual elements. A major goal of our study was simply to demonstrate that major features of literary meaning can be effectively reduced to simple categories grounded in an evolutionary understanding of human nature.

Generating empirical knowledge in this way has an intrinsic value, but empirical findings clearly gain in value when they are brought to bear as evidence for specific hypotheses about important problems. Perhaps the most important problem in evolutionary literary study concerns the adaptive functions of literature and other arts—whether there are any adaptive functions, and if so, what they might be. Steven Pinker has suggested that

4. A copy of the questionnaire used in the study can be accessed at <http://www-personal.umich.edu/~kruger/carroll-survey.html>.

5. For more technical statistical details on the project, and more background bibliography, see Johnson, Carroll, Gottschall, and Kruger 2008; Johnson, Carroll, Gottschall, and Kruger 2011.

aesthetic responsiveness is merely a side effect of cognitive powers that evolved to fulfill more practical functions (Pinker 1997, 524–43), but Pinker also suggests that narratives can provide information for adaptively relevant problems—an idea also championed by Michelle Scalise Sugiyama (2005). Geoffrey Miller argues that artistic productions serve as forms of sexual display. Brian Boyd argues that the arts are forms of cognitive “play” that enhance pattern recognition. Boyd and Ellen Dissanayake also argue that the arts provide means of creating shared social identity. In company with Dissanayake, E. O. Wilson, Tooby and Cosmides, Salmon and Symons, and Denis Dutton, I argue that the arts create “meaning.” They provide imaginative structures that give emotionally and aesthetically modulated form to the relations among all the features of our lives—natural, supernatural, individual, and social. The hypothesis of “meaning” subsumes the ideas that the arts provide adaptively relevant information, enable us to consider alternative behavioral scenarios, enhance pattern recognition, and serve as means for creating shared social identity. And of course, the arts can be used for sexual display. In that respect, the arts are like most other human products—clothing, jewelry, shelter, means of transportation, etc. The hypothesis that the arts create meaning is not incompatible with the hypothesis of sexual display, but it subordinates sexual display to a more primary adaptive function.

In this current study, our central hypothesis was that protagonists and their associates would form communities of cooperative endeavor and that antagonists would exemplify dominance behavior. If this hypothesis proved correct, the ethos reflected in the agonistic structure of the novels would replicate the egalitarian ethos of hunter-gatherers, who stigmatize and suppress status seeking in potentially dominant individuals (Boehm 1999). Hunter-gatherers use spoken language to enforce an egalitarian ethos. Written narratives are, of course, merely a cultural technology extending the usages of spoken language. In hunter-gatherer cultures, language as a medium for articulating a social ethos is restricted to face-to-face interactions. In a literate culture, authors and readers who have never met can form communities of shared values through the medium of written narratives. We hypothesized that, on the average, protagonists, in their motives and personality traits, would reflect values the authors approve and that they expect their readers to approve. Antagonists would reflect values authors and their readers do not approve. Approval and disapproval would be registered in the emotional responses of our respondents.

A basic working hypothesis in our study was that the novels do, in fact, form a medium of shared values. The validity of this hypothesis could be assessed through the degree to which respondents converged in identifying the traits of characters and responding to those traits in emotionally negative or positive ways. Our respondents produced an extremely high level of “intercoder reliability.” That is, they converged to a high degree in assigning scores to characters, in assigning characters to agonistic roles, and in rating their emotional responses to the characters. (For characters who received dozens of codings—for instance, Elizabeth Bennett of *Pride and Prejudice* and the eponymous Jane Eyre—“alpha” reliability scores registered in the high 90s.)

Twelve motives, five personality traits, seven criteria for selecting mates, and ten basic emotions produced a vast number of possible combinations. Focusing on the contrast between protagonists and antagonists made it possible to determine whether this array of

potential value structures could be understood as an opposition between “good” and “bad” characteristics.⁶

How does all this bear on the question of the adaptive function of literature and the other arts? Our results converge on one chief adaptive characteristic: the evolved human disposition for suppressing dominance and enforcing an egalitarian, communitarian ethos. If suppressing dominance in hunter-gatherers fulfills an adaptive social function—facilitating cooperative social action—and if agonistic structure in the novels engages the same social dispositions that animate hunter-gatherers, the novels would, as a literate cultural technology, fulfill the same adaptive function that is fulfilled through face-to-face interaction in nonliterate cultures.

Assuming we can make the case that agonistic structure in the novels displays an ethos stigmatizing dominance behavior and promoting cooperative, prosocial behavior, how far can we generalize from that finding to all literature, in every period and every culture? Logically, it is possible that no other literary texts anywhere in the world display highly polarized differences between protagonists and antagonists 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 at least one important body of fictional narratives fulfills at least one adaptive function. It seems unlikely that, in this important respect, this body of novels is wholly anomalous.

In arguing that agonistic structure in these novels fulfills an adaptive social function, we do not suppose that we have isolated the sole adaptive function of all literature and its oral antecedents. Quite the contrary. Along with other evolutionary literary theorists, we strongly suspect that literature and its oral antecedents fulfill other functions. We argue 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. We would, of course, be interested to know whether the kind of agonistic structure we identify in these novels is in fact a human universal. If it is a human universal, we would also be interested to know how it varies in form in different cultural ecologies. (Marriage is a human universal but varies in form from culture to culture. 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. Hence, the limiting terms in our title: paleolithic politics in British novels of the nineteenth century.

HUMAN LIFE HISTORY

All species have a life history,⁷ a species-typical pattern for birth, growth, reproduction, social relations (if the species is social), and death (Hill 2007; Kaplan et al. 2000; Low 2000). 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,

6. On the universality of polarized emotional responses, see Saucier, Georgiades, Tsaousis, and Goldberg 2005; Saucier and Goldberg 2001.

becoming functioning members of a community, and caring for children of their own. “Human nature” is the set of species-typical characteristics that form the human reproductive cycle.

The four main categories of analysis in this study are all conceived as elements in an evolutionary understanding of human life history. Attributes of characters include three of the categories: motives, the criteria for selecting mates, and the five factors of personality. Emotional responses are the fourth, and in this study are used to register the correlations between character attributes and the responses of readers. Motives are the basis for action in human life. Selecting a sexual or marital partner drives reproductive success and evokes, accordingly, exceptionally strong feelings. In the majority of the novels in this study, selecting a marital partner is the central concern of the plot. Marriage in these novels takes forms specific to the period and culture, of course, but some form of marriage is recognized in every known culture (Brown 1991; Symons 1979). Even a quick glance over collections of tales and stories from every period and every culture will confirm that stories involving problems of mating bulk large in every culture. Given the centrality of marriage to problems of human reproduction, that is hardly surprising. Nor is it surprising that evolutionary literary studies of works from widely diverse cultures have given concentrated attention to problems of selecting mates.⁷ Selecting a mate is a primary plot concern in these novels, as it is in narratives from other cultures, but selecting mates is only one of several specific motives about which we ask questions. We ask questions, also, about motives oriented to survival, parenting, engaging in social life, gaining an education, and pursuing a vocation. All choices that humans make with regard to motives reflect their individual personalities. And indeed, personality traits can be trenchantly defined as dispositions to act on motives. These dispositions are themselves human universals, but individuals vary considerably in their scores on specific traits—on pleasure seeking, for instance, or sensitivity to pain (Nettle 2007). Personality traits are primary constituents of individual identity. They are more basic and more comprehensive than the factors of social identity that shape “identity politics.” Emotions are the proximal mechanisms that activate motives and guide our social judgments, including our judgments of imaginary people (Ekman 2003; Plutchik 2003).

GETTING MOTIVATED

For the purposes of this study, we reduced human life history to 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 performing routine work to earn a living. We also asked questions about the importance of acquiring wealth, power, and prestige. We asked respondents to rate characters on how important acquiring a mate was to them in both the short term and the long term. In the

7. Cultures studied by literary Darwinists and giving concentrated attention to problems of mating include ancient Greece (Boyd 2009; Gottschall 2008; Scalise Sugiyama 2001), medieval Japan (Thiessen and Umezawa 1998), Elizabethan England (Carroll 2010a; Nordlund 2007; Scalise Sugiyama 2003), America in the nineteenth century (Love 2003), America in the early twentieth century (Saunders 2009), and Soviet Russia (Cooke 2002).

context of these novels, short-term would mean flirtation or illicit sexual activity; long-term would mean seeking a marital partner. (For the great bulk of the novels in this period, illicit sexual activity is not a main subject. In this summation of main results, we do not display results for short-term mating.) 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 non-kin.” To capture the uniquely human dispositions for acquiring culture, we included “seeking education or culture” and “building, creating, or discovering something.”

“Factor analysis” is a statistical process in which variables that correlate with one another are grouped together to form a smaller number of metavariables designated “factors.” When we submitted scores on the 12 separate motives to factor analysis, five main factors emerged. We refer to these as Social Dominance, Constructive Effort, Romance, Subsistence, and Nurture. Seeking wealth, power, and prestige all have strong positive loadings on Social Dominance, and helping nonkin has a moderate negative loading. (That is, helping nonkin is inversely related to seeking wealth, power, and prestige.) Two cultural and two prosocial motives load on Constructive Effort: seeking education or culture; creating, discovering, or building something; making friends and alliances; and helping nonkin. Short-term and long-term mating load on Romance. Survival and performing routine tasks to gain a livelihood load on Subsistence. Nurturing/fostering offspring or other kin loads most heavily on Nurture, and that motive correlates negatively with short-term mating. Helping nonkin also loads moderately on this factor, bringing affiliative kin-related behavior into association with generally affiliative social behavior.

Male and female antagonists both display a pronounced preoccupation with Social Dominance (Figure 1). 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 reproductive age range. That restriction corresponds with a pronounced emphasis on Romance as a motive.

The opposition between dominance and affiliation in the novels is consistent with a robust and often replicated finding in psychological studies of motives and personality. Summarizing research into basic motives, Buss observes that, in cross-cultural studies, the two most important dimensions of interpersonal behavior are power and love (Buss 1995, 21). Surveying the same field and citing still other antecedents, Paulhus and John observe that in debates about “the number of important human values,” there are two, above all, that are “never overlooked” (Paulhus 1998, 1039). They designate these values “agency and communion” and associate them with contrasting needs: the need for “power and status” on the one side and for “approval” on the other (Paulhus 1998, 1045).

Paulhus and John link the contrasting needs for power and approval with contrasting forms of bias in self-perception. “Egoistic” bias attributes exaggerated “prominence and status” to oneself, and “moralistic” bias gives an exaggerated picture of oneself as a “nice person” and “a good citizen” (Paulhus 1998, 1045–1046). Adopting these terms, we can say that the novels in this study, taken collectively, have a moralistic bias. In protagonists,

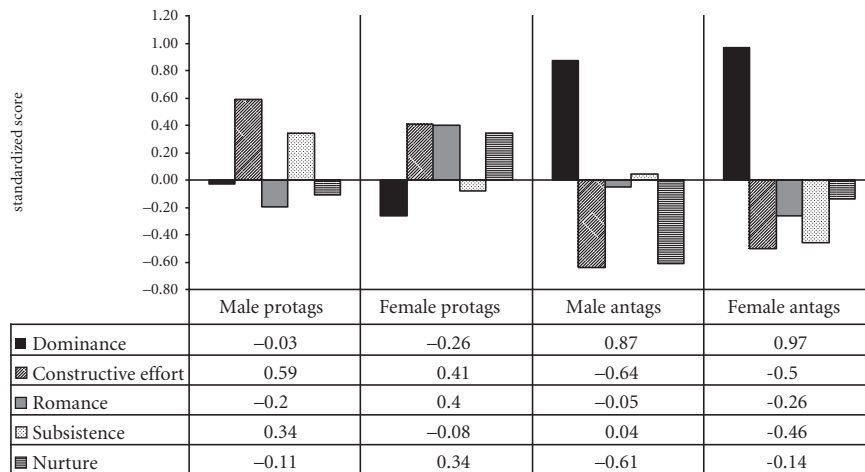


FIGURE 1 Motive Factors in Protagonists and Antagonists

striving for personal predominance is strongly subordinated to communitarian values. Protagonists and their friends typically form communities of affiliative and cooperative behavior, and antagonists are typically envisioned as a force of social domination that threatens the very principle of community.

Most of the novels included in this study are “classics.” It seems likely that one reason novels become classics is that they gain access to the deepest levels of human nature—not necessarily because they produce in every case mimetically accurate representations of human nature, but because they evoke elemental human passions and deploy elemental forms of imaginative organization. The novels contain a vast fund of realistic social depiction and profound psychological analysis. In their larger imaginative structures, though, the novels evidently do not just represent human nature; they embody the impulses of human nature. Those impulses include a need to derogate dominance in others and to affirm one’s identity as a member of a social group. Our evidence strongly suggests that those needs provide the emotional and imaginative force that shapes agonistic structure in the novels.

The novels create a virtual imaginative world designed to give concentrated emotional force to the opposition between dominance and affiliation. That imaginative virtual world provides a medium in which readers participate in a shared social ethos. The social ethos shapes agonistic structure, and agonistic structure, in turn, feeds back into the social ethos, affirming it, reinforcing it, integrating it with the changing circumstances of material and social life, and illuminating it with the aesthetic, intellectual, and moral powers of individual artists. If Boehm and others are correct that human social life is structured at a basic level by an interplay between dominance and affiliation, images of dominant and prosocial individuals would form part of the imaginative repertory common to the human species. Depictions of dominant and prosocial individuals in narratives expand the range, force, and particularity of such images available to readers. Even in a highly mobile, modern culture, the number of individuals with which any one person can interact on a regular basis is fairly restricted.



Narratives vastly increase the number and quality of social images available to every reader. In these novels, the features of characters have evidently been selected and organized in such a way that they make dominance and affiliation salient factors. Moreover, the characters are presented with all the vividness and power of the novelists' imagination. Almost by definition, a novelist's ability to imagine the mental and emotional life of characters is more vivid and more penetrating than that of the average person. Because of their exceptional talent and skill, novelists can make a profession out of depicting the personalities and the emotional lives of their characters. By reading the novels in this study, readers thus receive highly concentrated, condensed images of dominance and affiliation. Those images form an active part of the total cultural ethos shared by the community of authors and readers.

CHOOSING A PARTNER

Most of the novels in this study are love stories. Plots usually involve individuals choosing a marital partner. Along with questions about motives, we asked questions about the criteria characters used in selecting mates. Evolutionary psychologists have identified mating preferences that males and females share and also preferences in which they differ (Geary 1998; Kruger, Fisher, and Jobling 2003). Males and females both value kindness, intelligence, and reliability in mates (Buss 2003). Males preferentially value physical attractiveness, and females preferentially value wealth, prestige, and power (Buss, 2003; Gangestad 2007; Geary 1998; Schmitt 2005; Symons 1979). These sex-specific preferences are rooted in the logic of reproduction. Physical attractiveness in females correlates with youth and health in a woman, hence with reproductive potential. Wealth, power, and prestige enable a male to provide for a mate and her offspring. 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. We also anticipated that protagonists would give stronger preference to intelligence, kindness, and reliability than antagonists would.

In the results of the factor analyses for mate selection, the loadings divide with the sharpest possible clarity into three distinct factors. We call these Extrinsic Extrinsic Attributes Attributes (a desire for wealth, power, and prestige in a mate), Intrinsic Intrinsic Qualities Qualities (a desire for kindness, reliability, and intelligence in a mate), and Physical Physical Attractiveness Attractiveness (that one criterion by itself).

Female protagonists and antagonists both give a stronger preference to Extrinsic Extrinsic Attributes Attributes—wealth, power, and prestige—than male protagonists or antagonists, but female antagonists exaggerate the female tendency toward preferring Extrinsic Attributes (Figure 2). The emphasis female antagonists give to Extrinsic Attributes parallels their single-minded pursuit of Social Dominance. Female protagonists give a more marked preference to Intrinsic Qualities—intelligence, kindness, and reliability—than male protagonists.

We did not anticipate that male protagonists would be so strongly preoccupied with Physical Attractiveness relative to other qualities, nor did we anticipate that male antagonists would be so relatively indifferent to Physical Attractiveness. The inference we draw from these findings is that the male desire for physical beauty in mates is part of the ethos the novels. Male sexuality is not demonized or stigmatized. Male antagonists' relative

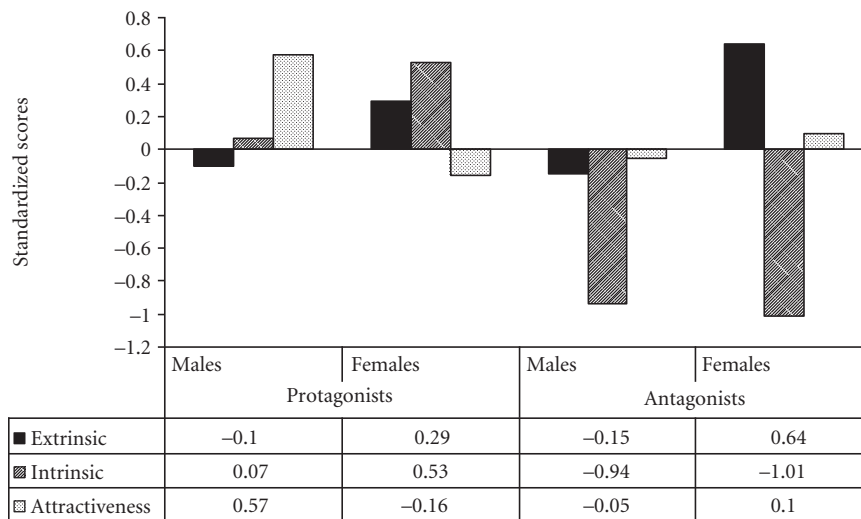


FIGURE 2 Criteria Used by Major Characters for Selecting Martial Partners

indifference to Physical Attractiveness seems part of their general indifference to the quality of their personal relations.

If one were to look only at the motive factors, one might conclude that male antagonists correspond more closely to their gender norms than female antagonists do. Male antagonists are personifications of male dominance striving. The relative indifference male antagonists feel toward any differentiating features in mates might then look like an exaggeration of the male tendency toward interpersonal insensitivity (Baron-Cohen 2004; Blum 1997; Geary 1998; Moir and Jessel 1991). Conceived in this way, male antagonists would appear to be ultramale, and female antagonists, in contrast, would seem to cross a gender divide. Their reduction to dominance striving would be symptomatic of a certain masculinization of motive and temperament. They would be, in an important sense, de-sexed. Plausible as this line of interpretation might seem, it will not bear up under the weight of the evidence about male antagonists' relative indifference to Physical Attractiveness in a mate. Like female antagonistic dominance striving, that, also, is a form of de-sexing. Dominance striving devoid of all affiliative disposition constitutes a reduction to sex-neutral egoism. The essential character of male and female antagonists is thus not a tendency toward masculinization. Antagonists are sexually neutered egos isolated from all social bonds.

COMPARING MALE AND FEMALE CHARACTERS BY MALE AND FEMALE AUTHORS

In the total set of 435 characters, characters by male authors outnumber characters by female authors by nearly two to one (281 vs. 154). Nonetheless, because a greater percentage of characters by female authors are major females (protagonists or antagonists), 47 percent of the major females in the whole data set are from novels by female authors (45 percent of

female protagonists and 52 percent of female antagonists). Female authors contribute close to half of all major females (47 percent), of all good females (protagonists and their associates, 47 percent), and of all minor females (associates of both protagonists and antagonists, 45 percent).

In order to determine whether the sex of the author significantly influenced the depiction of sex-specific features in the characters, we compared the depiction of male and female characters by male and female authors. Male and female authors converge in most of the ways they describe similarities and differences between male and female characters. (We found one statistically significant difference in criteria for selecting a partner for short-term mating.) However, they also display biases. Though falling short of statistical significance, those biases tend in a clearly discernible direction. Both male and female authors tend to mute differences between their male and female characters. Male and female characters by male authors tend to resemble one another, and male and female characters by female authors tend to resemble one another. Male characters by female authors tend to look more like females. Female characters by male authors tend to look more like males. Male and female authors concur more closely in the depictions of motives in female characters than in the depictions of motives in male characters. That is, male characters by female authors look more like female characters than female characters by male authors look like male characters.

When we compare male and female characters by male and female authors in the major character sets (protagonists and antagonists), three features reach statistical significance. Male protagonists by female authors score significantly lower on valuing Extrinsic Attributes in a mate (wealth, power, and prestige). Male protagonists by female authors score significantly higher on Nurture. Female protagonists by female authors score significantly higher on Constructive Effort.

With respect to seeking Extrinsic Attributes in a long-term mate, male protagonists by female authors are less demanding than male protagonists by male authors. This result is a specific instance of a general tendency: compared to authors of the other sex, authors of each sex tend to depict characters of the sex different from the author as less demanding in selecting mates.

In novels by female novelists, male protagonists are more domestic (more nurturing), and female protagonists occupy a more prominent place in the public sphere to which Constructive Effort gives access. In novels by female authors, then, the difference in male and female sociosexual roles—relative to the difference in novels by male authors—is diminished from both directions: by differences in male motives and by differences in female motives.

The constituent elements of are seeking education or culture; creating, building, or discovering something; making friends and forming alliances; and helping nonkin. Female protagonists by female authors score higher than female protagonists by male authors on making friends, seeking education, and helping non—kin. Out of all 12 motives that enter into the motive factors, the one motive with the largest difference for female protagonists by male and female authors is seeking “prestige.” Across the whole set of 435 characters, prestige loads very strongly on the motive factor Social Dominance, where it clusters with seeking wealth and power. For female protagonists by female authors, in contrast, prestige separates out from the pursuit of wealth and power and clusters instead with the elements of Constructive Effort.

Characters with motivational profiles like those of female protagonists by female authors would scarcely be contented with purely domestic social roles. They want more education, a more active life in the public sphere, and greater public standing. In the advanced industrial nations, the social roles of women have, of course, changed dramatically in the past one hundred years. The depictions of female protagonists by female authors give evidence of the undercurrents that ultimately helped to produce these changes. Male authors also contribute to this movement—female protagonists by male authors score moderately high on Constructive Effort—but female authors clearly take the lead.

Despite differences in cross-sexed depictions—male characters by female authors and female characters by male authors—male and female authors fundamentally concur on the motivational tendencies that distinguish male and female characters. In novels by both male and female authors, male characters score higher than female characters on, Constructive Effort, and Subsistence, and they score lower than female characters on Nurture. In novels by both male and female authors, male characters choosing long-term mates score higher than female characters on preferring Physical Attractiveness, and they score lower than female characters on preferring Intrinsic Qualities and Extrinsic Attributes. In all these factors, it is only the magnitude of the differences that vary in male and female characters by male and female authors, and the magnitude of that difference reaches statistical significance in none of the factors.

Besides motives and mate selection, the one largest category of analysis for the content of character, in this study, is personality. With respect to personality factors, male and female characters by male and female authors score virtually the same. (The differences in their scores range between 0 and 0.2.)

DEVELOPING A PERSONALITY

When we speak of “human nature,” we focus first of all on “human universals,” on cognitive and behavioral features that everyone shares. We typically use personality, in contrast, to distinguish one person from another—for example, a friendly, careless extrovert in contrast to a cold, conscientious introvert. The factors of personality can nonetheless themselves be conceived as stable, shared components of human nature. Each factor has a common substratum; individuals differ only in degree on each factor.

Current research into personality commonly distinguishes five broad factors (Buss 1996; Costa and McCrae 1997; MacDonald 1998; Nettle 2007; Smits and Boeck 2006). 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 a 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.⁸

Personality gives us access to the deepest levels of personal identity. Strip away the now-standard triad of race, class, and sex, and what is left? More than has been taken away. Beneath ethnic and class identity, beneath even the two basic human morphs of male and female, there are elemental features of human nature, the bedrock of personal identity. The composition of that bedrock can be assessed with the five factors of personality: the biologically elemental interaction between an organism and its environment; the capacity of all higher organisms to feel pain and react against it; the disposition of all mammals for affiliative bonding; and the specifically human capacities for organizing behavior over time, carrying out plans, and generating imaginative culture. Since all these factors express themselves somewhat differently in different cultural contexts and in different situations for individual persons, evolutionary cultural critique should aim not just at identifying human universals in any given cultural context; it should aim at uncovering the interaction between elemental dispositions and the specific individual and cultural contexts in which those dispositions manifest themselves.

We predicted (1) that protagonists and their friends would, on average, score higher on the personality factor Agreeableness, a measure of warmth and affiliation; and (2) that protagonists would score higher than antagonists and minor characters on the personality factor Openness to Experience, a measure of intellectual vivacity.

Female protagonists score higher than any other set on Agreeableness, Conscientiousness, and Openness, and they score in the positive range on Stability (Figure 3). Male protagonists look like muted or moderated versions of the female protagonists. The personality profiles of male and female antagonists are similar to one another—both somewhat extraverted, highly disagreeable, and low in Stability and Openness. Female antagonists are somewhat more conscientious than male antagonists.

In the value structures implicit in the organization of characters in agonistic structure, Introversion, Agreeableness, Conscientiousness, Stability, and Openness are all positively valenced features. Agreeableness is the most strongly marked part of this array. Being agreeable is a trait that distinguishes good characters generally, but being conscientious and open to experience are more specifically characteristic of protagonists. With respect to personality, female protagonists are clearly the normative character set.

The value system embodied in agonistic structure links a volatile temperament with relatively weak self-discipline and a bad temper. Openness would be associated with the desire for education or culture and with the desire to build, discover, or create, and that whole complex of cognitive features is one of the two basic elements in Constructive Effort. As one would anticipate, then, Openness correlates with Constructive Effort ($r = .41$). The total profile for protagonists is that of quiet, steady people, curious and alert but not aggressive, friendly but not particularly outgoing. The antagonists, in contrast, are assertive, volatile, and unreliable, but also intellectually or imaginatively dull and conventional. The main

8. For commentaries on the cultural variability of the factors, see Saucier 2003; Saucier, Hampson, and Goldberg 2000; Saucier, Georgiades, Tsauousis, and Goldberg 2005; Zhou, Saucier, Gao, and Liu 2009.

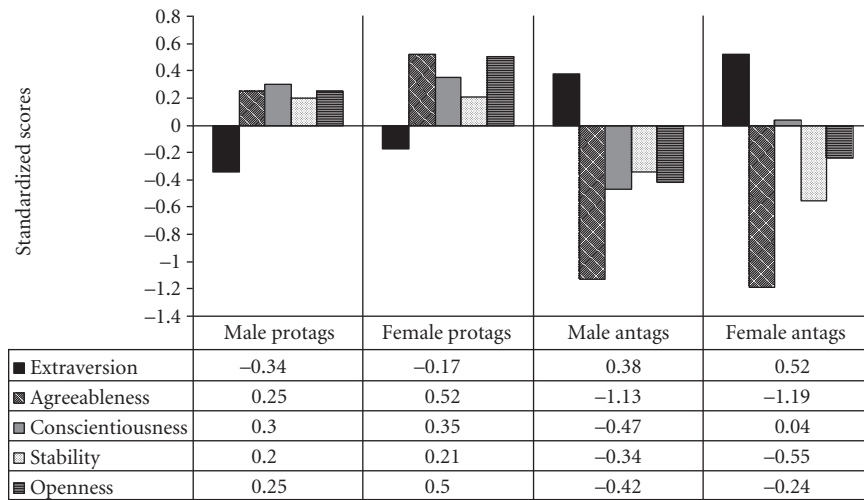


FIGURE 3 Personality Factors in Protagonists and Antagonists

antagonistic motive factor is Social Dominance, which correlates strongly and negatively with Agreeableness ($r = -.54$). Antagonists score in the extreme range both on Agreeableness (negatively) and on Social Dominance (positively).



BECOMING EMOTIONALLY INVOLVED



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.

In building emotional responses into our research design, we sought to identify emotions that are universal and that are thus likely to be grounded in evolved, species-typical features of human psychology. Emotions at that conceptual level would be on the same level as the basic motives extrapolated from human life history. Over the past 40 years or so, psychologists have made substantial progress in identifying basic emotions. Much of this work was pioneered by Paul Ekman. The results from his decades of research are summarized in *Emotions Revealed*—a core text for this aspect of our study. By isolating emotions that can be universally or almost universally recognized from facial expressions, Ekman and other researchers ultimately produced a set of seven basic emotions: anger, fear, disgust, contempt, joy, sadness, and surprise.⁹ Different researchers sometimes use slightly different terms, register different degrees of intensity in emotions (for instance,

9. For commentaries on the history of research into basic emotions, see Oatley 2004; Plutchik 2003.



anxiety, fear, terror, panic), organize the emotions in various patterns and combinations, or link them with self-awareness or social awareness to produce terms like embarrassment, shame, guilt, and envy (Haidt 2003; Lewis 2000; Panksepp 200). Nevertheless, Ekman's core group of seven emotions has widespread support as a usable taxonomy of basic emotions (See Lewis and Haviland-Jones 2000; Plutchik 2003).

Our questionnaire contained a list of ten emotional responses. To produce this list, we started with the core of seven terms from Ekman and adapted them for registering graded responses specifically to persons or characters. We used four of the seven terms unaltered: anger, disgust, contempt, and sadness. We also retained fear but divided it into two distinct items: fear of a character and fear for a character. Ekman observes that the positive emotions have been less carefully observed and differentiated than the emotions that reflect emotional upset. The simple terms *joy* or *enjoyment* cover a wide spectrum of possible pleasurable or positive emotions, ranging from amusement to *schadenfreude* to bliss (Ekman 2003, 191). In adapting the term *joy* or *enjoyment*, we sought to register some qualitative differences and also devise terms appropriate to responses to a person. We chose three terms: *liking*, *admiration*, and *amusement*. Liking is an emotionally positive response to a person, but it does not contain a specific element of approval or disapproval. Admiration combines positive emotionality with a measure of approval or respect. By itself, *surprise*, like *joy*, seems more appropriate as a descriptor for a response to a situation than to a person. Consequently, we did not use the word *surprise* by itself. Instead, along with *admiration*, we used *amusement*, which combines the idea of surprise with an idea of positively valenced emotionality. Amusement extends emotional response to take in responses to comedy. (Sadness and fear take in responses to tragedy; and anger and contempt, mingled with amusement, take in responses to satire.)

We included one further term in our list of possible emotional responses: *indifference*. A number of researchers have included a term such as *interest* to indicate general attentiveness, the otherwise undifferentiated sense that something matters, that it is important and worthy of attention. Indifference can be regarded as the inverse of interest. Indifference provides a qualitatively neutral measure of emotional reaction to a character.

We predicted (1) that protagonists would receive high scores on the positive emotional responses of liking and admiration; (2) that antagonists would receive high scores on the negative emotions of anger, disgust, contempt, and fear-of the character; (3) that protagonists would score higher on sadness and fear-for the character than antagonists; and (4) that major characters (protagonists and antagonists) would score lower on indifference than minor characters.

Factor analysis produced three clearly defined emotional response factors: (1) Dislike, which includes anger, disgust, contempt, and fear of the character, and which also includes negative correlations with admiration and liking; (2) Sorrow, which includes sadness and fear for the character and a negative correlation with amusement; and (3) Interest, which consists chiefly in a negative correlation with indifference.

Male and female protagonists both score relatively low on Dislike and relatively high on Sorrow (Figure 4). Male and female antagonists score very high on Dislike—higher than any other set—low on Sorrow, and somewhat above average on Interest. Female protagonists score high on Interest, but male protagonists, contrary to our expectations, score below average on Interest. They score lower even than good minor males, though not lower than the other minor characters.

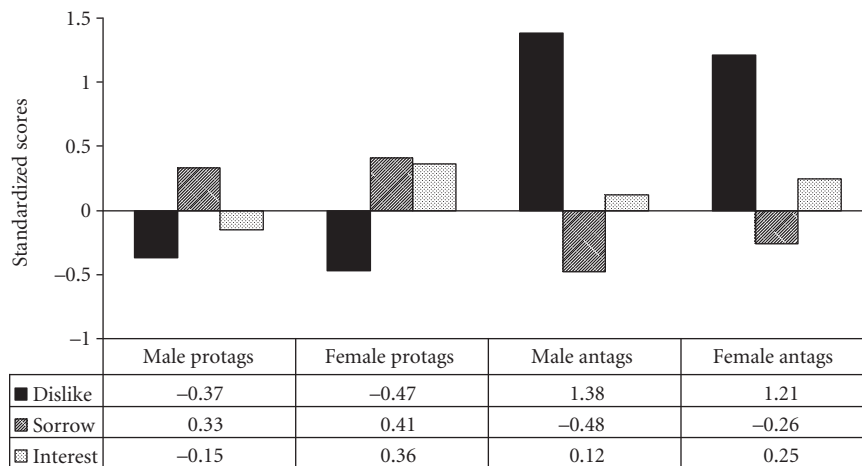


FIGURE 4 Emotional Response Factors for Protagonists and Antagonists

Once one has isolated the components of agonistic structure and deployed a model of reading that includes basic emotions as a register of evaluatively polarized response, most of the scores on emotional response factors are predictable. There is, however, one seemingly anomalous finding that emerges from the scores on emotional responses—the relatively low score received by male protagonists on Interest. This finding ran contrary to our expectation that protagonists, both male and female, would score lower on indifference than any other character set. We think this finding can be explained by the way agonistic polarization feeds into the psychology of cooperation. Male protagonists in our data set are relatively moderate characters. They are introverted and agreeable, and they do not seek to dominate others socially. They are pleasant and conscientious, and they are also curious and alert. They are attractive characters, partly because they are not assertive or aggressive characters. They excite little Dislike at least in part because they do not excite much competitive antagonism. They are not intent on acquiring wealth and power, and they are thoroughly domesticated within the forms of conventional propriety. They serve admirably to exemplify normative values of cooperative behavior, but in serving this function they seem to be diminished in some vital component of fascination. They lack power, and in lacking power, they seem also to lack some quality that excites intensity of interest in emotional response.

In these novels, the aggressive pursuit of Social Dominance—wealth, prestige, and power—is morally demonized. The desire for Social Dominance is overwhelmingly the single most distinctive motivational trait of both male and female antagonists. That motivational trait correlates with low scores on the affiliative personality factor of Agreeableness and high scores on the emotional response factor of Dislike. Despite this strongly valenced cluster of correlations, male and female antagonists score higher on interest (lower on indifference) than male protagonists. Readers dislike antagonists, but it is sometimes the case that antagonists are more exciting than protagonists, especially male protagonists.

The interest readers feel for antagonists might be a function of social vigilance—the need to track people who could pose a danger to us or to those we care about. However,

the highest level of interest is felt for female protagonists, who produce very low levels of fear and anger in respondents. Interest can evidently be activated both by positive attraction and by aversive stimulus. Male protagonists possess many of the same features in motives and personality that make female protagonists attractive, but they are evidently lacking in some feature that excites interest specifically for males.

EMOTIONAL RESPONSE, THE SEX OF THE AUTHOR, AND VALENCE

In both the attributes of characters and the emotional responses of readers, differences of sex in characters are smaller than differences of valence—usually much smaller. Good characters (protagonists and their associates) and bad characters (antagonists and their associates) display wider divergences in scores than male and female characters.

Are male and female authors in agreement about what constitutes good and bad in characters? To answer this question, we isolated the most agonistically polarized factors and compared the direction of scores for good and bad characters by male and female authors. The most agonistically polarized factors are Agreeableness, Dislike, Social Dominance, Constructive Effort, Nurture, and a preference for Intrinsic Qualities in mates. On all these factors, the polarization of valence in male and female authors tends in the same direction. In novels by both male and female authors, good characters score higher than bad characters on Agreeableness, Constructive Effort, Nurture, and preferring Intrinsic Qualities in mates; good characters score lower than bad characters on Dominance and Dislike. Valence accounts for more variance among characters than sex, and male and female authors converge in producing the polarized structure of valence.

WHAT DO WE MAKE OF IT ALL?

Agonistic structure in the novels displays a systematic contrast between desirable and undesirable traits in characters. Protagonists exemplify traits that evoke admiration and liking in readers, and antagonists exemplify traits that evoke anger, fear, contempt, and disgust. Antagonists virtually personify Social Dominance—the self-interested pursuit of wealth, prestige, and power. In these novels, those ambitions are sharply segregated from prosocial and culturally acquisitive dispositions. Antagonists are not only selfish and unfriendly but also undisciplined, emotionally unstable, and intellectually dull. Protagonists, in contrast, display motive dispositions and personality traits that exemplify strong personal development and healthy social adjustment. Protagonists are agreeable, conscientious, emotionally stable, and open to experience. Protagonists clearly represent the apex of the positive values implicit in agonistic structure. Both male and female protagonists score high on the motive factor of Constructive Effort, a factor that combines prosocial and culturally acquisitive dispositions. Their introversion, in this context, seems part of their mildness. The extraversion of antagonists, in contrast, seen in the context of their other scores, seems to indicate aggressive self-assertion.

In the past 30 years or so, more criticism on the novel has been devoted to the issue of gender identity than to any other topic. The data in our study indicate that gender can be invested with a significance out of proportion to its true place in the structure of interpersonal relations in the novels and that it can be conceived in agonistically

polarized ways out of keeping with the forms of social affiliation depicted in the novels. In this data set, differences between males and females are less prominent than differences between protagonists and antagonists. If polarized emotional responses were absent from the novels, or if those polarized responses co-varied with differences between males and females, the differences between male and female characters would have to be conceived agonistically, as a conflict (as it is, for instance, in Gilbert's and Gubar's *The Madwoman in the Attic*). The differences between male and female characters in motives and personality could be conceived as competing value structures. From a Marxist perspective, that competition would be interpreted as essentially political and economic in character (as it is, for instance, in Nancy Armstrong's *Desire and Domestic Fiction*). From a Darwinian perspective, it would ultimately be attributed to competing reproductive interests. The subordination of sex to agonistic role assignment, though, suggests that, in the 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 the 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, 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.

In *Hierarchy in the Forest: The Evolution of Egalitarian Behavior*, Christopher Boehm offers a cogent explanation for the way interacting impulses of dominance and affiliation have shaped the evolution of human political behavior. In an earlier phase of evolutionary social science, 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 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. Such altruistic dispositions, enforced by punishing defectors, would enable social groups to compete more successfully against other groups and would thus make “group selection” an effective force in subsequent human evolution. 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.¹⁰

10. On the social dynamics of dominance and cooperation, see Alexander 1989; Axelrod and Hamilton 1981; Bingham 1999; Darwin 1871; Eibl-Eibesfeldt 1998; Flinn, Geary, and Ward 2005; Richerson and Boyd 2005; Sober and Wilson 1998; Turchin 2006; D. Wilson 2002; D. Wilson 2007. On the now largely successful effort to resuscitate the idea of “group selection” as a component in “multi-level selection,” see Boehm 1999; Eibl-Eibesfeldt 1998; Richerson and Boyd 2005; Sober and Wilson 1998; D. Wilson 2007; Wilson and Wilson 2007.

Taking into account not just the representation of characters but 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 in hunter-gatherers—our closest contemporary proxy to ancestral humans. As Boehm and others 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 so as 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 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 10,000 years ago, after the agricultural revolution made possible concentrations of resources and, therefore, of power. Before the advent of despotism, the egalitarian disposition for suppressing dominance had, at a minimum, 90,000 years in which to become entrenched in human nature—more than sufficient time for significant adaptive change to take place (Wade 2006). 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 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.

As we have already observed, in non-literate cultures, social dynamics take place in face-to-face interactions, through the perpetual hubbub of dialogue, gossip, and the telling of tales. That kind of interaction is necessarily restricted to relatively small populations, to bands or tribes, usually not larger than 150 individuals (Dunbar 2004). In literate cultures, in contrast, social dynamics can take place vicariously through the shared imaginative experience of literature. In responding to characters, readers join the community of all readers responding in similar ways to the social dynamics depicted in the novels. Authors and readers thus collaborate in producing a virtual imaginative world. In this virtual world, readers affirm and reinforce cooperative dispositions on a large social scale. Agonistic structure extends an adaptive social process across social groups larger than the band or tribe. It is a medium both for gene-culture co-evolution and for natural selection at the level of social groups. It is, in other words, an adaptively functional feature of human nature.

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