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Original Article

Hierarchy in the Library: Egalitarian Dynamics in Victorian Novels

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Abstract: The current research investigated the psychological differences between protagonists and antagonists in literature and the impact of these differences on readers. It was hypothesized that protagonists would embody cooperative motives and behaviors that are valued by egalitarian hunter-gatherers groups, whereas antagonists would demonstrate status-seeking and dominance behaviors that are stigmatized in such groups. This hypothesis was tested with an online questionnaire listing characters from 201 canonical British novels of the longer nineteenth century. 519 respondents generated 1470 protocols on 435 characters. Respondents identified the characters as protagonists, antagonists, or minor characters, judged the characters' motives according to human life history theory, rated the characters' traits according to the five-factor model of personality, and specified their own emotional responses to the characters on categories adapted from Ekman's seven basic emotions. As expected, antagonists are motivated almost exclusively by the desire for social dominance, their personality traits correspond to this motive, and they elicit strongly negative emotional responses from readers. Protagonists are oriented to cooperative and affiliative behavior and elicit positive emotional responses from readers. Novels therefore apparently enable readers to participate vicariously in an egalitarian social dynamic like that found in hunter-gatherer societies. We infer that agonistic structure in novels simulates social behaviors that fulfill an adaptive social function and perhaps stimulates impulses toward these behaviors in real life.

Keywords: egalitarian groups, literature, social dominance, stigmatization.

Introduction

Since the early 1990s, literary scholars have been assimilating the insights of evolutionary psychology and envisioning radical changes in the conceptual foundations of literary study. The "literary Darwinists" have produced numerous essays in literary theory and criticism (Carroll 2004, 2005, 2007, 2008a, 2008b; Gottschall, 2008b; Gottschall and Wilson, 2005). 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 (Gottschall, 2005, 2008a.) The study described in this article integrates literary Darwinism with empirical methodology. Drawing on research in evolutionary psychology and related fields, we (a) deploy a model of human nature—of motives, emotions, and features of personality, (b) use that model to analyze a specific body of literary texts and the responses of readers to those texts, and (c) produce data—information that can be quantified and can serve to test specific hypotheses about those texts.

The Methods section gives a synoptic account of the model of human nature used to derive the categories for this study. (A more extensive, discursive exposition of the model can be found in J. Carroll, 2008a.) The literary texts in the present study are canonical British novels of the longer nineteenth century (Jane Austen to E. M. Forster). The focal point of the study is "agonistic" structure: the organization of characters into protagonists, antagonists, and minor characters. The terms "protagonist" and "antagonist" are part of the common parlance of literary discussion, and critics commonly distinguish between major and minor characters. Such categories are key features in the organization of characters in plots; they enter into emotional responses and are presupposed in generic structures, like romantic comedy and tragedy, that are heavily inflected by emotional responses. In inferring moral and ideological values in novels and plays, readers depend crucially on recognizing protagonists and antagonists. And yet, very little literary theory focuses primarily on the concept of agonistic structure, and that concept has never been tested for empirical validity on any large scale.

The very existence of agonistic structure is a topic about which speculative opinion could easily differ, and about which speculative arguments could go on endlessly and inconclusively. Are characters actually divided in both authors' intentions and readers' responses into protagonists, antagonists, and minor characters? From one perspective, such suppositions could be deprecated as naïve and misconceived, moralistic and simple-minded. A theorist adopting this perspective might argue that characters in novels (just like real human beings) possess both egocentric and cooperative dispositions, that they are too complex to be neatly categorized into good guys and bad guys. Some such idea is at work behind all contrasts between "serious" fiction, which depicts morally complex characters, and "melodramas," which depict morally polarized good and bad characters. (For a canonical instance, see Leavis, 1973, p. 19.) Or the theorist might argue that values are context-dependent, so that what counts as good and bad alters with circumstances, with varying cultural norms, and with differences in personal identity. (These latter contentions, on the relativity of values, are consistent with "reader-response" theories and with the forms of "cultural relativism" that have bulked so large in literary studies over the past few decades. See Fish, 1980.)

From another perspective, the categories that make up agonistic structure could be deprecated as so obvious, so self-evident, that they need no confirmation. From this second perspective, a research design oriented to substantiating the existence of "good guys" who are liked by readers and "bad guys" who are disliked by readers could not fail to produce positive results, and would thus be trivial.

By themselves, the claims originating from either the perspective that it is too simple-minded to think that agonistic categories exist or the perspective that agonistic categories obviously exist might seem plausible enough. But because they contradict each other, they cannot both be true. If it can plausibly be claimed that the idea of agonistic structure is naïve and misguided, it cannot be the case that the idea of agonistic structure is so obvious as not to need support or argument. The current research was designed to settle the matter empirically, by testing for the existence of meaningful agonistic structure. If the data confirmed that agonistic structure existed, evidence bearing on its function could be gathered.

The central hypotheses were that agonistic structure exists and that it provides a medium for exercising evolved dispositions for forming cooperative social groups. Within the past decade or so, a wide range of evolutionists in diverse disciplines have made cogent arguments that human social evolution has been driven in part by competition between human groups. That competition is the basis for the evolution of cooperative dispositions—dispositions in which impulses of personal domination are subordinated, however imperfectly, to the collective endeavor of the social group. Suppressing or muting the sense of competition within a social group enhances the sense of group solidarity and organizes the group psychologically for cooperative endeavor (Alexander, 1979, pp. 220-35, 1987, pp. 77-81, 233-84, 1989; Axelrod and Hamilton, 1981; Bingham, 1999; Boehm, 1999; Cummins, 2005; Darwin, 1981, vol. 1, pp. 70-106; Deacon, 1997; Eibl-Eibesfeldt, 1998; Flinn, Geary, and Ward, 2005; Geary, 2005, pp. 136-39, 142-44, 247-48; Kenrick, Maner, and Li, 2005; Krebs, 2005; Kurzban and Neuberg, 2005; Premack and Premack, 1995; Ridley, 1996; Richerson and Boyd, 1998, 2001, 2005; Salter, 2007; Schaller, Park, and Kenrick, 2007; Smith, 2007, pp. 129-46; Sober and Wilson, 1998, pp. 159-95, 329-37; Turchin, 2006; D.S. Wilson, 2006, 2007a, b, c; Wilson and Wilson, 2007).

The real-world pervasiveness of subordinating impulses toward personal domination in order to form cooperative groups led to the prediction that, in novels, protagonists 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). If dispositions for suppressing dominance fulfill an adaptive social function, and if agonistic structure in the novels reflects and reinforces dispositions for suppressing dominance, the current research would lend support to the hypothesis that literature fulfills an adaptive social function (Boyd, 2005; Carroll, 2005, 2007, 2008a, 2008b; Dissanayake, 2000; Salmon and Symons, 2001 Scalise-Sugiyama, 2005; Tooby and Cosmides, 2001).

The ability of novels to serve an adaptive social function depends on readers responding to characters in novels 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. If agonistic structure in the novels reflects the evolved dispositions for forming cooperative social groups, the novels would provide a medium of shared imaginative experience through which authors and readers affirm and reinforce cooperative dispositions on a large cultural scale. (On literature as a form of "simulation," see Oatley, 1999, 2002; Tan, 2000, pp. 126-27. On the emotionally responsive character of the reader's experience, see J. Carroll, 2004, pp. 114-16, 126-27; N. Carroll, 1997; Feagin, 1997; Hogan, 2003; McEwan, 2005; Matravers, 1997; Oatley and Gholamain, 1997; Özyürek and Trabasso, 1997; Storey, 1996, pp. 8-15; Tan, 2000; Van Peer, 1997. On the parallel responses to "real" and "fictive" people, see Bower and Morrow, 1990; Grabes, 2004.)

The current research therefore goes far beyond testing the simple propositions that good guys and bad guys exist and that readers like good guys more than bad guys. The research first tests, quantitatively, for the existence of protagonists, antagonists, and minor characters by measuring the degree of agreement in coding characters into the agonistic categories. If there is no such thing as agonistic structure, there would be no basis for systematically coding characters into these categories, so each coder would be using idiosyncratic and arbitrary rules for the coding task, resulting in zero agreement across coders. High levels of agreement would support the hypothesis that agonistic structure exists.

Furthermore, by assessing the ways in which protagonists and antagonists differ, the research was designed to discover *why* readers experience different emotional responses toward protagonists and antagonists. The prediction was that differences in emotional reaction could be explained by protagonists demonstrating higher degrees of cooperation and antagonists, social dominance.

Materials and Methods

Participants

Potential research participants were identified by scanning lists of faculty in hundreds of English departments worldwide and selecting specialists in nineteenth-century British literature, especially scholars specializing in the novel. Invitations were also sent to multiple electronic mailing lists dedicated to the discussion of Victorian literature or specific authors or groups of authors used in the study.

All participation was anonymous, but those who accepted the invitation provided the following identifying information on the on-line questionnaire used to collect data: sex, age, level of education, how they had heard about the study, how recently they had read the novel they were coding, and why they had read it. On the basis of this information, identification strings were produced to calculate the total number of individual respondents and segregate them into demographic categories. The data set contains a total of 519 unique

identification strings. Out of 519 unique coders, 178 (34%) were male and 341 (66%) female. The youngest coder was 15; the oldest was 83, and the mean age was about 40. The standard deviation for the age of coders was about 15 years. The majority of the respondents thus ranged between 25 and 55 years of age. 81% of the respondents had a bachelor's degree or higher; 58% had advanced degrees; and 32% had doctorates. 52% of the respondents had read the novel within the past year, and 85% within the past five years. 60% read the novel for their own enjoyment, 20% for a class they were taking, and 19% for a class they were teaching.

Online questionnaire

A copy of the questionnaire used in the study can be accessed at the following URL: http://www-personal.umich.edu/~kruger/carroll-survey.html. (The form is no longer active and will not be used to collect data.) After providing identifying information, research participants were directed to a list of roughly 2,000 characters from 201 canonical British novels of the nineteenth century. Participants coded various attributes of the characters of their choice and their emotional responses to the characters. Coded attributes reported on in this study include (1) agonistic role assignment, (2) motives, and (3) personality. (Other attributes such as mate preferences were coded but not used in the present study.) Each of these attributes and the dimensions of emotional reaction are described in more detail below.

Agonistic Structure

For each character selected, respondents assigned the character to one of the following agonistic roles: (1) protagonist, (2) friend or associate of a protagonist, (3) antagonist, or (4) friend or associate of an antagonist. Alternatively, respondents could check "other" and thus decline to assign characters to agonistic roles. If respondents differed on role assignment, the character was assigned to the role for which the majority of respondents voted. In case of a tie, the character was not assigned to a role, but scores for that character were still included in statistical correlations among categories of analysis such as motives and personality factors.

The four agonistic roles form four sets of characters. We ourselves identified each character as either male or female. Further dividing these four character sets into male and female sets formed a total of eight character sets: male protagonists, female protagonists, male associates of protagonists, female associates of protagonists, male antagonists, female antagonists, male associates of antagonists, and female associates of antagonists.

For purposes of statistical analysis, the eight sets of characters were conceptualized in terms of three underlying dimensions: *Sex*, *Salience*, and *Valence*. Under Sex, characters are classified as "male" or "female." Under Salience, characters are classified as "major" or "minor." Major characters are protagonists and antagonists. Minor characters are the friends and associates of protagonists and antagonists. Under Valence, characters are classified as "good" or "bad." Good characters are protagonists and their friends and associates. Bad characters are antagonists and their friends and associates. The designations "good" and "bad" are a matter of convenience and simply follow popular usage. The use of the terms has no pre-emptive moral content, but as it happens, in practice, the distribution

of characters into the good and bad sets is heavily inflected with morally relevant character traits.

The classification of characters along the three dimensions of agonistic structure allowed for a series of 2x2x2 multivariate analyses of variance in which sex, salience, and valence were conceived as quasi-independent variables, while the other responses were used as dependent variables. We predicted that characters identified as "good" would have attributed to them, on average, the features associated with communitarian endeavor and positive emotional reactions. Characters identified as "bad" would have attributed to them, on average, the characteristics associated with personal dominance and negative emotional reactions. We predicted further an interaction with salience: that good major characters (protagonists) would most completely realize the approbatory tendencies in reader response and that bad major characters (antagonists) would most completely realize the aversive tendencies.

Motives

In devising a set of categories for motives, we sought to take account of the features of human life history that have been preserved from our mammalian and primate lineage (A. Buss, 1997; Lancaster and Kaplan, 2007; Low, 2000; Silk, 2007); the specifically human reproductive characteristics that involve long-term pair-bonding, differing male-female mate-selection strategies, paternal investment, and the existence of extended kin networks (Bjorklund and Pellegrini, 2002; D.M. Buss, 2000, 2003; Deacon, 1997; Flinn and Ward, 2005; Geary, 1998, 2005; Geary and Flinn, 2001; Kruger, Fisher, and Jobling, 2003; Salmon and Symons, 2001; Schmitt, 2005); evolved human dispositions for forming coalitions, dominance hierarchies, and in-groups and out-groups (Alexander, 1987; Boehm, 1999; Cummins, 2005; Eibl-Eibesfeldt, 1998; Flinn, Geary, and Ward, 2005; Kurland and Gaulin, 2005; Kurzban and Neuberg, 2005; Premack and Premack, 1995; Salter, 2007; D.S. Wilson, 2006, 2007a,c); and the peculiarly human dispositions for acquiring and producing culture (Baumeister, 2005; Carroll, 2004, 2008a, 2008b; Dissanayake, 2000; Hill, 2007; Richerson and Boyd, 2005; Sober and Wilson, 1998; Sterelny, 2003; Tomasello, Carpenter, Call, Behne, and Moll 2005; Tooby and Cosmides, 2001; E.O. Wilson, 1998).

Out of these features, we produced the following list of 12 motives: (1) Survival (fending off imminent physical danger or privation); (2) Finding a short-term romantic partner; (3) Finding or keeping a spouse; (4) Gaining or keeping wealth; (5) Gaining or keeping power; (6) Gaining or keeping prestige; (7) Obtaining education or culture; (8) Making friends and forming alliances; (9) Nurturing/fostering offspring or aiding other kin; (10) Aiding non-kin; (11) Building, creating, or discovering something; and (12) Performing routine tasks to gain a livelihood.

Respondents were asked to rate each character on each motive, on a scale of 1 to 5, with 1 being "unimportant" and 5 "very important." We predicted that protagonists would be generally affiliative in their motives—concerned with helping kin and making friends—and we predicted that antagonists would be chiefly concerned with acquiring wealth, power, and prestige. We predicted that protagonists would on average be much more concerned than antagonists or minor characters with acquiring education and cultural knowledge. Taking into account both adaptively conditioned sex differences and the sex-

differenced social roles in the period of these novels, we predicted that female characters would be more interested in marriage and family than the male characters. We predicted also that male characters would be more oriented to activity in the public domain.

Because the total number of variables in the study was large, the data set was simplified by reducing the number of variables through factor analyses. To that end, a principal components factor analysis was conducted on averaged ratings of the 12 motives. No predictions were made on the precise number of factors that would emerge nor the loadings of every variable on the factors, but we did expect the motives related to personal gain (wealth, power, prestige) to mark a factor, motives related to prosociality (making friends, helping non-kin) to mark a separate factor, and motives related to romance and family to mark additional factors.

Personality Factors

The predominant conceptualization of personality at the present time is the five-factor or "big five" model of personality (Costa and McCrae, 1997; Figueredo et al., 2005; Nettle, 2006, 2007.) Many instruments of the five factors are available. To keep the online questionnaire as short as possible, thereby encouraging participation in the study, the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, and Swann, 2003) was chosen. Gosling et al. have documented that the TIPI possesses adequate psychometric reliability and validity. Under the lead-in phrase, "I see this character as," respondents scored each character on each of ten attributes (two for each factor). Ratings were on a seven-point scale ranging from "disagree strongly" to "agree strongly." We predicted that protagonists and their friends would on average score higher on the personality factor Agreeableness, a measure of warmth and affiliation. We also predicted that protagonists would score higher than antagonists and minor characters on the personality factor Openness to Experience, a measure of intellectual vivacity.

Emotional Responses

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 universal, evolved features of human psychology. We started with a core set of seven terms from Ekman's (2003) list of basic emotions and adapted those terms 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. To adapt the terms "joy" and "enjoyment," to make them idiomatically appropriate as a response to a person and also to have it register some distinct qualitative differences, we chose two terms, "liking" and "admiration." "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, we did not use the word "surprise" by itself. Instead, we used "amusement," which combines the idea of surprise with an idea of positively valenced emotionality. 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

(Plutchik, 2003). Respondents gave a score on each of the ten emotions, on a scale from 1 to 5, with 1 signifying "not at all" and 5 "very strong."

We predicted that protagonists would receive high scores on the positive emotional responses "liking" and "admiration" and that antagonists would receive high scores on the negative emotions "anger," "disgust," "contempt," and "fear-of" the character. We predicted that good major characters (protagonists) would most completely realize the approbatory tendencies in reader response and that bad major characters (antagonists) would most completely realize the aversive tendencies. We also predicted that good characters would score higher on "sadness" and "fear-for" the character than bad characters. We predicted that major characters would score lower on "indifference" than minor characters.

Again, to simplify analyses by reducing the total number of variables, a principal components factor analysis was conducted on the averaged emotional response ratings. Previous factor analyses of emotions and mood terms usually locate a factor of positive emotions and a factor of negative emotions. We predicted that such factors would obtain in our data.

Results

Reliability Estimates

Coefficient alpha estimates of inter-coder reliability were computed for a sample of characters that were coded by two or more respondents. As expected, measurement reliability increased as the number of judges increased. Consider the following list of characters with the number of coders and corresponding Cronbach alphas: Adam Bede (2, 0.73); Weena [no surname] (3, 0.83); Augusta Elton (7, 0.94); Elizabeth Bennett (81, 0.99). Several observations can be drawn about these findings. First, the reliability coefficients are remarkably high, indicating that the respondents took the task seriously and provided high quality data. Reliability coefficients from as few as two coders are above .70, clearly in a psychometrically acceptable range. Although reliabilities for characters based upon one coder cannot be computed, it is not unreasonable to assume that these coders also took their task seriously. Finally, these high coefficient alpha coefficients justify averaging the responses for characters who were judged by two or more respondents (almost half of the characters in the study).

Out of the total of 435 characters who were coded, 53 characters (12%) were not included in character sets—22 characters who were singly coded and not assigned a role (respondents checked "other" or "I do not remember"), two characters who had two codings each and were not assigned a role, and 29 characters who tied in role assignments. The remaining 382 characters (88% of 435) were assigned to character sets. To calculate the level of consensus in assigning characters to roles, the total number of respondents over the whole range of characters who agree with the majority in assigning a character to a role was divided by the total number of respondents. If missing values ("other" and "I do not remember") are retained, the average consensus rating for all 206 multiply coded characters is 81%. If missing values are eliminated, the average consensus rating for all 206 multiply coded characters is about 87%. This high degree of consensus affirms the existence of

agonistic structure.

To assess whether male and female respondents vary in their responses to male and female characters, a set of 117 characters in which each character was rated by at least one male and one female coder was analyzed. In cases in which there were more than one male or female coder, the scores from all respondents of either sex were averaged. A 2x2x2x2 analysis of variance with four variables: Coder Sex, Character Sex, Valence, and Salience (male and female respondents; male and female characters; good and bad characters, and major and minor characters) was conducted. The result was unequivocal. Across all of the dependent variables, the sex of respondents simply did not matter. Coder sex had neither main effects nor interactive effects with the other independent variables.

Specific Categories of Analysis

Motives

Factor analysis of the 12 motives produced five motive factors. See Table 1. *Wealth*, *power*, and *prestige* all have strong positive loadings on Social Dominance, and *helping non-kin* has a moderate negative loading. Constructive Effort is defined by strong loadings from the two cultural motives, *seeking education or culture*, and *creating, discovering, or building something*, and it also has substantial loadings on two pro-social or affiliative motives: *making friends and alliances* and *helping non-kin*. Romance is a mating motive, with a chief loading from *short-term mating* and *long-term mating*. A secondary loading on this factor for *acquiring wealth* reflects a sex-specific female mate-selection preference. Subsistence combines two motives—*survival*, and *performing routine tasks to gain a livelihood*. Nurture is defined primarily by a significant positive loading for *nurturing/fostering offspring or other kin* and a negative loading from *short-term mating*. *Helping non-kin* also loads moderately on this factor, bringing affiliative kin-related behavior into association with generally affiliative social behavior.

Factor scores with a mean of zero and standard deviation of one were saved and used as dependent variables in subsequent multivariate analyses of variance employing Sex, Valence, and Salience as factors. In cases where the multivariate results were statistically significant, follow-up F-tests identified significant effects on each dependent variable separately. In cases of statistical interaction, univariate post-hoc comparisons with Bonferroni adjustment were conducted within levels of a factor to identify simple main effects.

The Wilks Lambda multivariate test of overall differences among groups was statistically significant for Sex ($F_{5,365} = 3.80$, $p = 0.002$), Valence ($F_{5,365} = 20.21$, $p < 0.001$), Salience ($F_{5,365} = 5.95$, $p < 0.001$), and the Valence * Salience interaction ($F_{5,365} = 3.91$, $p = 0.002$).

The follow-up test for Social Dominance showed a Valence * Salience interaction effect ($F_{1,369} = 13.82$, $p < 0.001$). Post-hoc comparisons showed that antagonists score significantly higher on Social Dominance than protagonists (0.88 vs. -0.15, $F_{1,372} = 55.12$, $p < 0.001$); and antagonists higher than bad minor characters (0.88 vs. -0.21, $F_{1,372} = 20.50$, $p < 0.001$). (The mean scores reported here and elsewhere are estimated marginal means.)

For Constructive Effort, significant main effects for Valence and Salience were found. Post-hoc comparisons showed that good characters score significantly higher on

Constructive Effort than bad characters (0.26 vs. -0.67, $F_{1,369} = 47.78$, $p < 0.001$); and major characters higher than minor characters (-0.03 vs. -0.37, $F_{1,369} = 6.21$, $p = 0.013$).

Table 1. Factor Analysis of Motives-Rotated Component Matrix

Motives	Social Dominance	Constructive Effort	Romance	Subsistence	Nurture
Survival	0.12	-0.05	-0.01	**0.80**	-0.02
Short-Term Mating	0.07	0.13	**0.63**	-0.07	**-0.56**
Long-Term Mating	0.02	0.05	**0.83**	0.00	0.16
Wealth	**0.70**	-0.27	**0.38**	0.22	0.00
Power	**0.89**	0.01	-0.08	0.00	-0.16
Prestige	**0.89**	0.13	0.02	-0.05	0.02
Education or Culture	0.08	**0.77**	0.18	0.00	-0.02
Friends and Alliances	0.12	**0.62**	0.28	0.01	0.26
Helping Kin[a]	-0.06	0.11	0.12	-0.02	**0.82**
Helping Non-Kin	**-0.34**	**0.56**	-0.06	0.14	**0.41**
Creating, Discovering [b]	-0.10	**0.73**	-0.28	0.13	-0.10
Routine Work-[c]	-0.08	0.20	-0.01	**0.76**	0.05

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations. The five factors accounted for 69% of the total variance: Social Dominance 21.5%; Constructive Effort 17.3%; Romance 11.3%; Subsistence 9.7%; Nurture 9.1%. Loadings > ± 0.3 in bold font.

[a] The whole phrase in the questionnaire was "Nurturing/fostering offspring or aiding other kin."

[b] The whole phrase in the questionnaire was "Building, creating, or discovering something."

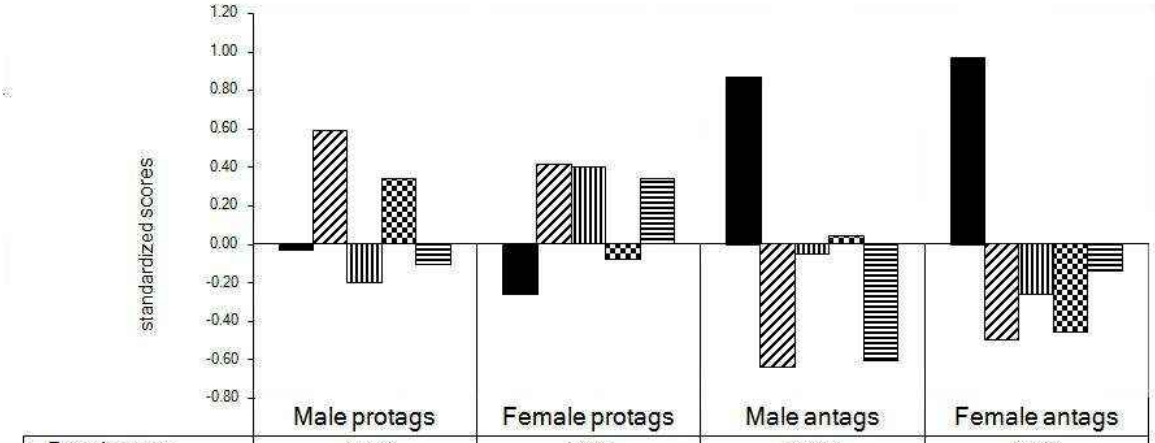
Thus, a primary hypothesis of the study was confirmed: good characters differ from

bad characters by virtue of higher Constructive Effort and lower Social Dominance, and this effect is more pronounced for major than minor characters.

The only other motive factor on which agonistic groups show statistically significant differences is Nurture, with significant main effects for Sex and Valence. Post-hoc comparisons showed that females scored higher on Nurture than males (0.16 vs. -0.24, $F_{1,369}$ = 7.41, p = 0.007). Also, good characters scored significantly higher than bad characters (0.18 vs. -0.26, $F_{1,369}$ = 9.65, p = 0.002).

Figure 1 displays patterns of motive scores for male and female major characters. 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. Male and female antagonists both display an exclusive and pronounced emphasis on Social Dominance. All four sets of bad characters score low on Constructive Effort, but only male and female antagonists score very high on Social Dominance.

Figure 1. Motive factors in male and female protagonists and antagonists.



	Male protags	Female protags	Male antags	Female antags
Dominance	-0.03	-0.26	0.87	0.97
Constructive Effort	0.59	0.41	-0.64	-0.50
Romance	-0.20	0.40	-0.05	-0.26
Subsistence	0.34	-0.08	0.04	-0.46
Nurture	-0.11	0.34	-0.61	-0.14

Personality Factors

Principal Component Analysis of the ten TIPI items with Varimax rotation produced the clear, expected five-factor solution, although the item *calm, emotionally stable* showed substantial loadings on the Conscientiousness and Agreeableness factors as well as the Emotional Stability factor. The five factors accounted for 85.3% of the total variance: Conscientiousness 31.9%; Agreeableness 20.7%; Extraversion 14.3%; Openness to Experience 11.6%; and Emotional Stability 6.7%. To keep the personality scores on the same, standardized scale as the other dependent variables in the study, factor scores were

saved and used as dependent variables in subsequent multivariate analyses of variance employing Sex, Valence, and Salience as factors.

The Wilks Lambda multivariate test of overall differences among groups was statistically significant for Sex ($F_{5,370} = 3.33$, $p = 0.006$), Valence ($F_{5,370} = 18.46$, $p < 0.001$), Salience ($F_{5,370} = 4.18$, $p = 0.001$), and the Valence * Salience interaction ($F_{5,370} = 6.04$, $p < 0.001$).

Follow-up tests showed a significant Valence * Salience interaction effect on Extraversion ($F_{1,374} = 11.40$, $p = 0.001$) and Agreeableness ($F_{1,374} = 16.65$, $p < 0.001$). On Extraversion, protagonists score significantly lower than antagonists (-0.26 vs. 0.44, $F_{1,377} = 22.18$, $p < 0.001$). Also, protagonists score lower than good minor characters (-0.26 vs. 0.01, $F_{1,377} = 5.57$, $p = 0.019$) and antagonists score higher than bad minor characters (0.44 vs. -0.26, $F_{1,377} = 7.33$, $p = 0.007$). On Agreeableness, protagonists score significantly higher than antagonists (0.37 vs. -1.15, $F_{1,377} = 149.73$, $p < 0.001$), and good minor characters score higher than bad minor characters (0.33 vs. -0.25, $F_{1,377} = 8.34$, $p = 0.004$). Also, antagonists scored significantly lower on Agreeableness than bad minor characters (-1.15 vs. -0.25, $F_{1,377} = 5.57$, $p = 0.019$).

Follow-up tests also showed that valence had a significant main effect on Conscientiousness, Emotional Stability, and Openness to Experience. Good characters score significantly higher than bad characters on Conscientiousness (0.17 vs. -0.29, $F_{1,374} = 10.59$, $p = 0.001$), Emotional Stability (0.17 vs. -0.51, $F_{1,374} = 22.10$, $p < 0.001$); and Openness to Experience (0.17 vs. -0.32, $F_{1,374} = 11.88$, $p = 0.001$).

In real life, higher levels of Agreeableness, Conscientiousness, and Emotional Stability are generally considered to be desirable, so it is not surprising that good characters score higher than bad characters on these factors. However, Extraversion and Openness in real life are more desirable in some situations and less desirable in others. Why bad characters score higher on Extraversion and good characters, on Openness, is considered in the Discussion section.

Finally, follow-up tests showed that sex had a significant main effect on emotional stability. Males scored significantly higher than females (-0.01 vs. -0.34, $F_{1,374} = 5.10$, $p = 0.025$, reflecting sex differences found in real life.

Emotional Responses

Factor analysis yielded three factors. The largest factor, accounting for 44.1% of the variance, was labeled "Dislike." All the clearly negative, hostile emotions (*anger*, *disgust*, *contempt*, *fear of the character*) load strongly on this factor, and two positive emotions (*admiration*, *liking*) show strong negative loadings on the factor. The second factor, accounting for 18.1% of the variance, is "Sorrow," which has strong positive loadings from *sadness* and *fear for the character* and a strong negative loading from *amusement*. The third factor, "Interest," accounting for 9.9% of the variance, has a strong negative loading from *indifference* and moderate positive loadings from *admiration* and *liking*.

The Wilks Lambda multivariate test of overall differences on the emotion factors across groups was statistically significant for Sex ($F_{3,371} = 3.08$, $p = 0.027$), Valence ($F_{3,371} = 36.14$, $p < 0.001$), Salience ($F_{3,371} = 12.76$, $p < 0.001$), the Valence * Salience interaction ($F_{3,371} = 20.61$, $p < 0.001$), and the Sex * Valence * Salience interaction ($F_{3,371} = 2.91$, $p = 0.035$).

Follow-up tests showed a significant Valence * Salience two-way interaction effect on Dislike ($F_{1,373} = 31.61$, $p < 0.001$) and Sorrow ($F_{1,373} = 11.79$, $p = 0.001$). Post-hoc tests showed that on Dislike, antagonists score significantly higher than protagonists (1.30 vs. -0.42, ($F_{1,376} = 213.91$, $p < 0.001$); antagonists higher than bad minor characters (1.30 vs. 0.10, $F_{1,376} = 34.15$, $p < 0.001$); and bad minor characters higher than good minor characters (0.01 vs. -0.34, $F_{1,376} = 5.21$, $p = 0.023$). Being an antagonist means being disliked, almost by definition, so this finding is hardly surprising. It is notable, however, that the dislike is significantly higher for major than minor bad characters.

On Sorrow, protagonists score significantly higher than antagonists (0.37 vs. -0.38, $F_{1,376} = 26.67$, $p < 0.001$); and protagonists higher than good minor characters (0.37 vs. -0.13, $F_{1,376} = 20.11$, $p < 0.001$). This probably indicates empathy on the part of the reader for the struggles encountered by protagonists.

Follow-up tests further showed a significant Sex * Valence * Salience three-way interaction effect on Interest ($F_{1,373} = 8.54$, $p = 0.004$). Female protagonists score significantly higher than male protagonists (0.36 vs. -0.15, $F_{1,373} = 8.82$, $p = 0.003$); female protagonists higher than good minor females (0.36 vs. -0.18, $F_{1,373} = 10.01$, $p = 0.002$); good minor males higher than male protagonists (0.17 vs. -0.15, $F_{1,373} = 4.55$, $p = 0.034$); male antagonists higher than bad minor males (0.12 vs. -1.24, $F_{1,373} = 14.89$, $p < 0.001$); and good minor males higher than bad minor males (0.17 vs. -1.24, $F_{1,373} = 17.74$, $p < 0.001$). Why male antagonists should score so low on Interest is an issue considered in the Discussion.

The analyses of motives and personality described earlier indicated that good characters score higher than bad characters on Constructive Effort, Nurture, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience, and lower on Social Dominance and Extraversion. To see whether these differences in motives and personality explain differences in liking versus disliking, the motive and personality scores were correlated directly with the Dislike factor score. Dislike correlated significantly with these variables as follows: Social Dominance, $r = 0.44$, $p < 0.001$; Constructive Effort, $r = -0.32$, $p < 0.001$; Nurture, $r = -0.22$, $p < 0.001$; Agreeableness, $r = -0.60$, $p < 0.001$; Conscientiousness, $r = -0.30$, $p < 0.001$; Emotional Stability, $r = -0.10$, $p < 0.05$; and Openness to Experience, $r = -0.23$, $p < 0.001$. Except for Extraversion, differences on these motives and personality traits all contribute to readers' liking of good characters and disliking of bad characters.

Discussion

The data from the questionnaire could have either confirmed or falsified the existence of agonistic structure as a fundamental shaping feature in the organization of characters in the novels. If the character sets had been so indistinct as to generate little agreement on agonistic status, if the character sets had not differed in distinct and meaningful ways in personality, if the character sets had not displayed predicted differences in cooperative endeavor and social dominance, or if the emotional responses of readers had not correlated with agonistic role assignments and the content of character, the hypotheses tested by the research would have been falsified. Instead, the hypotheses were

emphatically confirmed. Agreement among coders on agonistic status was substantial. The character sets are sharply defined and contrasted through a correlated suite of characteristics: motives, mate-selection, personality, age, and attractiveness. And that suite of characteristics correlates strongly with the emotional responses of readers. The clear delineation of agonistic structure supports the analytic utility of an evolutionary model of human nature that uses sex, valence, and salience as an organizing framework.

Agonistic structure in these 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 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 scores on other personality factors and on motives, seems to indicate aggressive self-assertion.

There are of course exceptions to the large-scale patterns that prevail in the data—a small but distinct class of agonistically ambiguous characters such as Becky Sharp in Thackeray's *Vanity Fair*, Catherine and Heathcliff in Emily Brontë's *Wuthering Heights*, the Monster in Shelley's *Frankenstein*, Lucy Graham in Braddon's *Lady Audley's Secret*, and Dorian Gray in Wilde's *The Picture of Dorian Gray*. Such characters tend to score low on Agreeableness but also high on Openness to Experience, high on Dislike but also high on Sorrow. Such exceptions are extremely interesting but do not subvert the larger pattern. The larger pattern stands out clearly *despite* the blurring produced by the exceptions. An analogy might clarify this issue. When social scientists select a population of humans and score them on sexual orientation, a small percentage of their subjects have scores that are sexually ambiguous or that reverse heterosexual dispositions. The average scores for the total population nonetheless display clear patterns of heterosexual polarization—men preferring women, and women preferring men. Once one begins thinking statistically, one no longer gives undue prominence to special cases and exceptions. One thinks instead in terms of population averages. Within those population averages, one can make good analytic sense of the special cases and exceptions.

At the level of discrete observations from within the common language, some of the specific findings in the study might seem fairly obvious. Because most people would acknowledge, in a casual way, that "readers dislike antagonists," they would not find it terribly surprising that readers in the study expressed more dislike for antagonists than protagonists. But casual acknowledgments do not go very far toward testing the proposition that novels are organized into *systematic patterns* of differences between

protagonists and antagonists. Appeals to specific cases, taken singly, could be manipulated in such a way as to support virtually any thesis on the subject. By producing data from many novels in which the Dislike factor correlates with specific motives and personality attributes of characters, the present study limits the range of speculation and brings the subject within the scope of empirical knowledge.

In our view, observation at the level of discrete and fragmentary impression is less valuable, as knowledge, than observation lodged within theoretically rationalized categories. The word "dislike" is a common language term, but in the current study, it is also the product of a statistical analysis of ten emotional responses derived from the systematic empirical study of universal human emotions. Similar considerations apply to the other categories used to delineate character sets. The personality factor "Agreeableness" is a common language term, but it is also part of a model, derived from decades of statistical analysis of thousands of lexical items, that organizes personality into five superordinate factors. The motives used in the questionnaire are couched in the common language, but they are also part of an integrated set of principles lodged within the explanatory context of evolutionary social science. Dislike correlates negatively with Constructive Effort and four of the five personality factors, and positively with Social Dominance. Such correlations provide evidence for the existence of agonistic structure; the clear patterns of agonistic structure testify to the robust quality of the categories; and evolutionary social science provides a larger explanatory context both for the categories and for agonistic structure.

If one presupposes that agonistic structure exists, any finding in the current study, taken singly, might not seem surprising, but for many readers in the humanities, the approach and findings from this study will probably be not only surprising but deeply disturbing. The study supports the view that both human nature and literary meaning can be circumscribed, reduced to finite elements, and quantified. Human nature was reduced to a set of categories, and those categories were used to trace out quantitative relationships in responses to a large body of literary texts. This procedure tacitly negates the idea—nebulous and pervasive, Protean in its varieties—that literature and the experience of literature occupy a phenomenological realm that is separate and qualitatively distinct from the realm that can be understood by science. (For a recent reaffirmation of this idea, with specific reference to Darwinian literary study, see Goodheart, 2007. For a response to Goodheart and other critics of literary Darwinism, see J. Carroll, 2008a, 2008b.)

To reiterate, we fully expected that readers would show positive emotional responses to protagonists and negative emotional responses to antagonists. But the current research goes beyond the obvious "readers like protagonists and dislike antagonists" in two ways. First, by having readers evaluate their emotional reactions along a range of possible emotions and examining the relative magnitudes of factor loadings from a factor analysis of the evaluations, a much more differentiated picture of emotional responses than simply "like" and "dislike" was obtained. Second, by assessing the ways in which protagonists and antagonists differ in motives and personality, it became possible to discover *why* readers experience different emotional responses toward protagonists and antagonists. Much of the differences in emotional reaction can be attributed to the characters' proclivity toward social dominance versus cooperation.

Once one has isolated the components of agonistic structure and deployed a model of reading that includes basic emotions as a register of valenced subjective response, most of the scores on emotional response factors are predictable. There is, however, one surprising and 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. But anomalies sometimes offer openings into new levels of explanation. We think this finding can be explained by the way agonistic polarization feeds into the psychology of cooperation.

The male protagonists in this study are relatively moderate, mild 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, but they are not very assertive or aggressive characters. They excite very little Dislike at least in part because they do not excite much sense of 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, some element of charisma. They lack specifically male qualities of aggressive assertion; they lack power, and in lacking power, they seem also to lack some quality that excites intensity of interest in emotional response.

In the past thirty years or so, more criticism on the novel has been devoted to the issue of gender identity than to any other topic. The results from the present 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 of Sex are less prominent than differences of Valence. If Valence were absent or indistinct in the novels, or if Valence co-varied with Sex, the differences between male and female characters might be conceived agonistically—as a conflict (Gilbert and Gubar, 1979). 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 (Armstrong, 1987), and from the deeper Darwinian perspective, it would ultimately be attributed to competing reproductive interests. The predominance of Valence, though, suggests 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 the readers' admiration and sympathy. Both male and female antagonists are exclusively fixated on material gain and social rank. That fixation 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.

Dominance and affiliation can be linked with contrasting tendencies toward bias in self-perception. Egoistic bias exaggerates one's power and status, and moralistic bias

exaggerates one's selflessness and altruism (Paulhus and John, 1998). Agonistic structure in the novels in the present study clearly displays a moralistic bias. That bias could possibly reflect a cultural ethos particular to the period in which the novels were written. To reach empirical conclusions on this question would require comparisons with empirical studies of agonistic structure in literature from other periods. So far, of course, there are no other such studies and thus no data to compare. Pending further research, we venture to speculate that the moralistic bias displayed in these novels is not particular to the period. The degree to which aggressive violence characterizes the behavior of protagonistic males most certainly varies according to the cultural ecology of a given period, but the broad disposition for a moralistic bias seems to reflect fundamental political dispositions characteristic of the human species.

In *Hierarchy in the Forest: The Evolution of Egalitarian Behavior*, Boehm (1999) 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 moralistic or altruistic 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" or "multi-level 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. (For other contributions to this general theory of human political nature, see Darwin, 1981, vol. 1, pp. 70-106; Eibl-Eibesfeldt, 1998; Richerson and Boyd, 1998, 2001, 2005; Salter, 2007; Sober and Wilson, 1998; Sterelny, 2003; D.S. Wilson, 2002, 2006, 2007a, 2007b, 2007c; Wilson and Wilson, 2007. For contributions to the theory of gene-culture co-evolution, see Barrett, Dunbar, and Lycett, 2002, pp. 351-83; Baumeister, 2005; Boyd and Richerson, 2007; Deacon, 1997; Henrich and McElreath, 2007; Hill, 2007; Kirby, 2007; Laland, 2007; Lumsden and Wilson, 1983; McElreath and Henrich, 2007; Plotkin, 2007; Richerson and Boyd, 2001, 2005; Shennan, 2007; Smail, 2008; Sober and Wilson, 1998; Sterelny, 2003; Tomasello et al. 2005; D.S. Wilson, 2005, 2007a, 2007b, 2007c; E.O. Wilson, 1998.)

After carefully surveying large tracts of the ethnographic literature, Boehm (1999) concludes that culture "reinforces the innate tendencies of humans to do good for others," but then he adds, "which is fortunate, for in all probability such tendencies are not all that powerful" (pp. 245). "Human nature" in the more cynical acceptance of that term—selfishness and manipulative deceit—has not been eliminated from the gene pool. It has only been moderated. For Boehm and other recent theorists at the forefront of evolutionary social psychology, "culture" is the key force in this moderating process. If Boehm and others are correct in these arguments, the moralistic bias of the novels in this study would not merely reflect a local cultural norm. By derogating dominance and enacting the triumph

of the communitarian ethos, agonistic structure in the novels would replicate a fundamental adaptive function of culture—of all culture, of culture as a specifically human adaptive characteristic. In affirming altruistic tendencies, agonistic structure in the novels would articulate real features of human nature, but like culture in general, the novels would exaggerate the magnitude of those features.

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 non-literate cultures require face-to-face interaction. If that face-to-face interaction fulfils an adaptive function, and if agonistic structure is a cultural technology that fulfils the same adaptive function, one could reasonably conclude that agonistic structure fulfils an adaptive function. We hope to see further empirical research that opens up new ways of probing this important issue.

We have suggested that the novels provide a medium of shared imaginative experience through which authors and readers affirm and reinforce egalitarian dispositions on a large cultural scale. At least one possible challenge to this hypothesis could readily be anticipated. Could it not plausibly be argued that the novels merely depict social dynamics as they actually occur in the real world? If that were the case, one would have no reason to suppose that that the novels mediate psychological processes in the community of readers. The novels might merely serve readers' need to gain realistic information about the larger patterns of social life. To assess the cogency of this challenge, consider the large-scale patterns revealed in the present study and ask whether those patterns plausibly reflect social reality:

> The world is in reality divided into two main kinds of people. One kind is motivated exclusively by the desire for wealth, power, and prestige. These people have no affiliative dispositions whatsoever. Moreover, they are disagreeable, emotionally unstable, undisciplined, and narrow minded. The second kind of people, in contrast, have almost no desire for wealth, power, and prestige. They are animated by the purest and most self-forgetful dispositions for nurturing kin and helping non-kin. Moreover, they are agreeable, emotionally stable, conscientious, and open-minded. Life consists in a series of clear-cut confrontations between these two kinds of people. Fortunately, the second set almost always wins, and lives happily ever after. This is reality, and novels do nothing except depict this reality in a true and faithful way.

In our view, this alternative hypothesis fails of conviction. The novels do 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 evoke certain impulses of human nature. Vicarious participation in the novel stirs up the reader's impulses to derogate dominance in others and to affirm one's identity as a positive, contributing member of his or her social group. It may not be too much of a leap to suggest that the emotional impulses aroused by the novel carry over when the novel is put down, actually encouraging people to suppress dominance and cooperate with others in real life.

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