

Conclusion

Recapitulation

After two long chapters devoted to one novelist each, it would perhaps not come amiss to recall that our chief findings have reference to novels covering the whole period from Austen through Forster. The large conclusions that we drew in chapters 2 through 5 are based on statistical results from questionnaires on 435 characters from 143 novels. (For a complete list, see appendix 2.) As we note in the chapter on *The Mayor of Casterbridge*, had we studied that novel alone, we could never have derived the large-scale patterns that form the heart of our findings on agonistic structure. Austen's novels are more nearly "average" than *Mayor*, but a similar principle applies. If we had studied Austen alone, and had tried to generalize from her work, we would have drawn some very strange conclusions about the representation of male sexuality in the novels. The larger patterns produced by the whole body of novels provides a base line against which we can register the peculiarities in Austen's novels and in *Mayor*. In this respect, our procedure formalizes a process that is at work also in more traditional methods of research. Scholars and critics typically read any particular novel in the context of other novels—with expectations and standards of value that have been, in part, shaped by those other novels.

The large general patterns derived from the whole body of novels do not just form a background to individual novels. The whole body of novels is itself a distinct object for the imagination of scholars. Consider the way in which social historians regard a nation or an empire not just as a set of disparate individuals but as a whole thing, a collective entity: England, France, the Roman Empire, the Han Dynasty. In a similar way, literary scholars regard a distinct group of works as a single phenomenon, an object for the imagination: the medieval mystery plays, Jacobean drama, Romantic poetry, the

Victorian novel. By using statistics to illuminate the agonistic organization of characters across the whole body of these novels, we hope to have made a productive difference in our readers' imagination. We hope to have altered, clarifying and enriching, the readers' impression of the novels as a total cultural phenomenon.

"Agonistic structure" is not just a bit of loose descriptive terminology occupying the borderland between folk concepts and scholarly discourse: it is a robust, empirically confirmed feature in the organization of individual novels and in the norms and conventions that constrain the depiction of individual characters in these novels. Moreover, those norms and conventions are not arbitrary products of a particular cultural episteme. They are rooted in the evolutionary history of human social organization. They seem to fulfill an important adaptive function: providing a medium for a group dynamic that regulates the distribution of social power.

Sex and gender are important in the novels, but less important than many scholars and critics have supposed. Our findings indicate that differences of sex are radically subordinated to moral differences between protagonists and antagonists. Males and females have differences of interest, but they have much stronger commonalities of interest. The forces that unite them into a community are stronger than the forces that divide them into politically conscious factions within that community. The pressure of differing male and female interests makes itself felt, statistically, in the contrasts between female protagonists by male and female novelists. In those contrasts, we can discern the forces of social history that have gradually reduced the limitations imposed on the social roles of women. In the contrasts between protagonists and antagonists, we can discern the even deeper forces that have made men and women partners in the evolutionary history of the human race.

If protagonists are young, attractive, and prosocial, that clearly says something about the values that prevail in the culture that produced these novels. But then, being young, attractive, and prosocial also have universal appeal. The role that these features play in the agonistic organization of the novels reflects major features of an evolved and adapted human nature. Evolutionary psychologists have not been slow in identifying the adaptive function of youth and beauty in the psychology of mating, nor have they neglected to analyze the evolutionary grounds for prosocial dispositions. They have sometimes been less alert to the desire for knowledge or the impulses that lead us to invent and discover things, but these too are part of human nature.

The findings from this study are dependent on two main sources: the categories we chose to include, and the responses of our participants. The categories ground themselves in a model of human nature derived from evolutionary psychology. The responses ground themselves in the good sense of our participants. Getting clear-cut results across a large body of novels from a large number of respondents gives support to our belief that the categories are meaningful. But the whole study would have failed had the readers not brought informed judgment to bear on assigning numerical values to attributes of individual characters.

The clear-cut nature of our results has important implications for the determinacy of meaning in literature. Characters have definite attributes on which competent readers agree, and those attributes produce predictable emotional responses from readers. The combination of attributes and responses reflects cultural norms rooted in human nature. This is of course not the last word on the determinacy of meaning in literature. But it could provide a new starting point for further research. It opens an opportunity for further empirical inquiry and could thus offer an alternative to discursive repetition based on untested speculative ideas, to say nothing of ideas that have already been tested and that have been empirically invalidated.

Global Positioning

In subsequent sections, we compare our ideas and methods with those of other critical schools in six areas. After contrasting our perspective on social power with that of Foucauldian cultural critique, we explain why evolutionary psychology should inform all cultural critique, and we suggest ways in which evolutionary concepts of human nature can correct, supplement, or replace forms of psychology currently active in literary study. Comparing the research in *Graphing Jane Austen* with empirical work that does not have a specifically evolutionary cast, we argue that empirical research, to be fruitful, must lodge itself within a theoretical structure. In considering the relation between our own research and evolutionary psychology, we argue that interdisciplinary work in the human sciences and in the humanities can and should be a two-way street, with both disciplines making real contributions to the other. Finally, responding to criticisms from literary humanists, we evaluate the charge that literary Darwinism is “reductive,” formulate an ideal of a complete, comprehensive interpretive account of literary texts, and measure this study against that ideal.

An Evolutionary Perspective on Social Power

The dominant theoretical framework for current literary study is Foucauldian cultural critique. The central concept in this school is “power.” For nearly three decades now, literary scholars have been heavily preoccupied with examining the way in which actual social power shapes fictive depictions. Feminists are concerned particularly with the gendered aspect of power—with male structures of political and social domination. Queer theorists are concerned with “compulsory heterosexuality” as an assertion of power in the field of sexual preferences. Marxists are concerned with social class as a primary dimension in the relations between strong and weak, between oppressors and oppressed, exploiters and exploited. Postcolonial and ethnic critics have focused on relations of ethnic and racial domination. In contemporary cultural critique, all historical and current power relations are typically measured against a norm of universal cooperative behavior—a world that is free of competing interests, and free of conflict. The utopian norm is a world in which “power,” the differential exercise of force in social relations, no longer exists. Measured against the utopian norm, all historical and actual exercises of power are necessarily forms of gratuitous oppression.¹

Our view of social power in the novels is rather different from that in most contemporary cultural critique. From an evolutionary perspective, conflicting interests are an endemic and ineradicable feature of human social interaction. Consequently, in this study we have not morally evaluated historical structures of power relative to the norm of an imaginary world in which power does not exist. When reflecting on the way social power manifests itself in the novels, we seek to be analytic, not partisan. In contrast to the avowed purposes in the bulk of contemporary Cultural Critique, we do not envision the analysis of meaning structures in literary texts as subordinate to the purpose of subverting or promoting any specific social or political ideal or any specific social or political group, set, or class.

Should then all literary study be politically quietistic, rigorously avoiding judgment on the ethical qualities of the cultural values reflected in literature? That is not our view. We think criticism has a dual mission—first to understand, and second to judge. To judge without understanding is foolish; to understand without judging is heartless. In chapter 5, describing the politics of the novels, we noted that some of the most prominent novelists are committed to diminishing differences of wealth and rank, recognizing our common

humanity, and thus improving conditions of life for the most vulnerable members of society. That kind of commitment did not arise out of a facile appeal to a biologically impossible norm. It arose out of wise and generous social dispositions working in harmony with a tough-minded understanding of human nature.

The Primacy of Psychology in Literary Study

Human Universals, Cultural Differences, and Individual Identity

Literary Darwinists typically invoke “human universals”—underlying regularities of thought and behavior that appear in all known cultures.² Like evolutionary theorists in the human sciences, the literary Darwinists aim at reducing cultural particularities to more general and basic causal principles. But they also reverse that explanatory process, analyzing the way in which elemental features of human nature articulate themselves within particular cultural ecologies. They thus often refer to their work as “biocultural critique.” In contrast to the literary Darwinists, most contemporary cultural critics in the humanities concentrate exclusively on cultural differences, neglecting or explicitly rejecting the idea of human universals.

One can readily enough understand the thinking that induces critics to emphasize cultural differences. Humans are social animals. There are virtually no human beings who exist outside of culture or whose personal identities are not profoundly influenced by the culture in which they happen to live. Culture offers social roles to individuals in the way that a theater closet offers costumes to actors. Individuals adopt the roles available within their culture. Still, look a little more deeply, and one can see that social roles have never been detached from the constraints and impulses of an evolved and adapted human nature. Consequently, in company with evolutionary psychologists, we think that psychological analysis, rooted in an understanding of our evolved and adapted human nature, should inform and constrain cultural critique.³ That is the assumption on which we have conducted this study.

Biology precedes culture. The features of physiology and the impulses conducing to survival and reproduction have been conserved in humans from ancestral organisms that precede the evolution of mammals. Like all mammals, humans are physically dependent on live birth and mother-infant bonding, and that physical dependence fundamentally influences all specifically human forms of feeling.

Specifically human dispositions for mate selection, pair-bonding, parenting, and kin association precede and constrain all specific cultural forms for the organization of marriage, family, and kinship. Humans share with social primates the elementary dispositions of affiliation and dominance, and those dispositions constrain all specific forms of social organization. The dispositions that emerge from human life history constitute the building blocks of culture. Cultures vary in their forms of organization, but all forms of cultural organization consist of arrangements of a limited set of species-typical dispositions operating within specific ecological conditions. All forms of cultural imagination—religious, ideological, artistic, and literary—are imbued with the passions derived from the evolved and adapted dispositions of human nature. Literature and the other arts derive their deepest emotional force from those dispositions.

Humans are adaptively organized to construct cultures and to assimilate cultural information. Through “gene-culture coevolution,” the development of the capacity for advanced cultural organization has fundamentally altered the human genome.⁴ Virtually all human interactions are organized within cultural systems, and cultural systems profoundly influence all individual human experience. All experience is, nonetheless, individual. We can postulate collective entities and endow them, metaphorically, with the powers of experience—“the experience of a century,” “the American tradition,” or “the Western mind.” On the literal level—the level at which “experience” correlates with neurological events—all such collective entities instantiate themselves in individual minds. No physical, neurological entity corresponding to a transcendent collective mind—a mind existing outside and independently of individual minds—has ever been identified. Individuals can exist without cultures—individual organisms, and even individual human beings, as in the case of feral children. Cultures cannot exist without individuals. If all individual human beings became extinct, human culture would cease to exist.

Full, Focused Psychological Subjects

By affirming that an evolved and adapted human nature fundamentally informs particular cultural configurations, we run counter to the characteristic poststructuralist idea that individual human beings are merely empty vessels for the circulation of cultural energy. That contrast in the conception of individual identity has important implications for thinking about characters in fiction. In a celebrated Foucauldian study of Victorian novels, D. A. Miller observes that

within the poststructuralist episteme “full, focused psychological subjects” are routinely “emptied out and decentered.” Accordingly, poststructuralist critics typically regard depictions of identity in Victorian novels as “a doomed attempt to produce a stable subject in a stable world.” Expanding on this conception, Miller envisions “a subject habituated to psychic displacements, evacuations, reinvestments, in a social order whose totalizing power circulates all the more easily for being pulverized.”⁵

In contrast to poststructuralist conceptions of individual identity, but in concord with the depictions of characters in Victorian novels, a biological perspective suggests that in basic ways individual persons are indeed stable entities within a stable world. The world changes constantly, even if it were only the weather, but beneath those changes the human body and mind are adaptively oriented to massive regularities encapsulated in folk physics, folk biology, and folk psychology. Some features of our environment, especially those of physics, are so stable that we have evolved exquisitely complex organs adapted to detect minute variations in them: eyes to register variations in light waves; ears to register variations in sound waves. Humans universally, in all known cultures, develop similar categories for analyzing the phenomena of the natural world: space, time, motion, mass, energy, living things, plants, and animals.⁶ All normally developing children come to recognize, at a predictable age, that other individual persons are intentional agents with an inner life consisting of perceptions, thoughts, beliefs, feelings, and goals.⁷ We recognize, in ourselves and others, basic motives, emotions, and social dispositions.⁸ To be sure, individuals undergo significant changes. They respond to the changing conditions of the world around them and also change over time, growing or aging. Moreover, they experience conflicting impulses and sometimes find themselves torn between incompatible forms of cultural identity. Even so, they are not “empty,” and within their own perspectives, they remain stubbornly central.⁹

In several obvious and basic ways, the biologically grounded individual human being is the central organizing unit in human life and in novels. Humans are physically discrete. Individual persons are bodies wrapped in skin with nervous systems sending signals to brains that are soaked in blood and encased in bone. Each individual human brain contains a continuous sequence of thoughts, feelings, and memories forming a distinct personal identity. People engage in collective activities and share experiences, but when an individual person dies, all experience for that person stops. Motivations, actions, and interpretive responses all originate in the neurological events in

individual brains. Thoughts, feelings, and memories are lodged in individual brains, and individual persons form the central organizing units in narrative depictions. Novelists and readers are individual persons, and characters in fiction are fictive individual persons. Because experience is individual, the analysis of fictional narrative is always, necessarily, psychological analysis. Characters are individual agents with goals. Novelists are individual persons who construct intentional meanings about those characters, and readers are individual persons who interpret those meanings. It is not possible to speak of depicted narrative events without at least tacitly identifying agents and goals, and virtually all literary commentary makes at least indirect reference to the intentions of authors and the imputed responses of readers.

In this study, we neither deprecate the idea of individual identity nor simply take it for granted, as part of common sense. Instead, we break human life history down into basic motives and link those motives with personality factors. All these elements, commingling with differences of sex, combine in different individual characters to produce distinct individual identities. The chief unit of analysis in this study is the individual character. When our respondents opened the questionnaire, after giving their own demographic information and selecting a novel, the first thing they had to do was to select a character—a single, named individual character. In ticking off numerical ratings for the attributes of characters and their own emotional responses to the characters, the respondents (perhaps inadvertently) were helping us to build a bridge between the elements of human nature and the organization of those elements into the distinct configurations that make up individual identities. In the degree to which we have succeeded in producing meaningful results, we have also tacitly affirmed the validity and importance of the full, focused psychological subject.

Alternative Forms of Psychological Literary Study

Novels originate in psychological impulses, depict human psychology, and fulfill the psychological needs of readers. In all critical commentary, some form of psychological theory, implicit or explicit, is always at work. Literature itself embodies an intuitive folk psychology at its highest level of articulation, and impressionistic literary commentary draws freely on that collective body of folk insights. In commenting on literature—on characters, authors, and readers—literary critics often also make explicit appeal to fundamental underlying principles

of psychological causation. In this study, our own appeals have been delineated in models of human nature and of literature. In this section, we consider the relation between those models and the kinds of psychology that are currently active in literary study.

In seeking explanatory reductions, literary scholars have made far more use of Freudian depth psychology than of any other form of psychological theory. For generations now, literary scholars who have had some intuitive conviction about the psycho-symbolic structure of literary figuration have been drawn, as if by a fatal necessity, into the vortex of Freudian critique. The attractive force exercised by Freud has in good part been a force exercised in a vacuum. Freud offers a comprehensive, internally coherent, and provocatively sensationalistic explanation of the structure of the psyche, the most intimate bonds of family life, sexual identity, and the phases in the development of the individual personal identity. He sketches out a rudimentary theory of literature as a form of wish-fulfillment fantasy projection,¹⁰ but that theory has been far less influential than the theory of psycho-symbolic figuration articulated in *The Interpretation of Dreams*. For much of the twentieth century, if one wished to explore psychosexual development and psycho-symbolic figuration, and to do so in a systematic and theoretically consequent way, there were few alternatives outside the work of Freud.

Within the field of psychology proper, Freud's theories have drifted steadily into the backwaters of obsolete speculative notions. Those notions were systematically developed, but their distinctive character depended more on the peculiar stamp given to them by the personality of their originator than by any claim they might have had to empirical validity. The subjects of Freud's speculations—human family relations, sexual identity, the structure of the psyche, and the phases of individual development—are essential components of human experience and thus of literary meaning. The account that Freud and the Freudians give of those subjects, though, is radically flawed. The Oedipal theory is at the very center of Freud's thinking on human development and on the psychological foundations of culture. One of the display pieces of a specifically evolutionary understanding of human psychology is the decisive demonstration that the Oedipal theory is quite simply mistaken.¹¹

Freud is still cited respectfully by literary critics, but he no longer serves, very often, as a primary, unmediated source. Most postmodern literary criticism has at least a tinge of psychoanalytic thinking about it, and much of it is dyed through and through with psychoanalytic thinking, but most practical psychoanalytic criticism is derived from

second- and third-generation Freudian theorists. Overwhelmingly, for literary study, the most important such later Freudian theorist is Jacques Lacan. One hears now very seldom of the ego and the id, and even less often of anal and oral stages of development, but one still hears frequently of the Phallus and The Mirror Stage of Development. Such theories, like those of Freud himself, have an obvious suggestive appeal, but like Freud's theories they also contain much that is simply false and mistaken. Moreover, Lacan's Freudian ideas are bound up with poststructuralist linguistic ideas, and Lacan's theories thus extend psychology still further into the region of speculation divorced from empirical constraint.

In the early and middle parts of the twentieth century, the one chief alternative to Freud, for psychological theory relevant to literary study, was that of Freud's apostate disciple, Jung. Freud was himself concerned chiefly with what Jung describes as "the personal unconscious," and Jung, in his own understanding of his work, was concerned with a broader and deeper subject—that of the collective unconscious of the whole human race.¹² Jungian archetypal theory provided a major stimulus to the comprehensive taxonomical effort of Frye's *Anatomy of Criticism*, and Frye was widely recognized as one of the most creative and commanding intellects in literary study in the twentieth century. Nonetheless, in the early 1980s, archetypal criticism quietly faded out of existence, and Frye's taxonomy has produced no substantial fruits within at least the past two decades.

In a formulation that has become a standard point of reference for Darwinian psychology, the Dutch ethologist Niko Tinbergen identifies four areas in which research into animal behavior should seek integrated answers: phylogeny, ontogeny, mechanism, and adaptive function.¹³ Phylogeny concerns the evolutionary history of a species and ontogeny the individual development of an organism within that species. Jung's chief range of interest was that of phylogeny, and Freud's that of ontogeny. We now have means for exploring both these areas in scientifically fruitful ways that were not available to Jung and Freud. Evolutionary psychology operates both on the scale of conserved ancestral psychic structures envisioned by Jung and also on the scale of individual development on which Freud concentrated his attention. By integrating research in these fields with research into psychological mechanisms, and by locating all three forms of explanation within an evolutionary understanding of complex functional structures, we can replace the speculative theories of Jung and Freud with theories that involve the same range of universal human concerns but that can produce empirically valid results.¹⁴

Within the range of psychological theory now available to literary study, only one distinct group of researchers has concentrated on the analysis of psychological mechanisms—the group oriented to cognitive science.¹⁵ Research in cognition is clearly contiguous with evolutionary research into the production and consumption of literary meaning, but most research in cognitive literary study has thus far not envisioned the necessity of linking its analysis of mechanism with the three other components of an ethological analysis—phylogeny, ontogeny, and adaptive function. As a consequence, the analytic structures of “cognitive rhetoric” or “cognitive poetics” have for the most part remained formalistic, local, and fragmentary.¹⁶ No cognitivist literary theorist has yet sought to produce an integrated model of human nature, and none has yet produced ideas on a level with that of Frye’s theory of archetypal symbolism or Freud’s theories of psycho-symbolic figuration.¹⁷

In its early phases, research in cognitive science typically operated in the discursive mode of formalistic speculative philosophy, and it was much preoccupied with models of the mind derived from analogies with computers. In recent years that kind of discourse has steadily been giving place to research that is more tightly integrated with cognitive and affective neuroscience—research into how the brain actually works.¹⁸ Findings in these areas intersect in important ways with evolutionary findings on motives, emotions, and social interaction. We thus anticipate that in coming years cognitive neuroscience, evolutionary social science, and evolutionary literary study will form a network of interdependent research programs.

Empirical Method and the Necessity of Theory

Outside of the context of evolutionary thinking, various efforts have been made to introduce quantitative, empirical methods into literary study.¹⁹ We are of course strongly in sympathy with the desire to investigate literary topics by using empirical methods. Whatever substantive concepts are involved, any use of empirical methods involves a fundamental commitment to fact, evidence, and reason. Any use of empirical methods thus necessarily invokes an organon radically different from that which governs the poststructuralist mode of discourse that has prevailed for so long in the humanities. Fredric Jameson identifies the central features of this organon. He observes that “its fundamental law would seem to be the exclusion of substantive statements and positive philosophical propositions.” Jameson is

himself one of the most renowned practitioners of “Theory.” As he himself describes it, a central challenge for such practitioners is “to advance the argument without actually saying anything.”²⁰ In practice, such discourse consists chiefly in improvising ambiguous rhetorical formulations on themes from speculative philosophy and obsolete forms of social science. Tacitly segregating themselves from such practices, scholars who adopt empirical methods commit themselves to making substantive statements. They say something, and they invoke standards and principles that allow them to test the validity of what they say.

In comparison with the practice of making self-cancelling verbal gestures in a purely discursive field, almost any effort at empirical analysis has, in our view, some degree of epistemological merit. Even so, we do not think that adopting an empirical methodology is in itself sufficient to produce substantial advances in literary knowledge. To produce substantial advances, empirical data must have a bearing on theoretical issues of wide import; those theoretical issues must be systematically integrated within a comprehensive theory of human nature and of literature; and those theoretical models must be consistent with the larger body of knowledge about the evolved and adapted character of the human psyche.

The relation between empirical study and the use of larger theoretical models can be illustrated by an episode in the history of geology and biology. In a letter of 1861, Darwin reflected on the inconsequentiality of empirical research that lacks an organizing conceptual design:

About thirty years ago there was much talk that geologists ought only to observe and not theorise; and I well remember some one saying that at this rate a man might as well go into a gravel-pit and count the pebbles and describe the colours. How odd it is that anyone should not see that all observation must be for or against some view if it is to be of any service!

The dates registered in Darwin’s letter and his reference to “thirty years ago” are pregnant with meaning. The period of 30 years ago to which he refers is the period just before Charles Lyell produced the first edition of his *Principles of Geology* and thus produced the first real and workable paradigm for geology as a science. Darwin took Lyell’s newly published first volume with him on his nearly five-year voyage on the *Beagle*. (Volumes two and three reached him in the course of the voyage.) The paradigmatic synthesis produced by

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Lyell was an essential precondition for Darwin's own production of a theory that would unite all the scattered fragments of information produced by the energetic but diffuse and disorganized activity of naturalists in his generation.²²

Darwin's theory of adaptation by means of natural selection is itself now firmly established as a paradigm within evolutionary biology. That paradigm is the framework within which all evolutionary social science operates. By constructing a comprehensive theory of human nature and of literature, evolutionary literary study can itself produce a paradigm within which empirical analysis contributes to genuine advances in knowledge. Within that paradigm, we need lose nothing of value from earlier forms of psychological literary study. In place of Jungian archetypal myth criticism, we can use evolutionary anthropology and evolutionary psychology as the basis for research into myths, folk tales, and epics. In place of Frye's suggestive but speculative accounts of genre, we can construct accounts of genre that integrate models of basic emotions, basic motives, and personality. In place of Freud's theories about the structure of the psyche, human development, and the relations of family, we can make appeal to human life history theory. All the elements of personal and social identity can be integrated with a biologically informed understanding of symbolic figuration. Cognitive and affective neuroscience will in all likelihood provide us with ever more subtle and precise ways of understanding the psychological functions of specific formal features and figurative modes.²³

Quantitative Literary Hermeneutics

Research that uses a purely discursive methodology for evolutionary literary study remains passively dependent on the knowledge generated within an adjacent field. The methodological barrier that separates discursive literary study from the evolutionary program in the social sciences limits the scope and significance of both literary study and the evolutionary human sciences. The production and consumption of literature and its oral antecedents is a large and vitally important part of our specifically human nature. An artificial barrier that leaves evolutionary literary scholars as passive consumers of knowledge also leaves evolutionary social scientists cut off from any primary understanding of one of the most important and revealing aspects of human nature. Literature and its oral antecedents derive from a uniquely human, species-typical disposition for producing and consuming imaginative verbal constructs. Removing the methodological

barrier between humanistic expertise and the expertise of the social sciences can produce results valuable to both fields.

In the statement of purpose that we included on our website, along with the questionnaire, we listed a set of questions that we hoped our research would help us to address, and the final question we posed was this: “Can literary works be mined as rich sources of data for formal psychological studies?” In our view, the answer is unequivocally yes. For instance, in analyzing the different ways in which male and female authors construct male and female characters, we are conducting a formal psychological study. That study operates in a field similar to that occupied by Ellis and Symons in their study of pornography and romance novels, though we are using dead people (nineteenth-century authors) as our subject pool.²⁴ As it happens, dead people serve very well as subjects of research, so long as they leave records behind them. They work just as well as the authors of romance novels, even if the authors are still living. The people who make up our respondent pool were all live subjects (and we sincerely hope they all still are—our warmest thanks to them for their participation). We conducted formal psychological studies on them, too. To what do they respond emotionally? Which personality factors and motives excite which specific basic emotions in them? Does the sex of a respondent significantly influence responses? All questions that bear on the model of literature as a medium of social interaction are questions simultaneously of literary study and of research in the social sciences. In that sense, every analysis we have conducted in this study is a “formal psychological study.”

We do not envision a form of research in which men and women in white lab coats produce nothing, with respect to literary texts, except tables of numbers and mathematical equations. In this current study, we have ourselves sought to integrate the forms of expertise that are particular to a humanistic training with the forms of expertise that are particular to a training in the social sciences. We constructed our questionnaire on the basis of our models of human nature and of literature as a mimetic and communicative medium, and we also drew freely on our knowledge of how fictional prose narratives tend to work. On the basis of research into both human nature and the novels in this period, we made predictions about the scoring patterns in the character sets. The responses to the questionnaire produced data from which we drew inferences about the population of the novels. Some of the most important and far-reaching of the generalizations thus produced were ideas that we had not ourselves foreseen. In reflecting on our findings, we drew connections among seemingly disparate

concepts in different disciplinary fields—in the study of emotions, personality, motives, mate selection, literary history, and literary theory. This analytic and reflective process broadened and deepened our understanding of the novels. We make no claim that the results reported here exhaust the possibilities of meaning in these texts, or that they exemplify a comprehensively adequate design of research. Our central purpose has been to contribute to a body of knowledge that can be, and should be, empirical, cumulative, and progressive.

Centrifugal and Centripetal Forms of Literary Study

Research in all fields displays antithetical but complementary forms of movement: centrifugal and centripetal. In centrifugal movement, research moves toward phenomenal particularity. In the centripetal, it moves toward reductive consolidation in explanatory principle.²⁵ Both literary Darwinism and quantitative methodology have strong centripetal tendencies. Whether adopting empirical or discursive methods, literary Darwinists aim at identifying basic traits of human nature and “deep structures” of literary meaning. Like evolutionary social scientists, they tend to focus on “human universals.” Quantitative methodology takes this tendency toward “reduction” one step further. By reducing categories to numbers, social scientists seek to eliminate ambiguity and polysemy. To use a phrase Jonathan Gottschall develops in *Literature, Science, and a New Humanities*, quantitative methodology aims at “shrinking possibility space.” It aims, that is, at reducing the range of possibly valid conclusions. Reducing that range is an indispensable condition for producing cumulative, progressive knowledge.

Many literary scholars believe that literary studies are and should be essentially centrifugal. For instance, William Deresiewicz, contrasting literary study with the social sciences, declares that literary study “is not concerned with large classes of phenomena of which individual cases are merely interchangeable and aggregable examples. It is concerned, precisely, with individual cases, and very few of them at that: the rare works of value that stand out from the heap of dross produced in every age.” Frederic Crews adopts a similar perspective. Resisting the Darwinist drive toward generalization and explanatory reduction, he argues that “there is nothing trivial about trying to make sense of single works, or single careers, or single moments in literary history, that strike the common understanding as representing a pinnacle of insight and skill.” Turning from resistance to attack,

he rejects the literary Darwinists' "reduction to the most primordial level," a level at which, he believes that "perceived factors tend to be banal common denominators that aren't helpful for the particular instance." In a more extreme version of this charge against explanatory "reduction" in literary Darwinism, Eugene Goodheart maintains that literary study should occupy itself only with particular cases divorced from any larger explanatory context. "Reductionism in the natural sciences is no vice; on the contrary, it enables one discipline (for instance, physics) to explain another (chemistry). In the humanities, however, it subverts the uniqueness and complexity of works of art." What the Darwinists propose, he thinks, "is the dissolution of the individuality of a work (the very reason we enjoy and value it) into large generalizations that remove all of its distinctive features and vitality."²⁶

These affirmations of a centrifugal critical ethos imply a necessary conflict between explanatory principles and a sensitivity to particular features in individual works of art. That implication is misconceived. Literary Darwinists invoke explanatory principles from evolutionary psychology, but they have nonetheless produced many good essays in interpretive literary criticism.²⁷ In our own critiques of Jane Austen and *The Mayor of Casterbridge*, we have used a universal model of human nature to produce highly particular commentaries on the specific meanings and effects in individual works of literature. In the case of *Mayor*, comparing the novel with patterns in the novels of the period as a whole makes it possible to see much more clearly the truly singular, individual character of that one novel.

Not only is sensitivity to particulars compatible with explanation; all particular criticism inescapably entails general explanatory ideas. Even when they try to avoid invoking ideas derived from recognizable theoretical systems, humanist critics such as Deresiewicz, Crews, and Goodheart must necessarily appeal to a complex of common-sense notions that M. H. Abrams designates the "humanist literary paradigm." As Abrams describes it, the humanist paradigm consists of the belief that individual authors convey intentional meanings to readers in a shared actual world. This common-sense belief is part of an intuitive theory of the world; it is part of our evolved "folk psychology." Nonetheless, it is highly vulnerable to skeptical critique. Abrams argues that poststructuralist theory can be most concisely characterized as a concerted attack on all the basic elements in the humanist paradigm: authorial intention, communication, determinate meanings, and a correspondence between signs and actual things. Abrams is not sympathetic to poststructuralism, but Jonathan Culler, one

of its spokesmen, concurs with Abrams about its essential character. “The main effect” of poststructuralist theory, he says, “is the disputing of ‘common sense’: common-sense views about meaning, writing, literature, experience.” Poststructuralists try “to show that what we take for granted as ‘common sense’ is in fact a historical construction, a particular theory that has come to seem so natural to us that we don’t even see it as a theory.” Most literary Darwinists would affirm the validity of the folk epistemology embodied in the humanist literary paradigm, but they would lodge that epistemology within a larger explanatory system: modern evolutionary theory.²⁸

By appealing to a general explanatory system, literary Darwinism joins company with other theoretical schools such as psychoanalysis and Marxism. Strange as these bedfellows might seem, we can spread at least one common coverlet over them—the desire for explanatory depth. Though seriously mistaken in its conception of human developmental psychology, Freudian psychology enables critics to abstract psychologically charged themes from literary texts. Freudian psychology gets at partial truths about literary texts, though inevitably distorting them in the process. So also, Marxist social psychology gets at social themes that do in fact exist, though the inadequacies of Marxist views of human social psychology inevitably distort the themes that Marxist theory serves to isolate. Similar observations could be made about deconstruction, feminism, Bakhtinian dialogics, and all the other standard elements in contemporary critical theory. None is absolutely wrong. Otherwise, it could not have had large persuasive appeal to intelligent literary scholars who sincerely wish to understand their subject. But we need not stop short with partial and distorted versions of explanatory systems for which better alternatives already exist. If the evolutionary human sciences can provide a comprehensive understanding of the mind, Darwinist ideas about literature should be able to incorporate the valid elements from other literary theories.

In its most complete forms, Darwinist literary criticism would construct continuous explanatory sequences linking “inclusive fitness”—the “ultimate” causal principle in evolution—to particular features in an evolved and adapted human nature and to particular structures and effects in specific works of art. A comprehensively adequate interpretive account of a given work of art would take in, synoptically, its phenomenal effects (tone, style, theme, formal organization), locate it in a cultural context, explain that cultural context as a particular organization of the elements of human nature within a specific set of environmental conditions (including cultural traditions), identify an implied author and an implied reader, examine the responses of actual

readers (for instance, other literary critics), describe the sociocultural, political, and psychological functions the work fulfills, locate those functions in relation to the evolved needs of human nature, and link the work comparatively with other artistic works, using a taxonomy of themes, formal elements, affective elements, and functions derived from a comprehensive model of human nature.

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

Commenting on Austen and Hardy, we have sometimes made observations about their literary style, blending those observations with the inferences that we drew from the data produced by the questionnaires. From an absolutist methodological perspective, blending social science methods with judgments based on literary experience falls short of creating a questionnaire so comprehensive that it could integrate all aspects of the texts and reduce them to data. In practical reality, there are limitations to what can be done with any given protocol. At least one of us (Gottschall) concedes that certain kinds of literary problems might never be fully amenable to a quantitative methodology. At least one other of us (Carroll) believes that all mental phenomena, including those involved in the production and reception of novels, consist of states of the brain and are hypothetically susceptible to quantification. But here we enter the realm of science fiction—a genre that deliberately erases the boundaries between “reality” and what is only “hypothetically” possible.

If any such science-fiction scenario could be realized, it still would not render the personal, subjective aspect of literary study obsolete. “Meaning” and “effect” are crucial elements of literary phenomenology, and meaning is always meaning *for* someone, some particular person; effect is always an effect *on* some particular person. Literary scholars explain their subjects, or try to, but they also register the

value and significance of their subjects. Identifying large-scale patterns of meaning in the novels need not reduce our appreciation of the value and significance of the novels. Quite the contrary. The better we understand how the novels work, the more keenly we can appreciate their effects. True enough, when scholars succeed in narrowing the range of possibly valid conclusions, they reduce the sense of vaguely infinite potential in the world of literary response, but they also open up new possibilities for actual discovery—for deeper levels of explanation, more complete understanding.