Like the Copernican revolution, the renovations of science in the twentieth century have wrought changes in the basic conceptions and, as Steve Woolgar says, “the very idea” of science. From Newtonian physics to quantum mechanics, from early twentieth-century sublime versions of science to recent chaos theory, these shifts have brought the “very idea” to bear on every realm of modern culture. As a channel to subcellular and subatomic worlds, as a creator of high technology in the postindustrial world, and as a perspective on the macrosphere and the origins potentially of “everything,” science at times seems unassailable and beyond external commentary. This prestige has led many in adjacent but nonscientific areas of knowledge to assume the mantle of scientific authority in the study of the arts, humanities, and social sciences.

But notice our reference to “the very idea” of science rather than “science itself.” In this book, we deliberately speak of configurations of a certain kind of discourse and are not presupposing incontrovertible scientific perception, experimental validity, or simple knowing. Our focus is discourse rather than gnosis, and our critical preference for thinking about the *discourse* of science is, of course, strategic and draws us in certain directions taken since Thomas Kuhn’s *Structure of Scientific Revolutions* by many in the philosophy and history of science, by social scientists such as Bruno Latour and the Edinburgh theorists, and by scholars who have begun work in literature and science. We are among those, in short, who do not take science to be unquestionable as an institution or beyond commentary in its achievements. Our preference for viewing science as a practice and a class of cultural discourse in dialogue with other cultural discourses says that science is not an absolute grounding or reflection of
perception and truth but a dominant discourse. “Scientific experiment,” Stanley Aronowitz writes, “may be shown to derive from a specific conception of ‘value,’ that of intervention into nature as the road to reliable knowledge” (1988: 346). We find this idea of science-as-practice to be productive and take science not as the measure of all conceptions of accuracy and truth but as a version of meaning with instituted practices and a potential for intervention guided by specific values.

Taken as a discourse imbued with value, in other words, science is not pure metacommentary unrelated to other discourses such as philosophy and aesthetics. It was at least conceivable before Michel Foucault’s archaeology of knowledge and Kuhn’s study of science to maintain the separation between science and culture, the idea of “two cultures”; after Foucault and Kuhn, we envision large discursive patterns in society that engender scientific and aesthetic modes of thought and representation. Aronowitz is correct in saying that “the distinction between philosophy, long viewed as a speculative inquiry, and natural science, in which speculation is strictly limited by scientific method to preexperimental hypothesis, has become increasingly blurred” (1988: 347). Instead of two cultures, there is now a stronger paradigm in which social discourses create the potential for scientific and humanistic formations as well as openings for intervention. Aronowitz’s historical judgment is that “science is the discourse of the late capitalist and the ‘socialist’ state” (1988: 352), and he claims that science as praxis and as a set of institutions is perfectly deducible from an economic mode (late capitalism) existing at a particular moment of Western history. His strong theory potentially accounts for the “blurring” of scientific and humanistic discourses in a dialectical articulation of historical events and cultural formations. We are not advancing Aronowitz’s Marxist conclusions, and yet we agree with him in principle about the obligation to read scientific discourse as an interested practice, an activity constructed to achieve particular social ends and to foreclose others at a particular moment in history.

We are aware that our view of science-as-discourse coincides with the ethnomethodological definition of the “sociology of scientific knowledge” and, at least in theoretical orientation, with such works as Latour and Woolgar’s Laboratory Life (1986) and Latour’s Science in Action (1987). In Science: The Very Idea (1988), Woolgar describes the perspective of the “sociology of scientific knowledge” (SSK) as deriving from “a range of disciplinary interests in science: notably sociology and history of science, less prominently, philosophy, anthropology and psychology” (1988: 14). Underlying this interdisciplinary amalgam is the notion of social “dis-
course,” the assumption of isomorphic units in a system of exchange, suggesting a theory of culture based on the signifying function as an instrument for the engagement with culture as a multiplicity of discourses. A main theoretical tenet of SSK, rejecting the status of science as a unique instrument for attaining empirical accuracy and truth, is the theoretical positing of “historical and cultural relativism” (1988: 14), the absence of a last or ultimate frame in which to place “true” science or from which to orient the unobstructed and fully accurate scientific view. Such relativism, we believe, however, dictates not chaos and incoherence, but the persistent complexity, as Woolgar also notes, of needing to define “meaning” locally and in situ, as the sum of “language (representation) + context” (1988: 57). This paradigm of knowledge construction is at once relativistic and rigorous in its aim always to situate knowledge materially and historically. It aims to redefine the referential aspects of language and scientific understanding.

The specific situation of this book is our staging of the encounter of semiotics, cognitive science, and psychoanalysis—the superimposing of these discourses within the same interpretive context that we have constructed for studying scientific and humanistic discourse. Of course, we have had to confront fundamental and difficult questions. How can we speak of cognitive science in relation to semiotics? How can we superimpose cognitive science and psychoanalysis within the frame of semiotics? How does the deliberately reductive and simplifying function of cognitive modeling relate to the familiar “comfort” of ordinary experience as discussed by feminist theorists of science or the “comfort” effected by the functional repression of theory and conflict? In staging these dramatic encounters among semiotics, cognitive science, and psychoanalysis, we are exploring further questions about the nature of critique and about the construction of a cultural discourse within which to articulate the relationship of scientific accuracy and humanistic comprehension—truth and meaning, knowing and understanding. The three authors of this book do not explore these questions separately as a semiotician, a cognitive psychologist, and a Freudian—although that scenario is not entirely wrong; rather, we are all three trying to discover the points of intersection among discourses that, in fact, interact within various cultural paradigms.

Exactly how to write this book is the problem we faced at every stage. How do we three begin to speak to one another about such different discourses? Where does the encounter of semiotics, cognitive science, and psychoanalysis begin? Does it develop or progress as an encounter? Does this staged production have a theme, a plot? How will this encounter end?
Can it end? In the Introduction, we begin to orient these questions in increasingly complex interpretive relations. In terms that we return to repeatedly, we examine the simple binary differences that make up mathematical relations as well as the rudimentary couplings of semiotics, one as opposed to two, black as opposed to white, and so on. The simple distinction, like Ferdinand de Saussure’s early semiotic descriptions of cultural institutions, posits a system of exchange among various isomorphic cultural practices, the substitution of signifiers in some practices for those in others, and the occlusion of signifying possibilities as others are promoted into prominence. We also examine the distinctions of science that attempt to be exhaustive. By exhaustive understanding, we mean the attempt to survey and accurately monitor a whole field of inquiry that generally goes under the heading of scientific empiricism and is expressed in the practice of cognitive science. And, finally, we look at the generalizing descriptions that project discourses themselves as the objects of inquiry. This approach attempts to predict the appearance or articulations of phenomena, the ability to account in advance for what does not yet exist, for the yet-to-be-observed.

We have few illusions about the prospects for creating a fully successful, strong model that will work equally well on all accounts for science and larger cultural representations. Our goal, nonetheless, is precisely to articulate semiotics, cognitive science, and psychoanalysis as complex relations in a discursive scheme. This large strategy shapes the three sections of this book. In the Introduction, we discuss the concepts of simple, exhaustive, and generalizing explanation in a scheme of gradually increasing complexity. Our aim there is to test and explore our three-part scheme within ongoing debates in the philosophy of science and, further, to situate the discussion of our book within conceptions of culture and cultural studies. A major theme within our three-part scheme is a working conception of narrative cognition. This conception is close to Louis Mink’s definition of narrative comprehension as “grasping together in a single mental act things that are not experienced together” (1970: 457). Throughout Culture and Cognition we repeatedly return to narrative structures and activities in examining the claims of cognitive science and situating those claims within the larger domain of culture.

In Part I, “Narrative Structures,” we move to substantiate our presentation not so much theoretically but in three actual instances of inquiry investigated according to the model we are proposing. In Chapter 1, we discuss attempts to account for cognitive science as a discipline in relation to adjacent (and simple) binary schemes in linguistics, semiotics, and
discourse theory. We show the degree to which semiotics presupposes operational (cognitive) axioms concerning the existence and function of signs. We also discuss the degree to which cognitive science builds itself more or less unconsciously out of semiotic narrative constructs—having to do with cause-and-effect relations, normative bases for proofs, and research-based models for exhaustive documentation—that are often taken by scientists to be invariant features of a research model.

In Chapter 2, we construct a theory of literary genres of narrative according to the rigorous semiotic view of discourse elaborated by A. J. Greimas. We explore the cognitive implications of constituting literary genres according to semiotic relationships, that is, in terms of generalizing and even predictive descriptions of genres. This is a multilayered discussion, and we intend its complexity to demonstrate the situating of a set of phenomena as at once simple, exhaustive, and generalizing. We intend this example to show that all three levels of this typology are present in any involved inquiry focusing on cognitive activity—even one, such as Greimas's, that rigorously aims at simple generalizations. In Chapter 3, we examine the attempts of cognitive scientists to be “exhaustive” and “accurate” in their study of the storytelling and narrative practices of old people. Their task involves establishing categories for empirical inspection, such as the response to “noise” in the environment, the age of the interlocutor, and the complexity of information being communicated—all categories that constitute a potentially comprehensive cognitive mapping of the field old people respond to as they narrate their experience. The attempt here is to describe dimensions of that cognitive map in an accurate and verifiable—that is, reiterable—manner and, at the same time, to examine the cognitive-narrative strategies of “natural history” in order to present a critique of the simplifications of exhaustive modeling of cognition. In fact, the chapters of Part I together aim at presenting and critiquing the idea of simplifying models of cognition.

The complexity of the examples in Part I is indicative of the multiple relationships of culture and cognition, and in the further developments of the book we foreground not the separation but the complex intersection of the three phases of our scheme in each instance of inquiry. In Part II, “Cases of Cognition,” we turn more fully to the configurations of science, cognition, and discourse. In Chapter 4, we explore the examples of Sigmund Freud and Albert Einstein as “special cases” of scientific projects that are informed by implicit orders of cultural representation. These are narrative orders, Freud’s conception of Oedipus, and Einstein’s special and general relativity as narrative accounts of signifying practices. In
Chapter 5, we explore the broad implications of psychoanalysis as a narrative theory of cognition and explicitly stage an encounter between Jacques Lacan’s semiotic version of psychoanalysis and Greimas’s theory of cultural discourse. In effect, we superimpose Lacanian psychoanalysis on the square of Greimassian semiotic and cultural theory. In Chapter 6, we look once again at the language of old people, this time focusing less on methods of investigation and more on the particular linguistic and extralinguistic factors that shape old people’s language as understood in the investigations of cognitive science. Again we are exploring discourse within semiotically informed narrative and cultural theory.

In Part III, “Cultural Discourse,” we attempt to move beyond the confinements of explicitly scientific and humanistic inquiries into a cultural critique that assumes the relationship between those previously disparate discourses. We examine approaches to criticism and pedagogy actually practiced in the academic institution of the American English department and in the institution of professional journal editing. Acknowledging but no longer seeking to separate simple, exhaustive, and generalizing distinctions, we here focus on the possibility of critical discourse as an interested cultural criticism. This possibility begins to move criticism out of exclusive confinement in the academy and positions it as a kind of cultural activity, just as in Chapter 3 we examined the ways cognitive science positions cognition as a social activity. The situating of literary studies as a cultural activity draws on both semiotic formulation and scientific attention to testability and accuracy in actual situations—all seen as the critique of practices and aims implicit in a particular inquiry. In our discussion of pedagogy and professional publishing, we attempt to situate ourselves not as either scientists or humanists but as critical, interested investigators—oriented critically and scientifically but acknowledging our own role as investigators who are also imbricated within the field of inquiry. In an important sense, the purpose of our discourse in this book is to align ourselves so as to be able to speak with the particular voice of cultural discourse in Part III, critical and interested but neither merely scientific nor merely humanistic. We are attempting here a kind of “natural history” of a particular institution of cognition where the emphasis is on history—and the emergence of understanding we describe in the long single chapter of Part III—but in which, as in Greg Myers’s description of natural history, the role of the observer plays a prominent part so that cognitive activity itself can be seen to be narrated and situated (1990: 201–3). For this reason, the “cultural discourse” of Part III is an extended, multifaceted chapter rather than resembling the three-chapter structures of Parts I and
II. Among other things, it examines the problematic relationship between general and special cases of cognition by examining ethics. (That problematic relationship is inscribed in Greimas’s semiotic square, which we use throughout Culture and Cognition in analyzing both logical abstractions and particular semantically charged designations. We distinguish between the two by italicizing the latter.)

The principal theme of the disciplinary encounters of this book is the movement from simple critical binarity, through elaborated cognitive and narrated framings of binarity, and, finally, to a cultural critique that carries with it, as technologies and strategies of positioning and decipherment, the structures of humanistic, scientific, and narrative discourse. In the process of this movement, the semiotician, cognitive scientist, and psychoanalyst can begin to speak to one another’s disciplinary and interdisciplinary interests. They do this through a discourse that relies on and deploys axiomatic and relatively unself-conscious positing of the objects of investigation and research, all the while reserving and then advancing the active critique of the grounding of investigation. This is discourse guided, as Greimas advances, not just by the tropes of either/or and and but also by the cultural activity of the negative complexly conceived, neither/nor. Thinkers as diverse as Kenneth Burke, George Steiner, Shoshana Felman, Umberto Eco, Bruno Latour, Julia Kristeva, Theodor Adorno, and Katherine Hayles have argued in different ways that negation is a significant instance of cognition and cultural activity. It is conceived in terms of “contrary to fact” and “potentiality,” and it is perhaps even the motor of cognitive and cultural activity. It leads both to the institutions of understanding and to their critique, and in studying culture and cognition it is important not to lose sight of either function.

Our book’s theme of the relationship of binarity and cultural critique is made evident in a further way as well. We have foregrounded three exemplary theorists in our book—Darwin, Greimas, and Lacan—precisely because their work emphasizes the intertextuality of scientific and humanistic discourses. In addition to these three, we could easily be discussing Claude Lévi-Strauss, Julia Kristeva, Jerome Bruner, and others as well. However, we have given discursive priority to Darwin, Greimas, and Lacan, not always with explicit acknowledgment but, we hope, with evident consistency and effect. In Darwin we explore the simplicity of binary couplings and the complications of narrative “histories” evident in his theory of adaptation. He is also important to our discussion for the generalizing and predictive features of his naturalistic economy of explanation—an economy that fosters the questioning of the self-evident, as evidenced
in the title of Chapter 3, "Why Are There Old People?" Through Greimas, who pursues logical rationalism the most rigorously of the three, we explore the semiotic modeling of cultural inquiry and discourse and attempt to expose its implicit theory of cognition. We also make extensive use of Greimas's "semiotic square" as a semantic modeling of social and cultural relations.

In Lacan we attempt to move in the interstitial space between science and culture, explicitly to articulate the relationship of culture and cognition. Lacan's own typology of Imaginary, Real, Symbolic, and Symptomatic orders is a strong model for the scheme we advance in this book. (In Chapter 5, we inscribe these orders on a semiotic square.) Like "simple" distinctions, the Imaginary order foregrounds the relations of either/or in formulations of logical exclusion. That is, the Imaginary order is made up of binary and largely privative relations between presence and absence, yes and no, on and off, and so on, formalistic stagings of positive and negative relational possibilities. Against the simplification of the Imaginary, the Symbolic presents generalizing distinctions suggesting that information is almost totally connected and cross-referenced, totally patterned. In other words, Lacan's Symbolic register (borrowed from Lévi-Strauss, and in many ways homologous with the symbolic order of Greimas's analyses) suggests patterned distinctions and recursions in language and cultural discourse, deployments of imaginary relations and seemingly "real" facts in phases and cycles calculated to accomplish particular aims and satisfy certain desires. Lacan's third order, that of the Symptom, corresponds roughly to simple (and simplifying) empiricism, binary-symbolic meanings mistaken as empirical truths (Lacan's "Symptom," finally, is much more complicated than this). In Chapter 3, we cite discussions of adaptation that pursue such simplifying empiricism so single-mindedly—in isolation from the semantic and cultural values of the terms they traffic in—that they approach unconscious parodies of Darwin. The "reality" of empiricism, as Lacan defines it under the term "Symptom," is actually the "impossible" phantasm of monologic and isolated meanings, the phantasmic idea of a pure showing forth of information prior to interpretation or theoretical framing. For this reason, Lacan's order of the Real functions as a critique of the prospect of purely empirical disclosure. It is the contrary to the "empirical" reality of meaningful "symptoms" and foregrounds the impossibility of essential and nonrelational instances of information. As such, in its very inarticulability, it does the work of the negative we mentioned above, situating the orders of the Imaginary, the Symbolic, and the Symptom as always emergent categories and institutions of understanding.
In short, we foreground Darwin’s, Greimas’s, and Lacan’s discourses as key textual references for the typology we are advancing in the articulation of culture and cognition. We intend all these discursive strategies to contribute to the construction of a critical discourse for the articulation of science and signification (representation) within the frame of cultural studies. By using the term “cultural studies”—suggestive of the Birmingham Centre, interdisciplinarity, and transnational studies (see Brantlinger 1990)—we intend neither a scientizing (sanitizing?) of the humanities nor a humanizing (humoring?) of the sciences. Our intention is not to alter or reimagine these discourses, even if we could, or to dislocate them from the cultural references and function that give them power. We attempt to focus on the ways in which they already participate in the construction of an instituted cultural economy. In the manner of cultural studies as it is emerging as a disciplinary institution in the United States, we are seeking, as one of our principal aims, to substantiate the case for seeing that scientific and humanistic discourses are practices with social agendas and commitments to cultural values, values that frequently do not correspond to the self-descriptions offered by those practices.

We also intend the sequence of our discussions in this book to narrate a version of the terrain of modern cultural theory. In this broad narrative, in the first part of the book, “Narrative Structures,” we discuss aspects of Anglo-American philosophy and the advent of semiotic (binarist) and structuralist paradigms associated with modernism and early twentieth-century social science and linguistics. Within Part I we superimpose cognitive science, empiricism, and the narrative power of natural history. Our aim here is to frame the simplifying and exhaustive gestures of empiricism—to situate empiricism as a social practice. In the next part of our narrative, “Cases of Cognition,” we examine discourse in Freud, Einstein, Lacan, and Greimas, theorists whose discourses are typical of mid-twentieth-century attempts to theorize psychological and worldly relations in complex amalgamations of simple, exhaustive, and generalizing economies. At the end of this section we describe the rhetoric of narrative in terms influenced by Jacques Derrida. In all these complex discourses, we attempt to discern narrative formations that are neither purely logical nor simply accidental. In the last part of our narrative, “Cultural Discourse,” we examine institutions of cultural and social discourse in a Foucauldian frame. These are discourses that emphasize power relations and social institutions in a multifaceted discussion of ideology, pedagogy, and scholarly publishing. In our book’s large narrative mapping of intellectual terrain in the twentieth century, a central theme is that of the rise of cultural and social theory. What results is a paradigm that creates an emergent
understanding of the interrelations, and superimpositions, of scientific and humanistic culture.

A book such as this, which aims at configurations of interdisciplinary understanding, perhaps necessitates its authors working more closely with other scholars than do more conventional studies. *Culture and Cognition* is most indebted to James Comas, Michael Goldstein, and Alan Velie. Each of these scholars collaborated with us in work that, with much revision, has been incorporated in this book. Their thought and, in some cases, versions of their sentences have found their way into the arguments reconfigured here. We have greatly benefited from working with them. Discussions with and readings by many other scholars have also been very important to our work. The readers for Cornell University Press made invaluable detailed comments, and many of the strengths of our project have been a result of their care. The comments and conversation of friends and colleagues here at Oklahoma—David Gross, Hunter Cadzow, Susan Green, Frank Durso, Richard Barney, and Monica Gregory—have substantially contributed to our thinking and argument. In addition, the support of Provost Joan Wadlow, Dean Rufus Fears, and Bernhard Kendler of Cornell University Press has eased and facilitated our project. Finally, Peggy Frazier and Steven B. Wilson gave us important help at a late stage of our work. Melanie Wright compiled the index and, as ever, aided us in innumerable ways.


RONALD SCHLEIFER
ROBERT CON DAVIS
NANCY MERGLER

Norman, Oklahoma
Culture and Cognition