MEDIUM SPECIFICITY AND PRODUCTIVE PRECURSORS
An Introduction

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In this era of transmedia discourse and postmedia pronouncements, we might question whether it is still productive to talk about medium specificity. Yet, given that new media forms are replacing each other so rapidly—usually before we have time to fully explore their social and aesthetic potential—perhaps a discourse on medium specificity might enable us to recuperate unique possibilities that otherwise would have been lost.

In 1999 at the Interactive Frictions conference, one could still hear echoes of Marshall McLuhan's famous refrain that fetishized medium specificity for the fifties—"the medium is the message!" Adopting this idea from turn-of-the-century modernism, McLuhan applied it to the emerging new medium of television as it began displacing cinema as the reigning mass medium worldwide (129). But by 1999, at the end of the millennium, this utopian refrain was being repurposed for computers, the Internet, digital media, and the database documents they spawned.

This refrain was challenged at the conference by even stronger echoes of Raymond Williams's influential critique of "technological determinism," which, he claimed, was based on a medium specificity that ignored the way old power struggles were inevitably remapped onto newly emergent forms (*Television* 5). In the late 1970s and 1980s, this critique sharpened the ideological edge of British cultural studies and its "thick" descriptions of reception, a cluster of politically engaged methodologies that privileged active readings by a diverse range of historically situated spectators over technological or aesthetic mastery by any single artist in any specific medium. Still, the analysis of medium specificity survived these cultural debates, for even Williams recognized the value of

defining the formal specificity of television—its unique combination of segmentation and endless flow.

By the end of the 1990s, medium specificity had regained considerable force within the emerging discourse on digital media yet was still frequently accompanied by some form of defensiveness. For example, in *Visual Digital Culture* (2000), British new media theorist Andrew Darley felt compelled to vigorously defend his interest in the formal aesthetics and medium specificity of popular visual entertainment genres (such as spectacle cinema, computer animation, music video, simulation rides, and computer games) because he knew such discussions would be read as deviations from the ideological rigors of British cultural studies (1–8). Despite the assumed postmodernist erasure of the distinction between high and low culture, he realized that such aesthetic concerns would be deemed more appropriate to the elite "marginal practices" of avant-garde computer art (his usual object of study) than to the "low" forms of popular entertainment he was now discussing (which typically fell under the scrutiny of cultural studies). To bolster his case, Darley turned to Susan Sontag and David Bordwell (odd bedfellows), whose *Against Interpretation* and *Planet Hong Kong* used phenomenology and neoformalism, respectively (in different decades and with different ideological goals) to legitimize the aesthetics of medium specificity both for popular and for experimental forms.

These later digital versions of medium specificity opened a space for a revival of structuralism, generating a new mode of discourse that I call "cyberstructuralism." These emergent objects of study seemed to arouse a desire for clear-cut distinctions between old and new media, showing (as Williams had warned) that technological determinism dies hard. Cyberstructuralist dynamics are especially apparent in Lev Manovich's pioneering book *The Language of New Media* (2001). The reemergence of medium specificity as a driving force is an idea that is not only implicit in his title but also explicitly defended against potential charges of naive obsolescence:

> In fact, regardless of how often we repeat in public that the modernist notion of medium specificity ("every medium should develop its own unique language") is obsolete, we do expect computer narratives to showcase new aesthetic possibilities that did not exist before digital computers. In short, we want them to be new media specific. (237)

While satisfying this desire for medium-specific distinctions, cyberstructuralism frequently performs three other collateral moves that prove problematic: it privileges formalism while ignoring the ideological implications of structural choices; it treats narrative as a rigid formal structure defined by a chain of causality and a set of binary oppositions, while minimizing its cognitive, affective, and social functions; and it fosters an illusion of wholeness without leaving room for the unknown.

Many contemporary media theorists have called attention to these limitations, including Diana Taylor, who sees computer-based archival histories not as neutral repositories of data but as forms of knowledge-production with dire ideological effects.[1] Taylor chal-

lenges the illusion of wholeness found in these archival histories by exposing what has been excluded. In *The Archive and the Repertoire: Performing Cultural Memory in the Americas* (2003), she argues for the inclusion of live performance genres, for otherwise the ephemeral knowledge they are based on will be lost and their performers relegated to the margins of history. Even before the digital era, these limitations in structuralism had been exposed by Roland Barthes, whose work (as we see in this volume) is frequently referenced by new media theorists and historians of digital culture. His critique was most powerful in those works that revealed his own crucial move from structuralist binaries to open-ended post-structuralist networks. For example, in *S/Z* (1970; the quotations used here are from the translation by Richard Miller, published in 1974), a theory of reading that transforms narrative into an open-ended database, he famously claims that the "text is a galaxy of signifiers, not a structure of signifieds. . . . [T]he systems of meaning can take over this absolutely plural text, but their number is never closed, based as it is on the infinity of language" (5–6). As the emergent post-structuralist feminists of the 1970s and 1980s acknowledged, Barthes's *S/Z* had thereby redefined the goal of narrative theory: it was no longer focusing (as Teresa de Lauretis succinctly put it) on "establishing a logic, a grammar, or a formal rhetoric of narrative . . . (its component units and their relations)" but rather on understanding "the nature of the structuring and destructuring . . . a production of meaning which involves a subject in a social field" (105). As soon as Barthes moved the process of inquiry into the social field, all textual meanings necessarily took on ideological implications—even those posing as neutral denotations, as if to falsely suggest that language could ever be "innocent." In *S/Z,* Barthes seemed to take great delight in introducing precise structuralist binaries (e.g., denotation/connotation, readerly/writerly, sequential narrative/agglomerative database) and then playfully exploding them with his dialectics (e.g., making "denotation" the last of the connotations, and performing a writerly reading of the readerly). It was as if he were underscoring his own movement beyond structuralism into the more complex ideological realm of post-structuralism, where gaps in our knowledge are exposed and room is left for the unknown. It is this insistence on the inevitability of *both* open-endedness *and* ideological meaning that keeps Barthes so crucial to the ongoing debates on medium specificity and postmedia discourse, particularly as argued in this volume.

This section of our anthology addresses some of the ways these arguments about medium specificity were voiced at the conference and continued to be revised in the years that followed, particularly with the emergence of transmedia migration, mobile technologies, and other digital forms of social networking. Focusing on four pairs of essays, this introduction stages these texts as a series of interwoven dialogues that give different narrative accounts of what is at stake in medium specificity historically and ideologically; which precursors, contemporary theorists, or artists are the main protagonists in this unfolding discursive drama; and how the interactive frictions and continuities between old and new forms can be read most productively within their social and historical contexts.

The first pair of essays are by N. Katherine Hayles and Lev Manovich, who were then (and have remained) two of the most rigorous and influential new media theorists in the field. Although she hails from literary studies and he comes from cinema, they both engage medium specificity from a cyberstructuralist perspective, even though Manovich explicitly acknowledges the "severe limitations" of structuralism. Despite their dedication to considering new media's relations with earlier forms, their primary contributions lie in their ability to identify formal and material differences with great clarity and precision.

Hayles's contribution to this volume is the original paper she delivered at the conference, "Print Is Flat, Code Is Deep: The Importance of Media-Specific Analysis." Although she would later publish several major books, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (1999), *Writing Machines* (2002), *My Mother Was a Computer: Digital Subjects and Literary Texts* (2005), and *Electronic Literature: New Horizons for the Literary* (2008), her distinction between flat print and deep code still lies at the heart of her work on medium specificity. As she puts it in her "Afterthoughts," this distinction is "the beginning of a trajectory that continues to spin out its implications in my work and thought." With her signature lucidity and elegance in structuring a line of argument and her astuteness in selecting a rich assortment of persuasive concrete examples, this essay presents a coherent case on behalf of a medium-specific analysis that addresses both the particularity of the form and one medium's citations and imitations of another. In this way, it attends to what she calls "simulation and instantiation" rather than merely "similarity and difference." Thus, she strategically insists that the term "hypertext" be applied to print as well as to digital media—to traditional encyclopedias and brilliant experimental novels like *Dictionary of the Khazars* as well as to electronic CD-ROMs and websites. Otherwise we would lose a valuable opportunity "to understand how a literary genre mutates and transforms when it is instantiated in different media." Although she frames these mutating movements from one medium to another as a historical process that forces us to deal with the materiality of literary texts, she does not address how these formal changes relate to larger social or cultural histories.

The rest of her essay is concerned with defining "what distinguishes hypertext instantiated in a computer from hypertext in book form." Listing eight concrete characteristics, she creates a useful typology that considers both the medium itself (their instantiation in digital computers) and the extent to which their effects can be simulated in print. Like a mathematical problem of subtraction, this two-step calculation repeatedly yields a singular functional difference: "print is flat, code is deep."

Like most of the writers within this section of the anthology, Hayles designates Barthes as a crucial precursor of hypertext, particularly because he was singled out so convincingly by George Landow (also a keynote speaker at the conference) in his groundbreaking book *Hypertext: The Convergence of Contemporary Critical Theory and Technology.* Focusing on Barthes's essay, "From Work to Text," Hayles begins by agreeing with Landow (and David Bolter) that Barthes "uncannily anticipates electronic hypertext." Yet she is equally

convinced that Barthes's "vision remains rooted in print culture." Thus, she catalogues his works along with those other print hypertexts—old encyclopedias and experimental novels whose relationship to electronic hypertext is simulated. Following the same strategy that she pursued with her typology, she uses this close comparison to uncover a key functional difference: "In positioning text against work, Barthes was among those who helped initiate semiotic and performative approaches to discourse, arguably one of the most important developments in literary studies in the past century. But this shift has entailed loss as well as gain. . . . [I]t also had the effect . . . of eliding differences in media."

Although Hayles argues that nondigital literary works can only "simulate" computer-mediated hypertexts and that "we have moved [far] beyond" Barthes, she denies that she is implying any teleological sense of progress or that literature is doomed. While she claims that books are "too robust, reliable, long-lived, and versatile to be rendered obsolete by digital media," she also acknowledges that books *are* subject to change, which she embraces as part of living form. With historical hindsight, we see how the Kindle and iPad uphold these observations. Undoubtedly used to reassuring her more traditional literary colleagues that she is still committed to books, Hayles makes her arguments appear less radical than they actually are. In fact, they appear compatible with the more traditional tactics of comparative literary analysis: the more similar the works we compare, the more precise we can make the distinctions between them. This rhetorical strategy of reassurance contrasts sharply with that of Lev Manovich, who frequently emphasizes the sense of rupture even while arguing for continuities between old and new forms.

Designed as a provocation, an attack on the very concept of media, Manovich's essay, "Postmedia Aesthetics," is not only postconference but also postpublication of *The Language of New Media* (2001), the groundbreaking book that has led him to be perceived by many as the world's leading new media theorist and (along with McLuhan, to whom he is frequently compared) a strong advocate for medium specificity. Always privileging the new, Manovich presents himself as an avant-garde theorist who is constantly driving the discourse on computer culture into new conceptual domains. With its teleological position signaled by the "post" in its title, the essay implies that those who have not adopted his most recent "postmedia" vocabulary risk obsolescence or being left far behind. It attempts to settle this running argument on medium specificity through a bold act of renaming. However, Manovich was not the first to reach this conclusion. Quoting from the contributions of Anne Friedberg and Henry Jenkins in his anthology *The New Media Book* (2002), Dan Harries claims that

> With the growing use of digital video, computer-based editing and special effects, we are witnessing a convergence of media images. As Anne Friedberg notes, "the movie screen, the home television screen, and the computer screen retain their separate locations, yet the types of images you see on each of them are losing their medium-based specificity". . . . As Henry Jenkins suggests, "because digital media potentially incorporate all previous media, it no longer makes sense to think in medium-specific terms." (171)

Friedberg, Jenkins, and Harries come to this conclusion from the side of reception, whereas Manovich converts it into a formalist argument aligned with technological determinism, for he argues that one of the primary causes of this "postmedia" condition is "the digital revolution of the 1980s–90s." This move represents another break from *The Language of New Media,* wherein Manovich tried "to avoid using the word *digital* because it ambiguously refers to three unrelated concepts" (52). Dubbing our new era a "postdigital, postnet culture" (the prefix signaling not obsolescence, as in the case of "postmedia," but a functional difference or rupture), this essay now substitutes "media" (and, by implication, its derivatives "transmedia" and "medium-specificity") for "digital" as the primary term under attack and erasure.

Although this line of argument would seem to place Manovich in sharp opposition to Hayles, who claims that medium specificity is more important than ever, it actually proves to be uncannily similar to hers. He ends up arguing for the specificity of the computer, privileging it as the technology through which all other prior forms should be reconceptualized. After presenting a series of compelling arguments for why medium specificity is no longer significant, Manovich proposes a new postmedia aesthetic that focuses on a cultural analysis of software and informational behaviors. These two terms prove very useful, for they can be applied both literally to current practices of computer-mediated communications and metaphorically to past works from precomputer culture. Like Hayles, he leads us to address the materiality of texts and the transmission of data by creating a communications typology (in this case, consisting of six characteristics rather than her eight) that considers both (to use her terms) their "instantiation in digital computers . . . and the extent to which [their] effects can be simulated in print." Yet, to justify his application of new digital concepts to earlier, predigital forms, Manovich turns not to an analytical argument for observing the formal process of historical change (as Hayles did in defending her use of the term "hypertext"), but to one more compatible with advertising rhetoric, namely consumer appeal. He strives "to make old culture comprehensible to new generations that are comfortable with the concepts, metaphors, and techniques of the computer and network era."

While those committed to the historical specificity of predigital media might question this strategy of rethinking old cultural forms through the metaphors of new media (perhaps fearing some kind of reductionism, say, in describing Giotto and Eisenstein as "important information designers" who deserve to be compared "alongside" contemporary giants like Allan Kay and Tim Berners-Lee), Manovich claims he is also motivated by an ethical obligation—to see old and new cultures as one continuum, and to enrich new culture through the use of the aesthetic techniques of old cultures. By accommodating young computer-savvy users in this way, one wonders whether Manovich is really adding a new dimension to an already highly complex figure like Eisenstein or (through this act of renaming) merely substituting a more reductive way of seeing him, the same kind of reductionism that was performed by David Bordwell, who stripped Eisenstein of his dialectics so that his pure poetics could be more comfortably appreciated by Bordwell-

ian neoformalists (*Cinema* 114, 137). Unlike Hayles, Manovich wastes no time trying to convince us that he is avoiding a teleological notion of progress.

In the essay's final paragraphs, Manovich acknowledges a blind spot in his informational aesthetic: Its privileging of cognition prevents it from dealing with affect. Although this issue is becoming increasingly important, as empirical work in neuroscience turns in this direction,[2] Manovich minimizes this lack by putting himself in the company of other influential structuralists. He claims that affect has been neglected in cultural theory since the late 1950s "when, influenced by the mathematical theory of communication, Roman Jakobson, Claude Levi-Strauss, Roland Barthes, and others began treating cultural communication solely as a matter of encoding and decoding messages." Like Hayles, he emphasizes the earlier Barthes, without observing that his elision of differences in media (which she saw as a loss) could have been used to bolster Manovich's own postmedia argument. More tellingly for this discussion of affect, Manovich omits the post-structuralist Barthes and his theorization of connotation and the pleasures of the text. He also omits the psychoanalytic wing of post-structuralism, including feminists and queer theorists who have been occupied with issues of pleasure and desire.

Manovich attempts to fill these theoretical gaps with allusions to music—by referring to DJs and their art of sampling as "information behavior," by noting the reliance on data processing for the "bodily experience of clubbing," and by citing the common practice of listening to music while working on a computer. Yet such references to what he calls "affective data" might not convince us that we should give up the language of pleasure and pain, or that informational aesthetics is updating the dynamics of desire.

BRANIGAN AND TSIVIAN ON PIONEERING PRECURSORS

In contrast to these two cyberstructuralist arguments concerning medium specificity, narrative theorist Edward Branigan and early-cinema scholar Yuri Tsivian present essays that focus on nondigital precursors of interactive narratives and database structures from earlier periods and forms. They claim that these precursors are productive because they can potentially expand not only the creative possibilities of new media for the future but also our understanding of the past. By deepening our potential database of precursors, they further complicate the matter of defining the unique dimensions of digital hypertexts and interactive narratives. Since they are addressing works from earlier eras, perhaps it is not surprising that the papers published here are the ones presented at the conference—although both have been extensively strengthened and expanded, by new examples, extended lines of argument, and supporting notes in the case of Branigan, and by expanded visual illustrations in the case of Tsivian.

Both of these essays build on the groundbreaking work of Carolyn Marvin's *When Old Technologies Were New,* which helped deflate the utopian claims of theorists who fetishized the "newness" of digital media. Yet while her detailed cultural history demonstrated how earlier nineteenth-century technologies—like the light bulb, the telegraph, and the

telephone—were subject to discursive debates and power struggles that are very similar to those now being waged around computers and the Internet, these two essays focus on ideas and conceptions that were formulated in those earlier eras but that can now be more readily realized through newer digital technologies. Yet unlike André Bazin's idealist argument in his essay "The Myth of Total Cinema," a drive he traces back to the timeless myth of Icarus, both Branigan and Tsivian (like Marvin) are responsive to the contexts of cultural and historical specificity and to the materiality of the medium. They both subscribe to the following argument by Walter Benjamin, which Branigan cites at the beginning of his essay:

> One of the foremost tasks of art has always been the creation of a demand which could be fully satisfied only later. The history of every art form shows critical epochs in which a certain art form aspires to effects which could be fully obtained only with a changed technical standard, that is to say, in a new art form. . . . Every fundamentally new, pioneering creation of demands will carry beyond its goal. ("The Work of Art" 237)

Branigan's essay, "If–Then–Else: Memory and the Path Not Taken," demonstrates how cognitive models from earlier eras can enrich our understanding of new media. He chooses to focus on "interactivity" (one of those terms that Manovich avoids both in his book and his essay here) because, according to Branigan, "new forms of interactive media may be useful as tools for thinking about thinking." Thus, he sets new media in a historical context, giving what he calls "a drastically abbreviated account of how human *memory* has been conceived with respect to the artifacts that were designed to serve it," thereby demonstrating what is at stake historically and philosophically in the choice of specific concrete metaphors for the mind and its mental processes. In this way, he gives greater historical weight to projects like Manovich's that are bent on changing conceptual terms and tropes. Despite his allusions to history, Branigan deliberately rejects chronological order in presenting his models and any evaluative system of ranking them, for he wants to avoid any teleological implication of progress. Yet his footnotes suggest how these mental models have influenced other latter-day theorists from Metz to Minsky.

Branigan describes four models for theorizing memory, based on five specific concrete metaphors: Plato's wax block, Freud's mystic writing-pad, Descartes's sealing wax, and Plato's aviary and Wittgenstein's language-game (which he sees as two variants of the same model). In discussing their implications, he demonstrates how these four models can be used as a basis for rethinking medium specificity, claiming that "any theory about the nature of a medium must be founded on its interactivity with present thought, and with the memory of other thoughts" and that "an art medium, whether old or new, elicits responses from us as it intermixes with memory systems." Although such arguments might imply an objective basis for medium specificity, he avoids technological determinism by remaining attentive to the specific historical and cultural contexts in which it operates. What he is most interested in tracing is how "these responses, collectively, become part of the historical memory that will shape the next version of a

medium"—the very process that Hayles is also interested in observing. Though Branigan does not address the power struggles that become intermixed with this interaction between a material medium and the forms of human memory it comes to represent, he does leave space where such ideological negotiations can be inserted. For he sees these four theories of memory as attempts to explain how the mind is able to retain impressions and later adapt and mobilize them for social and physical interactions with other persons within a historically defined public sphere.

These metaphoric models of human memory described by Branigan are precisely the kind that Manovich would later attack in *The Language of New Media,* in which he rejects "this modern desire to externalize the mind" because, he claims, "the objectification of internal, private mental processes, and their equation with external visual forms" undermine the uniqueness and privacy of subjective experience and thereby make it easier to manipulate. Or as Manovich also puts it, "What before had been a mental process, a uniquely individual state, now became part of the public sphere" (60). This movement of mental models into the public sphere is precisely what Branigan values, for it creates a historical record of how humans have used their own tools to think about thinking and thereby provides persuasive documentation for the continuing significance of the kind of medium specificity that Manovich's essay rejects. Thus, it is important to see how Branigan's essay fits into his larger theoretical project of exploring the capacity for mental modeling in earlier narrative forms, a goal he pursued in two influential books, *Point of View in the Cinema* (1984) and *Narrative Comprehension and Film* (1992), and pushed much further in *Projecting a Camera: Language-Games in Film Theory* (2006). One way of possibly accounting for this difference between their respective arguments would be to consider the respective cultural influences on both theorists: that is, to see how Manovich's Russian background may have made him more concerned with the dangers of surveillance, political censorship, and ideological manipulation than with the expressive possibilities of individual subjectivity, whereas Branigan's early training as a Bordwellian neoformalist may have helped lead him to emphasize the importance of cognitive models.

In "Cybertext and Its Precursors: Lintsbach, Warburg, Eisenstein," Yuri Tsivian also focuses on the conceptual prefiguring of hypertext and multimedia, but he zeroes in with greater historical specificity on European modernism of the teens and twenties. Still, his chosen precursors come from diverse fields and cultures. From Tsivian's native Latvia, "theory-minded" filmmaker Sergei Eisenstein proposes a multilinear spherical book, one of his many visionary designs that are consistent with his modernist experimentation (yet one that strengthens Manovich's argument for seeing him as an "important information designer"). From Germany, "revolutionary art historian" Aby Warburg presents black velvet screens that function as an atlas of memory with overlapping images. And from Estonia, "visionary" linguist and mathematician Jakov Lintsbach invents a universal multimedia language.

In contrast to Branigan's precursors, these three visionaries are more interested in expanding our tangible means of writing and recording than in merely modeling the

human mind and its mental processes through figurative language. While Branigan's precursors offer metaphors for understanding memory, concepts that retain their status as virtual images and as tools of thinking, they remain embedded in verbal language. By contrast, the communicative modes proposed by Tsivian's precursors are all concrete models for interfaces that they intended to produce as material objects, if only they had the time and means. The realization of this goal is now made easier by the existence of computers, which Tsivian demonstrates in the case of Lintsbach (see examples on the anthology website). Thus, in some ways, Branigan's quotation from Benjamin is more aptly suited to Tsivian's essay than to his own.

Pointing to the pun that lies in the term "precursor," Tsivian urges us to think of his three visionaries simply as "people who happened to be living before the age of the cursor, and whose once impossible projects look more possible nowadays." Arguing that this form of prefiguring is not so rare as some new media theorists might make us assume, he emphasizes that it is commonplace for such ideas to precede their concrete realization. For example, though Tsivian never specifically mentions the writings of Barthes, he finds precedents for concepts like "lexia" and the "networking of texts" that later became crucial in Barthes's theory of reading published in *S/Z,* a book that Landow (and other new media theorists) may have inadvertently fetishized as a singular precursor of hypertexts.

Rather than merely presenting his three precursors as objects of arcane historical interest, Tsivian demonstrates the productive appeal of interactive comparisons, for just as new media enable us to see old works in new ways (his own primary goal), so do these fascinating examples enable us to design new interfaces. Tsivian has personally demonstrated this process in his own scholarly hypertext, *Immaterial Bodies: Cultural Anatomy of Early Russian Films,* which won the 2001 British Academy Award for best interactive learning project. Although he modestly calls himself "a poor cyber-user" dabbling in multimedia production as an amateur, Tsivian has actually done pioneering work in designing electronic scholarly hypertexts. He was a crucial collaborator in The Labyrinth's Project's online constructivist courseware project, *Russian Modernism and Its International Dimensions*[3] which demonstrates the historical roots of many aesthetic concepts (such as dialectic montage, intertextuality, and constructivism) that are now crucial to digital aesthetics. He also founded a website for film historians called *Cinemetrics,*[4] which provides an online tool for charting the shot lengths for specific films and creates a cyber-community for scholars interested in studying the implications of such measurements. It is not difficult to see the connections between this pioneering project and the works by Lintsbach, Warburg, and Eisenstein discussed in his essay.

ANDERSON AND MAMBER ON DATABASE DOCUMENTARY AND ARCHIVAL CULTURAL HISTORY

Though neither of these papers was presented at the conference, both of their authors attended: Steve Anderson (coeditor of the online journal *Vectors* and founding director

of IMAP, the Interdivisional Media + Arts PhD program at the University of Southern California [USC] School of Cinematic Arts) was one of the co-organizers of the conference, and Stephen Mamber (documentary film historian and digital media specialist in the Department of Film, Television and Digital Media at the University of California, Los Angeles) was a featured speaker but gave a different paper.

Given that Anderson and Mamber both explore the interplay between theory and practice, it is not surprising that their arguments are developed through specific case studies. In contrast to Branigan and Tsivian, their primary examples are contemporary; yet they refuse to fetishize "newness," and they find productive continuities between old and new forms. They use their case studies not as precursors but as concrete illustrations of what is possible or problematic.

Although Anderson focuses on history and Mamber on documentary, they both examine the impact of digital technology, databases, and search engines on nonfiction narrative, exploring what new models have been generated. Although nonfiction is their primary interest, they both see history and fiction as narrative cousins whose commingling and hybridization can be productive.

Perhaps most important, they both recognize that database structures and archival histories offer a seductive promise of "total knowledge," one that reinforces traditional epistemological assumptions about the stabilizing effects of rational order and progress. Yet they both claim that this vision of wholeness is an illusion. Instead they call attention to the inevitable gaps and random combinations in history, which they see as the driving force of narrative desire. By challenging the illusory nature of any totalizing history, they open the path for an open-ended narrative experimentation that always leaves room for the unknown and that exposes the ideological implications of all databases and their search engines.

In "Past Indiscretions: Digital Archives and Recombinant History," Anderson examines the impact of digital technologies and their information systems on the writing of history. He claims that by basing their histories on databases and search engines instead of on literary tropes, contemporary historians have created two contrasting models of database histories: "one seeking to articulate a 'total' history that is encyclopedic in scope and rooted in relatively stable conceptions of historical epistemology, and another that exploits digital technology's potential for randomization and recombination in order to accommodate increasingly volatile visions of the past." Anderson sees both forms of "database histories" as "collections of infinitely retrievable fragments, situated within categories and organized according to predetermined associations." Like all discourse in the "post-Foucauldian world" and despite disavowals to the contrary, these categories and their search engines have ideological implications that shape our vision of human history.

As his primary example of the encyclopedic model, Anderson uses Steven Spielberg's USC Shoah Foundation's Visual History Archive. Also known as *The Survivors Project,* it contains more than one hundred thousand hours of video testimonies from "more than

fifty thousand Holocaust survivors from fifty-seven countries, conducted in thirty-two languages," with "an index of approximately eighteen thousand keywords identified within the spoken testimonies." The temporal urgency of the collection process—gathering these testimonies while the survivors are still alive—speaks to the project's heroic high seriousness in preserving memory and history, and challenging death and oblivion. Yet, according to Anderson, there is little attention to assessing the veracity of any individual account or to drawing meaningful generalizations from the data. These limits, he claims, have already been addressed in earlier, nondigital works, both documentary and fiction—in Marcel Ophüls's documentary films on the Holocaust, including *The Sorrow and the Pity* (1969), and in Jorge Luis Borges's short story "Funes the Memorious" (in which a man with perfect recall is driven mad by these rare powers and their uselessness). Although the sheer size of Spielberg's collection may be its primary value, Anderson claims that this vastness makes its historical contents inseparable from its system of access and thereby reduces them to functioning merely as a resource for future historical narratives. Paradoxically, this vastness undermines the collection's claims to wholeness or even to its status as history.

As the ironic counterexample for the recombinant model, Anderson cites *Terminal Time* by the Recombinant History Project, which he describes as "an artificial intelligence apparatus" that is capable of constructing infinitely variable historical documentaries based on audience biases and beliefs. As performed by a group of artists, filmmakers, and computer scientists, this project generates historical documentaries on the fly, covering the past thousand years of human history while interweaving conflicting responses from the audience (who are periodically encouraged to lie). Though he finds both projects problematic, Anderson seems more comfortable with the parodic *Terminal Time* (illustrated on our anthology website) since it has no claims to truth and blatantly undermines the boundaries between fact and fiction. Giving its users the history they "deserve," it ironically demonstrates the futility of such totalizing enterprises and challenges any lingering utopian assumptions about archival cultural history.

Instead of examining how new digital media can transform a traditional form like history, in "Films Beget Digital Media" Stephen Mamber explores how an "old" medium like cinema can conceptually expand the narrative capacities of new digital formats. Like Anderson, he identifies two different strands in this form of nonfiction, which bridge the move from cinema to digital media: the compilation film and the autobiographical memoir. Less cautionary and more celebratory than Anderson, Mamber selects as his primary examples two works by well-known European filmmakers he admires: *Immemory,* a CD-ROM by French filmmaker Chris Marker, and *The Danube Exodus: The Rippling Currents of the River,* an immersive multiscreen museum installation coauthored by Hungarian filmmaker Péter Forgács and The Labyrinth Project (the research initiative and art collective that hosted the Interactive Frictions conference and that I have directed at USC since 1997). This installation debuted at the Getty Center in Los Angeles in 2001 and has been traveling worldwide ever since.

Given the fragmentary nature of their assets and the obvious gaps in their respective narratives, both works blatantly reject any claim to a "totalizing history." Yet, ironically, these two choices still resonate with the two works selected by Anderson. Like the *Survivors Project, The Danube Exodus* deals with the Holocaust, but it focuses only on two specific episodes: in 1939, a Hungarian river captain transported hundreds of Jews fleeing the Third Reich to the Black Sea, where they boarded a ship that took them to Palestine; the following year, the same captain transported hundreds of German farmers from Bessarabia (now Romania) back to Germany once the Soviets annexed their land. Both journeys were documented on film by the same amateur filmmaker, the Hungarian captain who transported them into history. Like *Terminal Time, Immemory* is an ironic compilation film composed of images from Marker's personal collection, including a profusion of intriguing narrative fragments from many different cultures, periods, and categories, which bombard users and challenge them to make sense out of this richly diverse material. Perhaps both of these works chosen by Mamber are the kinds of idiosyncratic historical narratives that (according to Anderson) can be spun out of encyclopedic "total histories" like the *Survivors Project*.

Mamber claims he chose these two works because they expand on narrative tendencies that were already apparent in the respective nondigital works of these filmmakers and also because they present "enlightening alternatives" for how digital media can be presented and experienced. Marker's earlier, nondigital films already had a fragmented database structure, and "Forgács was already making beautiful, tragic collages out of found home movies." Thus, he claims that each filmmaker brings a body of narrative experimentation that can help expand the digital media and their database structures, which is one of the reasons why The Labyrinth Project chose to collaborate with Forgács in the first place.

Like Anderson, Mamber admires any attempt to acknowledge and leverage the limitations of the medium. Thus, he praises the way both works expose the "pastness" of the photographic images and low-res footage that are used in these pieces. Instead of reassuring viewers that the conversion to new media will enhance their visual quality and preserve these historical fragments for all time, both works acknowledge the fragility of all media forms, including the digital. As Mamber puts it, they remind us that "new media will someday be old media." While in *Immemory* this sometimes results in (what Mamber calls) a "charmingly clunky" imagery and interface, in *The Danube Exodus* we actually see material signs of decay on the amateur home movie footage.

Another potential "limit" that Mamber leverages is the present lack of standards for displaying digital art as a museum installation, a stand-alone CD-ROM, or part of a website or online social network. Instead he sees this lack as an advantage because it enables artists to customize the display for the ideological goals and aesthetic pleasures of the specific project—whether for the intimacy of the CD-ROM that suits Marker's essayist tendencies and personal tone, or the large-scale multiple screens of the museum installation that convey Forgács's belief in the epic importance of home movies.

The final pair of essays are by authors who did not attend the conference: Grahame Weinbren, a New York–based artist who has been experimenting with interactive cinema since the early 1980s; and Caroline Bassett, a British-based digital media theorist who extends the dialogic comparison with cinema to mobile media and issues of realism and ideological potential. As if elaborating on Mamber's argument, both are concerned with the kinds of aesthetic and communicative pleasures these hybridized forms can deliver and the kinds of interactive experience and agency they make available to users.

Weinbren's essay, "Navigating the Ocean of Streams of Story," was originally published in *Millenium Film Journal* in 1995 and was revised for this anthology in light of his own subsequent experimentation with interactive cinema (260–271).[5] Like *Immemory* and *Terminal Time,* it is an open-ended project that can never be completed, especially as new versions continually appear in new anthologies. Like Mamber, he moves fluidly from literature to cinema and to interactive installations, showing how a network of early narrative media can enrich and shape those to come. In this way, he demonstrates that open-ended storytelling is not an oxymoron, as some theorists have argued, but a grammar that lies at the heart of narrative networks and predates Barthes's *S/Z*.

Positioning cinema between literature and new digital forms, Weinbren's essay opens with a marvelous epigraph from *Haroun and the Sea of Stories* by Indian novelist Salman Rushdie, a writer (like Chris Marker) with an amazing Shandean capacity for spinning a complex network of interwoven tales. Rushdie's alleged religious sacrilege (in the case of his *Satanic Verses,* 1988) has imbued all his writings with a deep association with death; the mortal sentence imposed on him (and later rescinded) by the Ayatollah has marked him as one of the few contemporary writers for whom the act of storytelling is literally a matter of life and death. Like a postmodernist, postcolonial Scheherazade or like Borges (whose stories each present an interface for an intriguing database narrative), Rushdie has become the ultimate metanarrative icon in both the East and the West, one who embodies the dangers of subjecting any act of writing to a closed reading within a restrictive cultural context or frozen moment of history. Instead of pursuing these political implications, Weinbren focuses on Rushdie's text as an influence on his own work—a pathway to his own experiences of reception. Structured around the ocean as a trope for generating and interweaving abundant streams of stories, this quoted passage from Rushdie projects not an ironic historical machine (as in *Terminal Time*) but an ideal "story space" for interactive fiction regardless of medium, a story space Weinbren used as a model for his own experimental narratives.

In describing some of his own interactive fictions from the 1980s and '90s (*The Erl King,* 1983–86; *Sonata,* 1991–93; and *Frames,* 1999), Weinbren claims they were driven by two pairs of forces associated with medium specificity—Cinema and Cybernetics, and the Projector and the Computer. Although, like Manovich, he denies that the computer is a medium or tool, he calls it "a device that controls and presents existent media," and

he formulates two driving questions that are directly tied to medium specificity: How does cinema change when its apparatus is linked to a computer, and what kinds of story and grammar will suit this altered cinematic medium?

To answer these questions, unlike Manovich, he turns not to contemporary tropes of computer culture but, like Branigan, to Freud's earlier modeling of mental processes, yet he uses them to address issues of pleasure and desire in reception. Specifically, he focuses on Freud's methods of dream interpretation and on the coded nonlinear grammar of his dreamwork theory, particularly the concept of "condensation." Weinbren subjects these theoretical models to the same kind of adaptive process that is now transforming the medium of cinema, rewriting them in light of the problems raised by computer-related interactive forms.

As his privileged metanarrative model of interactive storytelling, Weinbren chooses Freud's case study of *The Wolf Man* (1914–15), the same text used by Peter Brooks in his brilliant work of narrative theory, *Reading for the Plot* (1984) (264–286).[6] Although Brooks focuses on literary narrative rather than cinema or computer-related forms, his theory is ideally suited to conceptualizing a narrative field that is resistant to closure and receptive to story variations. For Brooks reads all stories as obituaries designed to forestall a premature death and posits an expansive middle motored by desire. That's why, he explains, the greatest narratives are usually so long (think of the work of Proust, Melville, Joyce, Scheherazade, and—one could add—Rushdie), and why, as we move through their expansive middles, we experience them as "force fields of desire." Instead of using the story of Oedipus as his master narrative, Brooks props his theory on Freud's *Beyond the Pleasure Principle* (which offers him Eros and Thanatos as primary engines of narrative drive) and on the *The Wolf Man* (an open-ended network of interwoven stories that uses transference and dialogue as models of interactive exchange). Weinbren applies *The Wolf Man* directly to interactive narrative, yet uses it to address some of the same issues that were raised by Brooks: to design a new narrative grammar capable of delivering pleasure and sustaining desire.

Caroline Bassett's essay, "Is This Not a Screen? Notes on the Mobile Phone and Cinema," addresses some of the same issues of medium specificity dealt with in earlier essays, but with reference to a new medium that was not addressed at the conference nor previously addressed in this volume—mobile phones. Resisting the rhetoric of convergence and the kind of ontology for mobile phones that might be imposed by cyberstructuralists, she claims that such strategies would lock this emergent technology into a fixed, formal conception of medium specificity. Instead, she focuses on the new questions it raises about the relationship between representation and action. Exploring mobile phones as a new form of "intimate screen," she makes intriguing observations about the exciting possibilities this new medium has opened—from texts to thumbnails, fireflies to flash mobs, and Happy Slapping to calligrams. Just as Mamber argued for retaining the variability of the image, size, and mode of projection in museum installations, Bassett insists on preserving an ongoing mobility for mobile phones—one that addresses its

historical connections with traditional telephony and photography and includes an open range of possible relations with cinema and visual culture. In contrast to Bazin's arguments for "the myth of total cinema," Bassett claims that "mobile cinema never *will* be invented."

Yet, unlike Weinbren and Mamber, Bassett seems unwilling to grant the mobility she reserves for mobile phones to other forms of digital media, particularly in the case of other interactive formats—CD-ROMs, DVD-ROMs, and museum installations. For, according to Bassett, the prized connectivity and "good enough" aesthetic that are found on the Internet (as well as on mobile phones) have totally prevailed over the lush visual simulations provided by interactive discs—like those produced by Weinbren, Marker, Forgács, and The Labyrinth Project. Bassett assumes that this struggle is over, leaving no wiggle room whatsoever for rival digital technologies, not even for the immersive visuals of lucrative electronic games. She assumes that the drive for "pure connection" has prevailed. Yet she wonders whether this drive is merely a "compensating ideology" that has risen "in response to the difficulty of finding and forging community." Although she is willing to question whether the "good enough" aesthetic is good enough for politics, she accepts it as a fait accompli for artistic and social practice.

Despite this decisive reading of one endgame, Bassett shares Weinbren's belief in the resilience of cinema, yet like Manovich she resists its capacity to absorb and redefine other media, particularly through its alleged capacity for realism. Still, she grants contingency to cinema, particularly in her marvelously detailed description of one particular moment of exchange—a wonderful dialogue between the silver screen and the "firefly" text messages sent by teenage flashmobs in the audience of a multiplex movie theater on an Orange Wednesday in Brighton, England. Sponsored by Orange, one of the UK's largest mobile phone companies, these Wednesday promotional events provide free movie tickets to moviegoers, who can claim them simply by sending a text message.

In the process of describing this transmedia encounter and its cultural and historical reverberations, Bassett redefines medium specificity not as a fixed set of formal properties but as an open-ended set of social practices that grapple with and mediate everyday reality, a perspective supported by the latest proliferation of mobile devices. Though she does not fully address the ideological implications of such social practices, this line of argument sets the stage for the "digital possibilities" addressed in Part II of this volume, which helps us reimagine "politics, place, and the self."

ABOUT THE AUTHOR

Marsha Kinder began her career as a scholar of eighteenth-century English literature before moving to the study of transmedial relations among narrative forms. In 1980 she joined USC's School of Cinematic Arts, where she taught international cinema, narrative theory, children's media culture, and digital culture. Having published over one hundred essays and ten monographs and anthologies, she is best known for her work on Spanish

media culture, including *Blood Cinema* (1993, with a companion CD-ROM, the first interactive scholarly work in English-language film studies), *Refiguring Spain* (1997), and *Bunuel's The Discreet Charm of the Bourgeoisie* (1998); and on children's media culture, including *Playing with Power in Movies, Television and Video Games* (1991), and *Kids' Media Culture* (1999). She was founding editor of innovative journals, such as *Dreamworks* (1980–87), winner of a Pushcart Award, and *The Spectator* (1982–present), and since 1977 has served on the editorial board of *Film Quarterly*. In 1995, she received the USC Associates Award for Creativity in Scholarship, and in 2001 was named a University Professor for her innovative transdisciplinary research.

In 1997, she founded The Labyrinth Project, a research initiative on database narrative (a concept she introduced), producing database documentaries, archival cultural histories, and other new models of digital scholarship in the humanities. In collaboration with media artists Rosemary Comella, Kristy Kang, and Scott Mahoy, and with filmmakers, scholars, scientists, and cultural institutions, Labyrinth combined cultural history and theory with the sensory language of cinema. Presented as transmedia networks (websites, museum installations, DVD-ROMs, and digital archives), these award-winning works have been featured at museums, film and new media festivals, and conferences worldwide and have been supported by grants from the Annenberg, Casden, Ford, Getty, Haas, Irvine, NEH, Righteous Persons, Rockefeller, and Skirball Foundations and from AHRQ (The Agency for Healthcare Research and Quality). In collaboration with documentary filmmaker Mark Jonathan Harris and Scott Mahoy, she recently launched a video-based website called *Interacting with Autism,* and she is writing a book called *The Discreet Charms of Database Narrative: Tales of Neurodiversity in the Light of Neuroscience.*

NOTES

1. I addressed similar issues in my essay "Designing a Database Cinema" in the 2003 Future Cinema anthology.

2. I am thinking of works by Antonio Damasio, including Descartes' Error: Emotion, Reason and the Human Brain (1994), The Feeling of What Happens: Body and Emotion in the Making of Consciousness (1999), Looking for Spinoza: Joy, Sorrow, and the Feeling Brain (2003), and Self Comes to Mind: Constructing the Conscious Brain (2010).

3. www.russianmodernism.org

4. www.cinemetrics.lv/tsivian.php

5. Other versions also appeared as "Another Dip into the Ocean of Streams of Stories" in Shaw and Weibel, and as "Ocean, Database, Recut" in Vesna, *Database Aesthetics*.

6. See Brooks, chapter 10, "Fictions of the Wolf Man: Freud and Narrative Understanding."