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To Adrian Snodgrass

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Contents

Series Foreword

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We are living in a world in which the arts, sciences, and technology are becoming inextricably integrated strands in a new emerging cultural fabric. Our knowledge of ourselves expands with each discovery in molecular and neurobiology, psychology, and the other sciences of living organisms. Technologies not only provide us with new tools for communication and expression, but also provide a new social context for our daily existence. We now have tools and systems that allow us as species to modify both our external environment and our internal genetic blueprint. The new sciences and technologies of artificial life and robotics offer possibilities for societies that are a synthesis of human and artificial beings. Yet these advances are being carried out within a context of increasing inequity in the quality of life and in the face of a human population that is placing unsustainable burdens on the biosphere.

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Preface

Digital narratives place the invention and refinement of the computer at the pinnacle of scientific and technological accomplishment. Therefore, it may seem strange that digital narratives should draw so heavily on eighteenth- and nineteenth-century romanticism. This book examines the spectrum of romantic narrative that pervades the digital age, from McLuhan's utopian vision of social reintegration by electronic communications to the claims of cyberspace to offer new realities. The characters that populate these technoromances are putative digital identities, cyborgs, computerized agents, and avatars, under the unitary gaze of the global brain, the transcendent intelligence emerging as the digital network grows.

It is easy to show how romanticism encourages inflated expectations, diminishes tangible concerns with equipment and embodiment, promotes the heroism of the digital entrepreneur, and dresses conservative thinking in the guise of radicalism. But addressing technoromanticism in a critical light not only lessens its hold but reveals valuable insights into the computer and the digital age. This book engages in an imaginative game of "what if." What if we adopt the hard-nosed, commonsense alternatives to technoromanticism of empiricism and scientific rationalism? What are the consequences for digital narrative if we adopt the insights of pragmatic or structuralist theories of language, the praxical focus of Heidegger and the phenomenologists, Foucault's concept of bodily discipline, Freud's Oedipal condition, or Lacan's concepts of the real and desire? The unifying theme of our inquiry is hermeneutics, and we find that the computer

serves as an aid to interpretation by providing a space for application and exploration. As well as countering romanticism, these excursions reveal much about the nature of narrativity and its consequences in the digital age.

The discussion identifies how romanticism deals with the perennial theme of unity, its identification with concepts of the real, and how contemporary agonistic narratives that speak of friction, dislocation, and schizophrenia supplant romanticism. The book also serves as a useful introduction to the application of contemporary theory to information technology, raising issues of representation, space, time, interpretation, identity, and the real in the digital age. As such it provides a companion volume to my earlier *Designing Information Technology in the Postmodern Age: From Method to Metaphor*, further integrating the insights of Heidegger, Derrida, Ricoeur, and Foucault, and introducing the provocations of Freud, Lacan, and surrealism to digital narrative.

Technoromanticism

Introduction

McLuhan identified the era of preliterate culture as a golden age in which humankind was one with itself and with nature. Speaking and listening in the absence of writing involved highly interactive exchanges that come close to directly sharing thoughts. Aural culture was tribal, engaged, practical, and unitary. Then followed the age of literacy. When we write, we lay things out in order and divide the world. Society under literacy is urban, global, and fragmented, rather than local, integrated, and whole. For McLuhan, information technologies are implicated in this shift between the whole and its individuation, or more generally, between unity and multiplicity. Initially the introduction of writing brought about the proliferation of individuation. Now we are entering a third age in which the incessant buzz of electronic communications returns us to a tribal state, but now the whole world is the tribe.[1]

McLuhan presents one of many variants of the narrative of unity and multiplicity that pervade IT (information technology) discourse. Similar narratives cluster around the four great artifices of the digital age: virtual communities, virtual reality, artificial intelligence, and artificial life. In narratives of virtual communities, people who have never met face-to-face are drawn together to participate in the global tribe through the media of electronic mail, on-line chat, computer role games, and video conferencing in ways similar to how conventional communities form, but without depending on spatial proximity, and in ways that obscure the divisiveness of issues of appearance and status. Virtual reality (VR) invites us to experience immersion in cyberspace, to move about in an endless sea of data. VR supposes that we can be immersed in virtual landscapes and virtual architectures, meet one another there and carry out conversations, develop intimacies with one another and with data, assume virtual identities, and be who and what we want to be. The language of virtual reality involves the unitary concepts of immersion and engagement. Various forms of artificial intelligence (AI) present the case for a unity between human and machine. The mind is treated as a kind of mechanism, or software within the hardware of the brain, so we can replicate and simulate aspects of mind in a computer. Conversely, we can study the mind in computational terms. More lately, some AI has overtly adopted the language of unity, maintaining that intelligent behavior emerges from the complex interaction of many simple subsystems, taking to heart the adage of systems theory that the whole is greater than the sum of the parts. The study of artificial life (AL) develops from this axiom, renouncing "centralized thinking." The way biological organisms organize themselves is apparently more akin to the way a colony of ants behaves. Each insect operates locally with no apparent plan for the whole, and yet the whole colony is able to construct complex, air-conditioned termite mounds. These emergent behaviors apparently challenge the need for centralized, hierarchical, and autocratic control structures, and AL researchers devise computer systems to manifest evolution, growth, and holistic behavior in artificial organisms.

Clearly the unity theme presents in various forms. In some cases, it presents as a simple numerical description: one whole (unity) and many parts (multiplicity). In some cases, it presents as a matter of the unity between elements, as in the parts of a system working as one, people united as community, or distinct categories of things such as humankind, nature,

and machines working in harmony. In some cases, the unity theme also suggests the dissolution of the boundaries between categories, as in the unity between organism and machine, or body and mind. Sometimes unity is revealed as something one participates in experientially as a place, a state, a time, or a condition that one enters, as in cyberspace. Sometimes unity implies a state of freedom, or freedom within bounds, belonging in the past or in the future, or residing in another place. Or the unity state may transcend what is normally accessible to the senses, as an idea, or an ideal.

The technologies that support virtual communities, virtual reality, artificial intelligence, and artificial life also imply a certain self exaltation or conceit on the part of humankind, a presumption that we can have total control or omnipotence, play God, by simulating, mastering, redefining, manipulating, and controlling space, time, community, thought, and life. This presumed omnipotence can imply hierarchy, control, suppression, manipulation of others, delusion, and other manifestations of fragmentation and multiplicity. But it also implies an innocence, a return to a primal unity, to a state when we were truly omnipotent, our will was suffused with that of nature, and there was no differentiation between our demands and the whole, which, according to some commentators, is the state of early childhood. So the audacity and presumption of digital narratives also invoke the unity theme.

Digital narratives do not present on the theme of unity in isolation, but unity contrasted with multiplicity, particularly as understood pejoratively as fragmentation or disintegration. The fragmentation is either outside the world created by the technology or within it. Virtual communities are posited against the fragmentation of current social forms, or the failure of conventional mass media to realize the goals of producing an informed and active citizenry, a truly civil society. Virtual reality presents a world where you can be yourself, against a duplicitous world in which you have to conform to the expectation of others: a fake and fragmented world of similarly disconnected individuals. In a virtual world, you have instant access to any coordinate in data space. You can be here, there, or everywhere, unlike the limited, spatially, and logically constrained world we usually experience with its discontinuities and fragmentations. The new AI and AL present a holistic order, against the fractured methods of formal systems and hierarchical control. But these technological narratives also acknowledge the potential for fragmentation within their worlds: uneven access to computer systems, alienation from normal interactions with people and things, an imbalance in priorities, a privileging of objects and issues that are amenable to computer representations, the reinforcement of the status quo, problems of surveillance, and delusion—all of which point to alienation among ourselves, from nature, and from our machines. The rhetoric of unity also embraces its own apparent contradictions, through the aphorism of "unity in diversity." So virtual communities are said to allow differences to flourish, cyberspace is said to be fragmented and polyvalent as well as whole, and in the new AI and AL a global unity emerges from diversity, and vice versa.

The theme of unity and multiplicity is an ancient one, but it finds full flower in the writing of the romantics in the eighteenth and nineteenth centuries. The themes developed by the romantic writer Schlegel should be familiar. He reacted against the progressive subjection of the world to the rationalization and reduction of the early Enlightenment, complaining that in the modern age, under the influence of Cartesian rationalism and the growth in science, "the intellect exhausts itself in the study of individualities," resulting in the complete loss of "all idea of perfection in unity."[2] In so arguing, he articulated the romantic quest for the soul's reunion with nature. He contrasted the perfection to be found in unity with the fragmentation of individuality. He also appealed to a golden age in which all things were united under "the perfect consistency of the ancients," to be contrasted with our own "dismemberment."[3] He also pointed to the power of "instinct," which is beyond reason, and which, "beginning and ending in nature" can "unite nature with mankind."[4] He recognized the longing to transcend the world of the individual toward a unity: "There is in the human breast a fearful unsatisfied desire to soar into infinity."[5] The unity people seek is ineffable, beyond language, and nature is "ever mute, incomprehensible, unsympathising, and unconsoling."[6]

The rationalists had said that we should eschew feeling, emotion, and other distortions to knowledge in favor of pure reason. In contrast, the romantics rehabilitated and promoted feeling and emotion. Whereas the rationalists and empiricists debated the nature of reality and how we can know it, the romantics elevated the intangible world of the imagination. Rationalism and romanticism converged on the theme of liberation from tradition and authority and elevated the concept of the individual, who

for the romantics was the source of creativity. Subjectivity was the key to art. For Schlegel, creative writing "must indeed be entirely personal, subjective in design and intention, conveying indirectly, and almost symbolically, the deepest individual feelings and peculiarities of the author."[7] Whereas rationalism sought the division of the world into parts, the second step of Descartes' method,[8] the romantics brought the "union of senses and imagination"[9] to bear, through the "special qualities of the soul,"[10] on that about which the emerging world of science was becoming increasingly mute: the issues of love, beauty, and the unity of all things. Romanticism constructed its narratives around the theme of unity and multiplicity, the whole and the parts, the one and the many, in ways that implicated the emerging Enlightenment notions of the self, individuality, and subjectivity, the latest demonstrations of which are found in the narratives of information technology.

The romanticism of digital narratives represents one of two antagonistic strands of the Enlightenment: rationalism and romanticism. We can readily identify digital narratives with both. Virtual communities, virtual reality, artificial intelligence, and artificial life demonstrate the influence, and even the triumph, of reductive rationalism, of the kind that the romantics sought to redress. Much of the discourse on virtual communities seems to suggest that access to community resides in communication, which in turn relies on the passage of information from one person to another. According to this view, as paradigmatic conduits of bits and bytes, networked computers grant privileged access to the formation of communities but by the isolation and transmission of individual communicable units.[11] Much virtual reality discourse assumes that we can construct correspondences between the world we inhabit and geometrical worlds defined using spatial coordinates, and that we can immerse ourselves in such spaces so that we are there in ways that mean as much as, and possibly more than, being in a physical place. Artificial intelligence can be construed as a recognition that at a fundamental level all understanding is grounded in number, symbol, and rule. Similarly, artificial life seems to presume the basis of all life in information and simple rules, a further reduction. Although antagonistic, the rationalist and romantic legacies are not so far from each other. They both start with Descartes' notion of the autonomous subject. Their continual antagonism seems to impel much of the intrigue with information technology, and further support its participation in the myth

of unity and multiplicity. Many people eschew rationalism, but in doing so simply move to a romantic orientation, reworking old ground.

Many commentators, including myself, have dealt at length with the rationalist aspects of information technology, but its romantic form has received less critical attention.[12] This book is an attempt to address this lack. The book is divided into three sections. In the first, I examine narratives that develop the claims that we can transcend the constraints of the embodied world toward *unity* through the power of information technology. In the second section, I show how rationalism and empiricism speak explicitly of *multiplicity*, and the process of categorization and individuation against which the romantics railed, with particular emphasis on the role of language. Third, I take on the theme that the human condition is caught in the antagonism between these two, between unity and fragmentation, transcendence and order, the *ineffable* and the presumption of language, or in Lacan's terms, between the real and the symbolic order.

This is the narrative of this book, a romance in its own right, the story of how the myths of unity and disintegration have been variously translated into the forms we see in the digital age. Ancient myths of a transcendent reality of the whole and the parts caught in a cosmic antagonism have been transformed through Neoplatonism, rationalism, romanticism, and the technologies of an age enamored with the primacy of information. I will also show that this grand romance, this story of transformation, implicates the adherents of "commonsense" empiricism as much as the extreme devotees of new age technoromanticism. No one is entirely immune from the romantic legacy.

The concept of narrative is important to the theme of this book.[13] Why do I present IT commentary as an issue of *narrative* rather than description or explanation? The concept of narrative need not presume something to be described, nor does it presume artifice or construction. Narratives are evaluated primarily on criteria of efficacy, and their ability to disclose, prior to a consideration of their correspondence with a state of affairs. Contemporary understandings of narrative do not presume some notion of *facts* in distinction to the elements of a story.[14] Narrative operates all the way to the determination of facts. In this area of study, there is no essential computer science in distinction to the stories we construct about computers.

Narratives present as open ended, fully implicated in the hermeneutical circle, the process by which we interpret a situation, a text, an image, a

work of art, or a narrative.[15] Insofar as narratives follow a structure,[16] it is the indeterminate hermeneutical process of excursion and return. There is a position from which the subject of the story departs: Alice ventures from the comfort of the sitting room (*Through the Looking Glass*), Pilgrim leaves the city of destruction (*Pilgrims Progress*), humankind embarks from the world of the tribe (McLuhan), and the cybernaut leaves the body (in cyberspace narratives). The encounters in the new world, the looking-glass world, the land of temptation, the Gutenberg galaxy, and the virtually real bring one back to the start, which is a world transformed: a world in which one can entertain the possibility of being a part of someone else's dream (*Through the Looking Glass*), the Celestial City is the world redeemed, the electronic age is again the age of the tribe, the disembodied virtual world is informed and challenged by the embodied. The cyclical process applies to the details of narrative as well. In looking-glass world, Alice encounters and reencounters the familiar chess pieces, cats and the paraphernalia of afternoon teas, rendered unfamiliar through various inversions, Pilgrim encounters traits of his former self as virtuous and untrustworthy traveling companions, McLuhan's Gutenberg world re-presents the interaction of the senses in different measure in each epoch, and the world of the disembodied cybernaut is already invested with the language of the body (front, back, in, out, up, down, prosthesis). The process by which one interprets narratives, and by which one constructs narratives as interpretations, follows the same cyclical structure. One approaches a text from a position, a point of view, a particular set of prejudices, which are transformed through the encounter with the text.

The narrative of this book inevitably bears the same cyclical structure. A conception of the ancient theme of unity and multiplicity provides a point of departure, to which the narrative returns periodically, culminating in the world as presented through digital narratives. But this is not the end of the story. The endpoint is also a rediscovery of the unity theme, transformed through the provocative insights of Lacan, among others, which in turn informs the concept of the hermeneutical circle. Another account of the hermeneutical process implicates the relationship between the whole and the parts: to understand the whole of a narrative you need to construct an understanding from each of the parts, but the parts do not make sense until seen in the context of the whole. By this formulation

there is a hermeneutical circle, which presents as a paradox, or a vicious circle, addressed by various hermeneutical theorists.[17] So my theoretical position is that of hermeneutics, which will resurface periodically as a means of resolving some of the disputes between the antagonists in the grand narrative, and in the end, the hermeneutical process falls subject to its own scrutiny as an unresolved aporia.

What is the role of information technology in this drama? Information technology is intimately bound to language, and hence interpretation. IT discloses the strengths and limitations of various views of language. It operationalizes, as far as it is able, the correspondence view of language. If words correspond to things, then the words, codes, and symbol strings in a computer can represent the world and construct new worlds. If, by a more contemporary account, language trades in endless chains of reference, within a vast system of self-reference, then the linking of texts in global communications networks (hypertext) speaks profoundly of language and human practice.[18] If narrativity is at the core of the information technology world, then IT is subject to the workings of the hermeneutical process but is also disclosive of it. IT brings issues of language into sharp relief in ways unlike other technologies and, in the process, discloses aspects of the themes of unity and fragmentation.

The rest of this introduction traces the main narrative in greater detail, albeit in a cursory way, the nuances of which will be elaborated in the chapters that follow. Of necessity, the discussion takes us into areas of inquiry that at times seem removed from the immediate issues of information technology, but this broad, eclectic, and interdisciplinary investigation should reward us with a robust, invigorated, and informed understanding of our narratives in the digital age, and their consequences.

Unity: How IT Narratives Attempt to Transcend the Material Realm

In keeping with the romanticism of its narratives, information technology implicates itself in people's attempts to progress from one sphere of existence to another. The new sphere includes both the digital utopia promised by much IT commentary and literal transcendence through immersion in the "consensual hallucination" of the digital matrix, digital ecstasis, and participation in an ideal unity.

Digital Utopias

The return to a transformed golden age and the rhetoric of progress implicate digital narratives in the concept of utopia. The global village and the electronic cottage invoke a return to the ideal of preindustrial arts and crafts. Our induction into an egalitarian social order through electronic communications retells the message of early socialism and anarchism. The romantics reinvented the aesthetic, guilds, crafts, and feudal harmony of the medieval age. The IT world, from computer games to supposed anarchy on the net, similarly celebrates romantic medievalism, its tangled aesthetic, its sense of carnival, and the chaos of the marketplace. The dominant IT culture looks back to a golden age but is always projecting forward. In fact, the narratives of virtual communities, virtual reality, artificial intelligence, and artificial life seem to depend more on what is soon to be accomplished than on what is now possible.[19]

Cybernetic Rapture

Digital narratives represent the latest transformation of the theme of unity as initiated by Plato and the Neoplatonists and appropriated by the romantics. Plato divided the world into the realms of the material and the real, that is, the sensible and the intelligible. The material world is the world of the senses, where we are readily deceived by appearances. It is the world of particular things. The intelligible realm is the world of forms, categories, and the Good, where things do not change. The sensible world bears the imprint of the Intelligible. The Intelligible is the realm of the real. So begins an early account of the conflict between unity and multiplicity.[20] Plotinus adapted and amplified Plato's schema of the material and the real into a doctrine in which the soul seeks release from the body to join the unity of the real.[21]

Romanticism was also idealist in orientation, and the romantics read Plotinus. They readily equated the soul with individual genius, and they attributed to the unity of the real the source of creativity and beauty. Certain digital narrative is idealist and has taken to heart the Neoplatonic concept of ecstasis—release of the soul from the body—though here the soul is replaced with the mind, the means of ecstasis is immersion in an electronic data stream, and the realm of the unity is cyberspace. Cyberculture invokes a romantic apocalyptic vision of a cybernetic rapture, a new electronically induced return to the unity, an age in which the material world will be transcended by information.

Multiplicity: The Empiricist Tradition of Realism, and Its Critics

As we have seen, according to Schlegel and other romantics, rationalism and empiricism distract the intellect with the study of "individualities" and conceal the perfection of unity. For the romantics this was highly undesirable, but from other positions the proliferation of parts and multiplicity speak of richness, complexity, and an inevitable and indeterminate profusion. We deal with narratives of multiplicity through an examination of the influences of empiricism, structuralism, and phenomenology on digital narratives.[22]

The Empiricist Legacy

If romanticism strives for the unity of all things, then the language of empiricism is of division and multiplicity. Thanks to the currency of the term "cyberspace," space provides a useful focus for the discussion of empiricist concepts of reality (as independent, divided, and ordered). The presence of technoromanticism is irrefutable in the extreme narratives of cyberpunk and the hyperbole of IT commentary. But a close examination of empiricism shows that rather than countering technoromanticism, empiricism provides the conditions for it to flourish, particularly through its development of notions of *representation*. Empiricism sustains a spectrum of positions on space, starting from representation: space as represented, resisted, reduced, and divided. Empiricism's sober reflections on the ability of the computer to represent space take us close to the romantic vision of cybernetic rapture, evident as we examine the spectrum of spatial narratives, from concepts of objective, empirical, and propositional space to narratives that call on relativity and quantum theory. Commentators on modern physics present the unity myth in terms of the conflict between simplicity and complexity, concepts that require the computer for their articulation.

The Symbolic Order

Representation is, after all, a matter of language. To acknowledge the primacy of language can help break the chain connecting representation to technoromanticism, empirical realism to techno-idealism, and unsettle

the security of the romantic position. The use of computer networks as communications media, the AI project toward natural language understanding by computer, and the global hypertext of the World Wide Web bring issues of language to the fore in understanding IT. In this chapter, we examine major schools of thought on language, each of which carries different implications for how we understand IT. The correspondence theory of language seeks to divide the world into objects and label them with words. Although correspondence theory had support from positivism, it is now largely supplanted by the tenets of pragmatism and structuralism.[23] Structuralism is important if we are to understand the implications of poststructuralist writing on information technology, which ostensibly breaks the hold of the romantic tradition. Structuralism is also articulate on the subjects of myth and narrative, which provide ways of talking about the themes of unity and multiplicity, particularly as developed by critical theorists. Structuralism also provides the background to the provocative reflections on the real expounded by Lacan and others, to be developed in a later chapter.

Pragmatics of Cyberspace

In contrast to rationalist, empiricist, and romantic conceptions of computing, one can begin with the presupposition that computers and their accompanying technological systems are elements within constellations of practice. There are practices of designing, configuring, coding, distributing, using, teaching, and even writing about computers, and language is a practice. The orientation that begins with the *praxis* of computing is a phenomenological one. I introduce phenomenology through the issues of space and time.[24] The phenomenological position indulges the ubiquity of metaphor, as is evident on the issue of space. There are metaphors of space, and space provides metaphors for understanding other things. The primacy of mathematical and geometrical schemas by which we presume to represent the fundamentals of space in computer systems can be replaced by arguments from metaphor.[25] Phenomenology also puts IT utopian narrative in its place. Such narratives are reminders of our propensity to project ahead of ourselves.[26]

Ineffability: How Contemporary Narratives of Fractured Identities Challenge Technoromanticism

Technoromanticism seeks a new world order of unity through information.[27] Ancient and contemporary narratives do not point simply to the residence

of the real in the whole or the parts, the unitary or the fragmented, but in the antagonism between the two, invoking narratives of rupture, paradox, and nondeterminacy. Surrealism and Freudian psychoanalysis make clear the applicability of these ideas to digital narratives.

Oedipus in Cyberspace

Surrealism was a movement in art and literature whose disciples drew on structuralism and phenomenology to develop provocative and potent cultural critique. The progeny of surrealism also develop critiques of subjectivity, challenging rationalism's notion of a unitary self. They also construct provocative narratives of unity and multiplicity that usurp the literal and limited discourses of romanticism. Certain IT commentators have adopted surrealist themes, invoking cyborgs, vision machines, bodies without organs, and other "objects" that are confounding and illogical from an empiricist point of view. We examine how these narratives function, beginning with surrealism and how it consorts with the psychoanalytic theories of Freud.[28]

The Oedipus myth and its variants retell the unity theme. Ostensibly, Freud's version is about the incestuous desire in the child (male) for union with the mother against the prohibition of the father.[29] For Freud, the Oedipus myth accounts for guilt and anxiety in the individual, but also in the formation of culture and society. The Oedipus myth is not hard to find in stories of political struggle and in fantasy and science fiction stories of evil genius, rebellion, and the quest for unity. Certain versions of the Oedipus myth are also evident in narratives of artificial intelligence and artificial life. The presumption of creating life from inanimate matter or information retells a version of the unity myth that involved the conflict between being born from the earth and being born of human lineage. The Oedipus theme discloses aspects of digital narratives that focus on identity.

Schizophrenia and Suspicion

In other versions of the Oedipus myth, notably those of Lacan, Irigaray, and even Freud himself, the Oedipus myth tells of attempts to return to a state of childhood innocence, before we were introduced to language, when we were indistinguishable from our parents and when we were omnipotent participants in a whole. This primal unity is the realm of the real for Lacan, and it is disrupted by the introduction of language, the

symbolic order, which essentially divides the world. Whereas for empiricism, reality is what we represent in language, for Lacan the real is what resists symbolization.

The computer provides a potent metaphor for this sense of disconnectedness in the real, particularly through its putative presentation of openings into worlds, windows, and hyperlinks, which can return to themselves and which suggest a matrix of mirrorlike interreflections. The illusive and paradoxical nature of cyberspace provides one of the latest illustrations of the character of the real, which is not to privilege computer formations but to disclose what has been there all along in the real.[30]

The computer is inextricably associated with the symbolic order and is its apotheosis. As such, the computer exposes the real in certain ways through their mutual resistance. The computer is heavily implicated in contemporary narratives of rupture, nondeterminacy, and resistance surrounding unity and multiplicity, all but concealed by the romantic rendering.

Technoromantic Narratives

The final chapter enumerates some of the major digital narratives alluded to so far and summarizes what they reveal. We revisit the narratives of total immersion environments, digital communities, and the world of the cyborg, in both their empiricist and their romantic forms, as they pertain to unity and multiplicity. I also show how some narratives grant information technology a causal role in the transition from modernity to postmodernity, how such claims miss the point of postmodernity and further reinforce the hold of technoromanticism. The arguments presented here should provide a vigorous context against which we can test our understanding of the real in the information age, and through which new understandings of the computer will emerge and new narratives will be told.

There are several motivations for this study. Much is claimed of IT as an unsettling force that is overturning convention. Yet much of what is said about IT follows well worn paths of inquiry. We need to discern what is old from what is new. As well as empiricist and romantic narratives, there is an ad hoc "postmodern" rhetoric in which all distinctions seem to be lost, as though empiricist studies are but one ironical manifestation of a

diverse postmodern whole. There are incommensurabilities and disagreements in digital narratives, many of which have yet to surface, but their airing can only be productive. IT culture and IT technology are inextricably entwined, and so the narratives we construct are consequential in the developments that take place. Technicians, chip designers, systems developers, inventors, researchers, managers, educators, entrepreneurs, legislators, commentators, and users are all implicated in digital narratives, not just on their days off as they entertain empiricist or romantic speculations, but in the IT praxis of which they are a part. Digital narratives are influential in the kinds of products and systems we create and demand.

This book presents a further vindication of the philosophical pragmatism that informs some IT research and development, and which I have addressed elsewhere.[31] But here I unravel how and where this pragmatism is easily caught in romanticism. In the process of this inquiry, we are able to canvas thinking on realism, idealism, phenomenology, empiricism, representation, language, surrealism, and psychoanalysis and, in passing, we broach the great themes of space, time, and identity as they impinge on the world of computing. Finally, digital narratives tell of our current ontology. At the transition between millennia, we are pouring vast resources into constructing and working out elaborate narratives, wrestling with unity and multiplicity. We need to understand what is at stake in the enterprise.

Unity

How IT Narratives Attempt to
Transcend the Material Realm

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Digital Utopias

Digital narratives are ever expectant. The unity of which digital narratives speak (harmonious digital communities, immersion in cyberspace, holistic lifelike systems, the unity of the animate and the inanimate) reside in the future. Digital narratives commonly emphasize what will be accomplished while downplaying current achievements, which are inevitably more modest than the predictions. The grand narrative in this romantic teleology[1] is of time-dependent progress, a surplus of expectation. As I will show, an analysis of the nature of such narratives is even more revealing than deciding whether the predictions will turn out to be true. A study of the nature of digital utopias also serves as an introduction to the perennial theme of unity and multiplicity.

Digital narratives, as narratives of progress, commonly take the form of extravagant predictions of unlikely outcomes, such as that which appeared in an article identifying developments in virtual reality: "Within a decade people will be taking utterly realistic virtual vacations to other countries—or even other worlds."[2] But such narratives also assume more subtle forms. In a well-known commentary of virtual reality, rather than focus on the current limited performance of headsets and data gloves, Rheingold rapidly moves on to what he regards as the interesting aspects of the technology: "In the future, less intrusive technologies will be used to create the same experience, and the computers will be both more powerful and less expensive, which means the virtualities will be more realistic and more people will be able to afford to visit them."[3] His extensive survey of institutions and corporations who are developing virtual reality systems in the here and now (as it was in the early 1990s) does not so much describe current achievements as it does future ones. And the future promise is of egalitarian access. In the same way, in a commentary on how information technology influences the built environment, Mitchell effects a ready transition to the future: "With higher band widths, ever-greater processing power, and more sophisticated input/output devices designed to take advantage of these capabilities, the boundary that has traditionally been drawn by the edge of the computer screen will be eroded. Through head-mounted stereo displays . . . or through holographic television (it's coming), you will be able to immerse yourself in simulated environments instead of just looking at them through a small rectangular window."[4] The message is of a future rather than an "actuality," in which the boundaries between human and machine will vanish.[5]

Such digital narratives suggest that computer technology will usher in a better future. This is particularly the case in discussions of Internet communications, which are claimed to bring us closer as a community. According to Sullivan-Trainor: "Technology today is taking the form of the information superhighway, a concept with the goal of exchanging ideas, information and commerce. The vision of this technology is no less than easy access for anyone, anywhere. Nearly unlimited business opportunities will be opened for the average person."[6] These statements introduce the major characteristics of the IT future: it is unified, fair, egalitarian, and highly productive.

Some narratives present such confidence in the ability of computer development to realize its promise that they conflate the distinction between potentiality and actuality. The difference between description and prediction is ambiguous in Heim's presumably ironical account of the cyberspace user: "The cybernaut seated before us, strapped into sensory input devices, appears to be, and is indeed, lost to this world. Suspended in computer space, the cybernaut leaves the prison of the body and emerges in a world of digital sensation."[7] Again, the specter is of an electronic unity (independent of the body), presented as a common occurrence but clearly not yet.[8]

As the media theorist James Carey cogently points out, dominant technologies feature in our narratives to reinforce the aspirations and the obsessions of an age. So steam railway transport was to unite the world, electricity was to be a force for peace, and now we have networked computers.[9] Some digital narratives present the expectation of a new leisure-filled democratic age. Unlike steam trains and electricity, however, IT has communication at its core. The technology is both the subject and the perpetrator of its narratives. IT's mouthpiece of the Internet, and the World Wide Web, presents IT as a technology of the Enlightenment, engaging the ideals of a literate, informed, and free-thinking citizenry.

Such digital narratives present themselves as progressive and radical, dealing as they do with reputedly leading edge technology. But the leading edge in these narratives is severely blunted. In what follows, I will identify the romantic conventionality evident in such digital narratives, considering other positions in subsequent chapters. In chapter 5, I will align the pragmatics of these narratives with Heidegger's radical concepts of time and expectation. Romantic digital narratives present on the subject of the

utopia, a nostalgia for arts and crafts, a reverence for genius, a return to early socialism, a flirtation with systems theory and positivism, and the appropriation of the irrational.

Enlightenment and the Digital Utopia

Utopia, which means "no place," is a term popularized by Thomas More (1478–1535),[10] and one that resonates with those who hold to the ambiguous and unsettling nature of cyberspace. Many digital narratives are unabashedly utopian. Digital narratives share certain features with classical utopias. Utopias are literary forms that construct and describe an alternative world, in the future or somewhere far away, in which things are better than they are at the time of the writer.[11] The literary genre was especially popular in the nineteenth century, when utopians would each present their own version of the better world, each attempting to counter the utopia of the other. For example, William Morris's *News From Nowhere* was written at a time of worker unrest and general discontent with the social effects of industrialization.[12] The narrative presents a future socialist Britain in which modes of production based in the arts and crafts have taken over from factory production, and no one owns property. This utopia was largely a response to the popular American machine-oriented utopia *Looking Backward 2000–1887* of Edward Bellamy, of which Morris disapproved.[13] The concept of utopia is never far from its converse, the dystopia, and the components of one writer's utopia may constitute the dystopia of another.

Plattel provides a phenomenological account of utopias, presenting four main characteristics of utopian narratives that distinguish them from other genres such as science fiction and fantasy.[14] First, utopian narratives are moralistic. A utopian text is not just a diversion or entertainment but demonstrates how a particular ideology is to be worked out. It is a commentary on contemporary society, and it is intended to persuade people that things could be better and to spur them to action. Many digital narratives have this character, encouraging us to embrace and preserve the freedoms and opportunities IT offers.

Second, a utopian narrative presents a one-dimensional view of its alternative world, rarely engaging the tensions and contradictions in its own prognosis. Utopian writing is rarely reflexive and does not dwell on the nature of its own genre, a common feature of much unreflexive IT commentary and IT journalism.

Third, utopian writing focuses on description at the expense of story line and character development. The central characters of More's, Bellamy's, and Morris's utopias simply engage in protracted conversations through which the nature of the utopian world is disclosed. Twentieth-century science fiction and fantasy writing is therefore not strictly of the utopian genre, though it clearly borrows from it. George Orwell's *1984* presents a dystopic world dominated by bureaucratic surveillance.[15] William Gibson's *Neuromancer* presents dystopian and utopian aspects of a future in which people can plug into an electronically mediated world.[16] In these twentieth-century fictions, the future world is complex, and the reader is enjoined to be ambivalent about it, as the characters cope with situations peculiar to the strange world. Much IT commentary of the nonfiction variety fails to capture the ambivalence and irony of fiction, and it depicts the heroes of the IT world battling to bring utopia into being.

Fourth, utopian narrative is not strictly mythical. Plattel distinguishes between traditional myth and utopian thinking.[17] Within traditional myth the worlds depicted are beyond human control. The Garden of Eden and the Celestial City of the religious traditions are imposed orders. The new heaven and earth of the Bible are not human creations. Furthermore, much of the Judeo/Christian mythic tradition is eschatological, concerned with the end of time and some catastrophic eternal resolution of the tensions and conflicts of earthly life. The unitary world of the real descends to take over the divided sensible world.

Plato's *Republic* provides a description of a utopian world that ostensibly breaks with the traditional myth. The ideal state is not accomplished through the unity of the real taking over the world of the senses. At all levels, the ideal state participates in the unity of the real but without being replaced by it. (We will return to the mythic conception of the utopia in subsequent chapters when we discuss the legacy of digital "ecstasis.")

According to Plattel, the major transition from the traditional myth to the utopian narrative occurred in the Renaissance. In More's *Utopia*, published in 1516, humankind is responsible for building its better world: a republic with no aristocratic class and no ownership of property. In spite of its promotion of democracy and communalism, it is a society in which everyone knows his or her place. Slavery and violent punishment still exist, and people work hard and behave themselves because they are in community: "Everyone has his eye on you."[18] For More's early humanism,

humankind is basically untrustworthy and lives within a regime of divine judgment—narrative that resonates with dystopian worlds under the repression of digital surveillance. But in the Renaissance, and in keeping with the discovery of the Americas, utopian possibilities are also discovered, not made. Traditional myth, eschatology, and utopia still go hand in hand.

For Plattel, the true utopia is an Enlightenment phenomenon. In Enlightenment utopias, reason takes over from obedience to authority and tradition. A utopian world is a thoroughly reasonable world. The complete humanistic utopia finds full flower in the nineteenth century. From then on, utopias are of the kind in which human beings are clearly in control by the exercise of reason. We make possibilities rather than discover them or have them imposed on us.[19] The residence of utopias in the Enlightenment concurs with the character of certain digital narratives, which present as transformations of the mythic utopia. Digital utopias are permeated by the hegemony of reason.

Enlightenment utopias differ from contemporary fantasies. For example, in Tolkien's *Lord of the Rings*, and derivative role games and computer games, control is out of the hands of the power of reason but resides with wizards and magicians,[20] a world dominated by unreason. The battles fought are no less the battles of the Enlightenment, but the world described is not yet liberated by it.[21]

At the core of utopian writing is the triumph of reason. Bellamy describes his future world as one in which people enjoy "the blessings of a social order at once so simple and logical that it seems but the triumph of common sense."[22] With the triumph of common sense comes freedom. For Morris, reason is also tied to freedom, authentic sensibility, and beauty, even human beauty: "there are some who think it not too fantastic to connect this increase of beauty directly with our freedom and good sense."[23] Technology also features prominently in the utopias of Bellamy and Morris. For Bellamy, a well-ordered system of industry and compulsory national service exists. For Morris, the future lies with simple Arts and Crafts technologies.

To what extent are contemporary digital narratives that speak of a better, more egalitarian world utopian? Aspects of digital narrative engage the Enlightenment preoccupation with reason in conjuring up an alternative world. A future is invoked where reason holds sway over unreason and disorder, in this case abetted by information technology, as illustrated