question of accountability for the actions of virtual personae who have only words at their command.

Similar issues of accountability arise in the case of virtual murder. If your MUD character erases the computer database on which I have over many months built up a richly described character and goes on to announce to the community that my character is deceased, what exactly have you, the you that exists in real-life, done? What if my virtual apartment is destroyed along with all its furniture, VCR, kitchen equipment, and stereo system? What if you kidnap my virtual dog (the bot Rover, which I have trained to perform tricks on demand)? What if you destroy him and leave his dismembered body in the MUD?

In the physically embodied world, we have no choice but to assume responsibility for our body's actions. The rare exceptions simply prove the rule as when someone with multiple personality disorder claims that a crime was committed by an "alter" personality over which he or she has no control or we rule someone mentally incompetent to stand trial. The possibilities inherent in virtuality, on the other hand, may provide some people with an excuse for irresponsibility, just as they may enable creative expressions that would otherwise be repressed. When society supported people in unitary experiences of self, it often maintained a narrowness of outlook that could be suffocating. There were perhaps great good places, but there was also a tendency to exclude difference as deviance. Turning back provides no solutions. The challenge is to integrate some meaningful personal responsibility in virtual environments. Virtual environments are valuable as places where we can acknowledge our inner diversity. But we still want an authentic experience of self.

One's fear is, of course, that in the culture of simulation, a word like authenticity can no longer apply. So even as we try to make the most of virtual environments, a haunting question remains. For me, that question is raised every time I use the MUD command for taking an action. The command is "emote." If while at Dred's bar on LambdaMOO, I type "emote waves," the screens of all players in the MUD room will flash "ST waves." If I type "emote feels a complicated mixture of desire and expectation," all screens will flash "ST feels a complicated mixture of desire and expectation." But what exactly do I feel? Or, what exactly do I feel? When we get our MUD persona to "emote" something and observe the effect, do we gain a better understanding of our real emotions, which can't be switched on and off so easily, and which we may not even be able to describe? Or is the emote command and all that it stands for a reflection of what Fredric Jameson called the flattening of affect in postmodern life?

Every era constructs its own metaphors for psychological well-being. Not so long ago, stability was socially valued and culturally reinforced. Rigid gender roles, repetitive labor, the expectation of being in one kind of job or remaining in one town over a lifetime, all of these made consistency central to definitions of health. But these stable social worlds have broken down. In our time, health is described in terms of fluidity rather than stability. What matters most now is the ability to adapt and change—to new jobs, new career directions, new gender roles, new technologies.

In Flexible Bodies, the anthropologist Emily Martin argues that the language of the immune system provides us with metaphors for the self and its boundaries. In the past, the immune system was described as a private fortress, a firm, stable wall that protected within from without. Now we talk about the immune system as flexible and permeable. It can only be healthy if adaptable. The new metaphors of health as flexibility apply not only to human mental and physical spheres, but also to the bodies of corporations, governments, and businesses. These institutions function in rapidly changing circumstances; they too are coming to view their fitness in terms of their flexibility. Martin describes the cultural spaces where we learn the new virtues of change over solidity. In addition to advertising, entertainment, and education, her examples include corporate workshops where people learn wilderness camping, high-wire walking, and zip-line jumping. She refers to all of these as flexibility practicums.

In her study of the culture of flexibility, Martin does not discuss virtual communities, but these provide excellent examples of what she is talking about. In these environments, people either explicitly play roles (as in
MUDs) or more subtly shape their online selves. Adults learn about being multiple and fluid—and so do children. "I don't play so many different people online—only three," says June, an eleven-year-old who uses her mother's Internet account to play in MUDs. During our conversation, I learn that in the course of a year in RL, she moves among three households—that of her biological mother and stepfather, her biological father and stepmother, and a much-loved "first stepfather," her mother's second husband. She refers to her mother's third and current husband as "second stepfather." June recounts that in each of these three households the rules are somewhat different and so is she. Online switches among personae seem quite natural. Indeed, for her, they are a kind of practice. Martin would call them practicums.

"LOGINS R US"

On a WELL discussion group about online personae (subtitled "boon or bête-noire") participants shared a sense that their virtual identities were evocative objects for thinking about the self. For several, experiences in virtual space compelled them to pay greater attention to what they take for granted in the real. "The persona thing intrigues me," said one. "It's a chance for all of us who aren't actors to play [with] masks. And think about the masks we wear every day."

In this way, online personae have something in common with the self that emerges in a psychoanalytic encounter. It, too, is significantly virtual, constructed within the space of the analysis, where its slightest shifts can come under the most intense scrutiny.

What most characterized the WELL discussion about online personae was the way many of the participants expressed the belief that life on the WELL introduced them to the many within themselves. One person wrote that through participating in an electronic bulletin board and letting the many sides of ourselves show, "We start to resemble little corporations, 'Logins R Us,' and like any company, we each have within us the bean-counter, the visionary, the heart-throb, the fundamentalist, and the wild child. Long may they wave." Other participants responded to this comment with enthusiasm. One, echoing the social psychologist Kenneth Gergen, described identity as a "pastiche of personalities" in which "the test of competence is not so much the integrity of the whole but the apparent correct representation appearing at the right time, in the right context, not to the detriment of the rest of the internal 'collective.'" Another said that he thought of his ego "as a hollow tube, through which, one at a time, the 'many' speak through at the appropriate moment.... I'd like to hear more... about the possibilities surrounding the notion

that what we perceive as 'one' in any context is, perhaps, a conglomerate of 'ones.' " This writer went on:

Hindu culture is rooted in the "many" as the root of spiritual experience. A person's momentary behavior reflects some influence from one of hundreds of gods and/or goddesses. I am interested in... how this natural assumption of the "many" creates an alternative psychology.

Another writer concurred:

Did you ever see that cartoon by R. Crumb about "Which is the real R. Crumb?" He goes through four pages of incarnations, from successful businessman to street beggar, from media celebrity to gut-graving recluse, etc. etc. Then at the end he says, "Which is the real one?...." It all depends on what mood I'm in!"

We're all like that on-line.

Howard Rheingold, the member of the WELL who began the discussion topic, also referred to Gergen's notion of a "saturated self," the idea that communication technologies have caused us to "colonize each other's brains." Gergen describes us as saturated with the many "voices of humankind—both harmonious and alien." He believes that as "we absorb their varied rhymes and reasons, they become part of us and we of them. Social saturation furnishes us with a multiplicity of incoherent and unrelated languages of the self." With our relationships spread across the globe and our knowledge of other cultures relativizing our attitudes and depriving us of any norm, we "exist in a state of continuous construction and reconstruction; it is a world where anything goes that can be negotiated. Each reality of self gives way to reflexive questioning, irony, and ultimately the playful probing of yet another reality. The center fails to hold."

Although people may at first feel anguish at what they sense as a breakdown of identity, Gergen believes they may come to embrace the new possibilities. Individual notions of self vanish "into a stage of relatedness. One ceases to believe in a self independent of the relations in which he or she is embedded." "We live in each other's brains, as voices, images, words on screens," said Rheingold in the online discussion. "We are multiple personalities and we include each other."

Rheingold's evocation of what Gergen calls the "rapures of multiplicitous being" met with support on the WELL. One participant insisted that all pejorative associations be removed from the notion of a saturated self. "Howard, I like" being a saturated self, in a community of similarly saturated selves. I grew up on TV and pop music, but it just ain't enough.
Virtual communities are, among other things, the co-saturation of selves who have been, all their lives, saturated in isolation." To which Rheingold could only reply, "I like being a saturated self too." The cybersociety of the WELL is an object-to-think-with for reflecting on the positive aspects of identity as multiplicity.

**IDENTITY AND MULTIPLICITY**

Without any principle of coherence, the self spins off in all directions. Multiplicity is not viable if it means shifting among personalities that cannot communicate. Multiplicity is not acceptable if it means being confused to a point of immobility. How can we be multiple and coherent at the same time? In *The Protean Self*, Robert Jay Lifton tries to resolve this seeming contradiction. He begins by assuming that a unitary view of self corresponded to a traditional culture with stable symbols, institutions, and relationships. He finds the old unitary notion no longer viable because traditional culture has broken down and identifies a range of responses. One is a dogmatic insistence on unity. Another is to return to systems of belief, such as religious fundamentalism, that enforce conformity. A third is to embrace the idea of a fragmented self. Lifton says this is a dangerous option that may result in a "fluidity lacking in moral content and sustainable inner form." But Lifton sees another possibility, a healthy protean self. It is capable, like Proteus, of fluid transformations but is grounded in coherence and a moral outlook. It is multiple but integrated. You can have a sense of self without being one self.

Lifton's language is theoretical. Experiences in MUDs, on the WELL, on local bulletin boards, on commercial network services, and on the World Wide Web are bringing his theory down to earth. On the Web, the idiom for constructing a "home" identity is to assemble a "home page" of virtual objects that correspond to one's interests. One constructs a home page by composing or "pasting" on it words, images, and sounds, and by making connections between it and other sites on the Internet or the Web. Like the agents in emergent AI, one's identity emerges from whom one knows, one's associations and connections. People link their home page to pages about such things as music, paintings, television shows, cities, books, photographs, comic strips, and fashion models. As I write this book I am in the process of constructing my own home page. It now contains links to the text of my curriculum vitae, to drafts of recent papers (one about MUDs, one about French psychoanalysis), and to the reading lists for the two courses I shall teach next fall. A "visitor" to my home page can also click a highlighted word and watch images of Michel Foucault and Power Rangers "morph," one into the other, a visual play on my contention that children's toys bring postmodernism down to earth.

This display, affectionately referred to as "The Mighty Morphin' Michel Foucault," was a present from my assistant at MIT, Cynthia Col. A virtual home, like a real one, is furnished with objects you buy, build, or receive as gifts.

My future plans for my home page include linking to Paris (the city has a home page), the bot Julia, resources on women's studies, Imari china, and recent research on migraines. I am not limited in the number of links I can create. If we take the home page as a real estate metaphor for the self, its decor is postmodern. Its different rooms with different styles are located on computers all over the world. But through one's efforts, they are brought together to be of a piece.

Home pages on the Web are one recent and dramatic illustration of new notions of identity as multiple yet coherent; in this book we have met others. Recall Case, the industrial designer who plays the female lawyer Mairead in MedievalMUSH. He does not experience himself as a unitary self, yet says that he feels in control of "herselves" and "herselves." He says that he feels fulfilled by his real and virtual work, marriage, and friendships. While conventional thinking tends to characterize multiple personae in pathological terms, this does not seem to capture what is most meaningful about Case playing Mira or Garrett (introduced in Chapter 8) playing Ribbit.

Within the psychoanalytic tradition, there have been schools that departed from the standard unitary view of identity. As we have seen, the object-relations theorists invented a language for talking about the many voices that we bring inside ourselves in the course of development. Jungian psychology encouraged the individual to become acquainted with a whole range of personae and to understand them as manifestations of universal archetypes, such as innocent virgins, mothers and crones, eternal youths and old men. Jung believed that for each of us, it is potentially most liberating to become acquainted with our dark side, as well as the other-gendered self called anima in men and animus in women. Jung was banished from the ranks of orthodox Freudians for such suggestions. The object-relations school, too, was relegated to the margins. As America became the center of psychoanalytic politics in the mid-twentieth century, ideas about a robust executive ego became the psychoanalytic mainstream.

Through the fragmented selves presented by patients and through theories that stress the decentered subject, contemporary psychology confronts what is left out of theories of the unitary self. Now it must ask, What is the self when it functions as a society? What is the self when it divides its labors among its constituent "alters"? Those burdened by posttraumatic dissociative disorders suffer these questions; here I have suggested that inhabitants of virtual communities play with them.

Ideas about mind can become a vital cultural presence when they are
carried by evocative objects-to-think-with.\textsuperscript{20} I said earlier that these objects need not be material. For example, dreams and slips of the tongue were objects-to-think-with that brought psychoanalytic ideas into everyday life. People could play with their own and others’ dreams and slips. Today, people are being helped to develop ideas about identity as multiplicity by a new practice of identity as multiplicity in online life. Virtual personas are objects-to-think-with.

When people adopt an online persona they cross a boundary into highly-charged territory. Some feel an uncomfortable sense of fragmentation, some a sense of relief. Some sense the possibilities for self-discovery, even self-transformation. Serena, a twenty-six-year-old graduate student in history, says, “When I log on to a new MUD and I create a character and know I have to start typing my description, I always feel a sense of panic. Like I could find out something I don’t want to know.” Arlie, a twenty-year-old undergraduate, says, “I am always very self-conscious when I create a new character. Usually, I end up creating someone I wouldn’t want my parents to know about. It takes me, like, three hours. But that someone is part of me.” In these ways and others, many more of us are experimenting with multiplicity than ever before.

With this last comment, I am not implying that MUDs or computer bulletin boards are causally implicated in the dramatic increase of people who exhibit symptoms of multiple personality disorder (MPD), or that people on MUDs have MPD, or that MUDding is like having MPD. What I am saying is that the many manifestations of multiplicity in our culture, including the adoption of online personas, are contributing to a general reconsideration of traditional, unitary notions of identity.

The history of a psychiatric symptom is inextricably tied up with the history of the culture that surrounds it. When I was in graduate school in psychology in the 1970s, clinical psychology texts regarded multiple personality as so rare (perhaps one in a million) as to be barely worthy of mention. In these rare cases, there was typically one alter personality in addition to the host personality.\textsuperscript{21} Today, cases of multiple personality are much more frequent and typically involve up to sixteen alters of different ages, races, genders, and sexual orientations.\textsuperscript{22} In multiple personality disorder, it is widely believed that traumatic events have caused various aspects of the self to congeal into virtual personalities, the “ones” often hiding from the “others” and hiding too from that special alter, the host personality. Sometimes, the alters are known to each other and to the host; some alters may see their roles as actively helping others. Such differences led the philosopher Ian Hacking to write about a “continuum of dissociation.”\textsuperscript{23} These differences also suggest a way of thinking about the self in terms of a continuum of how accessible its parts are to each other.

At one extreme, the unitary self maintains its oneness by repressing all that does not fit. Thus censored, the illegitimate parts of the self are not accessible. This model would of course function best within a fairly rigid social structure with clearly defined roles and rules. At the other extreme is the MPD sufferer whose multiplicity exists in the context of an equally rigid repressive rigidity. The parts of the self are not in easy communication. Communication is highly stylized; one personality must speak to another personality. In fact, the term “multiple personality” is misleading, because the different parts of the self are not full personalities. They are split-off, disconnected fragments. But if the disorder in multiple personality is the need for the rigid walls between the selves (blocking the openness those selves protect), then the study of MPD may begin to furnish ways of thinking about healthy selves as nonunitary but with fluid access among their many aspects. Thus, in addition to the extremes of unitary self and MPD, we can imagine a flexible self.

The essence of this self is not unitary, nor are its parts stable entities. It is easy to cycle through its aspects and these are themselves changing through constant communication with each other. The philosopher Daniel Dennett speaks to the flexible self in his multiple drafts theory of consciousness.\textsuperscript{24} Dennett’s notion of multiple drafts is analogous to the experience of having several versions of a document open on a computer screen where the user is able to move between them at will. The presence of the drafts encourages a respect for the many different versions while it imposes a certain distance from them. No one aspect can be claimed as the absolute, true self. When I got to know French Sherry I no longer saw the less confident English-speaking Sherry as my one authentic self. What most characterizes the model of a flexible self is that the lines of communication between its various aspects are open. The open communication encourages an attitude of respect for the many within us and the many within others.

As we sense our inner diversity we come to know our limitations. We understand that we do not and cannot know things completely, not the outside world and not ourselves. Today’s heightened consciousness of incompleteness may predispose us to join with others. The historian of science Donna Haraway equates a “split and contradictory self” with a “knowing self.” She is optimistic about its possibilities: “The knowing self is partial in all its guises, never finished, whole, simply there and original; it is always constructed and stitched together imperfectly, and therefore able to join with another, to see together without claiming to be another.”\textsuperscript{25}

When identity was defined as unitary and solid it was relatively easy to recognize and censure deviation from a norm. A more fluid sense of self allows a greater capacity for acknowledging diversity. It makes it easier to
accept the array of our (and others') inconsistent personae—perhaps with humor, perhaps with irony. We do not feel compelled to rank or judge the elements of our multiplicity. We do not feel compelled to exclude what does not fit.

**Virtuality as Transitional Space**

In a journal published on the Internet, Leslie Harris speculates on how virtual experiences become part of the perceptual and emotional background "that changes the way we see things." Harris describes an episode of *Star Trek: The Next Generation* in which Captain Picard plays Caiman, an inhabitant of the virtual world Catanh. On Catanh, Picard lives the experiences he had to forgo in order to make a career in Starfleet. He has a virtual experience of love, marriage, and fatherhood. He develops relationships with his community that are not possible for him as a Starfleet commander. "On Catanh, the character Caiman "learns" to play the Ressican flute. Harris says, "He can eventually fall in love with a fellow crew member in his 'real life' because he experienced the feelings of love, commitment, and intimacy 'on' Catanh." When in his real life Picard plays the flute with a fellow Starfleet officer he realizes that he is in love with her. Picard is aware that he has projected his desire for music and sensuality onto his virtual world. It is this awareness that lets him use music to link the "real" Captain Picard to the emotional growth he was able to experience as the virtual Caiman.

Here, virtuality is powerful but transitional. Ultimately, it is put in the service of Picard's embodied self. Picard's virtual Catanh, like the space created within psychoanalysis, operates in a time out of normal time and according to its own rules. In a successful psychoanalysis, the meetings between analyst and analysand come to an end, although the analytic process goes on forever. It is internalized within the person, just as Picard brought Catanh inside himself. Buddhists speak of their practice as a raft to get to the other shore, liberation. But the raft, like an analytic treatment, is thought of as a tool that must be set aside, even though the process of crossing the river is conceived of as never-ending. Wittgenstein takes up a similar idea in *The Tractatus*, when he compares his work to a ladder that is to be discarded after the reader has used it to reach a new level of understanding.

In April 1995, a town meeting was held at MIT on the subject "Doing Gender on the Net." As the discussion turned to using virtual personae to try out new experiences, a thirty-year-old graduate student, Ava, told her story. She had used a MUD to try out being comfortable with a disability. Several years earlier, Ava had been in an automobile accident that left her without a right leg. During her recuperation, she began to MUD. "Without giving it a lot of advance thought," Ava found herself creating a one-legged character on a MUD. Her character had a removable prosthetic limb. The character's disability featured plainly in her description, and the friends she made on the MUD found a way to deal with her handicap. When Ava's character became romantically involved, she and her virtual lover acknowledged the "physical" as well as the emotional aspects of the virtual amputation and prosthesis. They became comfortable with making virtual love, and Ava found a way to love her own virtual body. Ava told the group at the town meeting that this experience enabled her to take a further step toward accepting her real body. "After the accident, I made love in the MUD before I made love again in real life," she said. "I think that the first made the second possible. I began to think of myself as whole again." For her, the Internet had been a place of healing.

Virtual reality gave Ava choices. She could have tried being one of this MUD's many FabulousHotBabes. If so, she might have never felt safe leaving the anonymity of the virtual world. But instead she was able to reimagine herself not as whole but as whole-in-her-incompleteness. Each of us in our own way is incomplete. Virtual spaces may provide the safety for us to expose what we are missing so that we can begin to accept ourselves as we are.

Virtuality need not be a prison. It can be the raft, the ladder, the transitional space, the moratorium, that is discarded after reaching greater freedom. We don't have to reject life on the screen, but we don't have to treat it as an alternative life either. We can use it as a space for growth. Having literally written our online personae into existence, we are in a position to be more aware of what we project into everyday life. Like the anthropologist returning home from a foreign culture, the voyager in virtuality can return to a real world better equipped to understand its artifacts.

**Cyborg Dreams**

I have argued that Internet experiences help us to develop models of psychological well-being that are in a meaningful sense postmodern: They admit multiplicity and flexibility. They acknowledge the constructed nature of reality, self, and other. The Internet is not alone in encouraging such models. There are many places within our culture that do so. What they have in common is that they all suggest the value of approaching one's "story" in several ways and with fluid access to one's different aspects. We are encouraged to think of ourselves as fluid, emergent,
decentralized, multiplicitious, flexible, and ever in process. The metaphors travel freely among computer science, psychology, children's games, cultural studies, artificial intelligence, literary criticism, advertising, molecular biology, self-help, and artificial life. They reach deep into the popular culture. The ability of the Internet to change popular understandings of identity is heightened by the presence of these metaphors.

For example, a recent Newsweek article reports on a new narrative movement in psychotherapy, describing the trend as consistent with the "postmodernist idea that we don't so much perceive the world as interpret it." The psyche," says Newsweek, "is not a fixed objective entity, but a fluid, social construct—a story that is subject to revision." The new therapeutic movement described by Newsweek draws on deconstructionist literary criticism and on recent currents of psychoanalytic thought that emphasize conflicting narratives as a way of thinking about the analytic experience. But its breezy and accessible newsmagazine coverage makes it clear that psychotherapy, too, can bring postmodernism down to earth.

The literary scholar Katherine Hayles, writing on the cultural resonances of chaos theory, has made the circulation of dominant metaphors a central theme of her work. She suggests that similarities arise in diverse scholarly disciplines and within popular culture "because of broadly based movements within the culture which made the deep assumptions underlying the new paradigms thinkable, perhaps inevitable, thoughts." These assumptions carry a sense of the times that manifests itself in one place and then another, here as developmental psychology and there as a style of engineering, here as a description of our bodies and there as a template for corporate organization, here as a way to build a computer network and there as a manifesto of political ideals.

We are all dreaming cyborg dreams. While our children imagine "morphing" humans into metallic cyber-reptiles, our computer scientists dream themselves immortal. They imagine themselves thinking forever, downloaded onto machines. The AI researcher W. Daniel Hillis says,

I have the same nostalgic love of human metabolism that everybody else does, but if I can go into an improved body and last for 10,000 years I would do it in an instant, no second thoughts. I actually don't think I'm going to have that option, but maybe my children will.

Hillis's musings exemplify the mythic side of cybernetics, apparent from its earliest days. Norbert Wiener, a pioneer in the field, once wrote, "This is an idea with which I have toyed before—that it is conceptually possible for a human being to be sent over a telegraph line." Today, the cyborg, in which human and machine are one, has become a postmodern myth. The myth is fed by the extravagances of Robocop, the Terminator, and Power Rangers as well as by the everyday reality of children plugged into video games. When William Gibson was asked about his sources of inspiration for Neuromancer, he described the merging of human and machine as he watched a teenager playing a video game in a downtown arcade.

Video games weren't something I'd done much, and I'd have been embarrassed to actually go into these arcades because everyone was so much younger than I was, but when I looked into one, I could see in the physical intensity of their postures how rapt these kids were. It was like one of those closed systems out of a Pynchon novel: you had this feedback loop, with photons coming off the screen into the kids' eyes, the neurons moving through their bodies, electrons moving through the computer. And these kids clearly believed in the space these games projected.

Everyone who works with computers seems to develop an intuitive faith that there's some kind of actual space behind the screen.

Thus, for Gibson, the video game player has already merged with the computer. The video game player is already a cyborg, an insight Gibson spun into a postmodern mythology. Over the past decade, such mythologies have been recasting our sense of collective identity.

For Will, a thirty-seven-year-old writer who has recently gone online, the Internet inspires a personal mythology in which he feels part of something far larger than himself. "The Internet is like a giant brain.... It's developing on its own. And people and computers are its neural net." This view puts human brains and computers in a provocative symmetry and together they contribute to a larger evolving structure. Will tells me that his new idea about the Internet as a brain made up of human and computer parts "felt like an epiphany." In an age where we feel fragmented as individuals, it is not surprising to see the emergence of popular mythologies that try to put the world back together again.

Will creates his unity by treating both people and machines as Internet nodes, sites through which information travels. Like the fantasies of Wiener and Hillis, his epiphany depends on a central notion of artificial intelligence and artificial life: Emergent or not, when reduced to our most basic elements, we are made up, mind and body, of information. Some believe that thinking about people as information carries the possibility for leveling the playing field. For example, if all people are ultimately thought to be information, then such categories as race, class, and gender may be stripped of their cultural charge. But thinking about people as information also carries the serious risk of impoverishing our sense of the human. Even as we recognize the risks of reducing people
to strings of code, we must remember that we are peculiarly vulnerable to the message (whether from scientists, futurists, novelists, or filmmakers) that we and machines are kin. In this book we've seen many examples of people treating even a very primitive computer as an other, worthy of relationship.

At the MIT Artificial Intelligence Laboratory, Rodney Brooks has embarked on a project to build an artificial two-year-old. Brooks calls his new "creature" Cog in order to evoke both the mechanical nature of this two-year-old (and perhaps others) and its aspiration to cognition. Brooks's artificial life research, inspired by Herbert Simon's description of the ant walking across a sand dune, takes as a starting assumption that much of what we see as complex behavior is actually simple responses to a complex environment. After over fifteen years of using this strategy to build robots that aspired to insect-level intelligence, Brooks decided, in his words, "to go for the whole enchilada." Cog is being designed to "learn" from its interaction with its environment—most particularly from its interaction with the many researchers who will dedicate themselves to its education. Cog is controversial: for some a noble experiment that takes seriously the notion of embodied, emergent intelligence, for others a grandiose fantasy. When I heard about Cog, I was extremely skeptical. I decided to pay a visit.

Cog's mobile torso, neck, and head stand on a pedestal. Trained to track the largest moving object in its field (because this will usually be a human being) Cog "noticed" me soon after I entered its room. Its head turned to follow me and I was embarrassed to note that this made me happy. I found myself competing with another visitor for its attention. At one point, I felt sure that Cog's eyes had "caught" my own. My visit left me shaken—not by anything that Cog was able to accomplish but by my own reaction to "him." For years, whenever I had heard Rodney Brooks speak about his robotic "creatures," I had always been careful to mentally put quotation marks around the word. But now, with Cog, I had found that the quotation marks disappeared. Despite myself and despite my continuing skepticism about this research project, I had behaved as though in the presence of another being.

In the introduction to this book I quoted Ralph Waldo Emerson: "Dreams and beasts are two keys by which we are to find out the secrets of our nature. . . . They are test objects." And I said that if he lived today, Emerson would have added computers to his list. But computers are more than a simple addition. Through virtual reality they enable us to spend more of our time in our dreams. And through "beings" like Cog they revise what we understand as "beast." Not only are computers evocative in their own right but they have transformed the nature of the test objects that have come before.

In the past decade, the computer culture has been the site of a series of battles over contested terrains. There have been struggles between formal logic and bricolage, about profound disruptions in our traditional ways of categorizing people and things, and about the nature of the real in a culture of simulation. These struggles marked the three sections of this book, in which we have seen the computer as tool, as mirror, and as gateway to a world through the looking glass of the screen. In each of these domains we are experiencing a complex interweaving of modern and postmodern, calculation and simulation. The tensions are palpable.

In the struggle of epistemologies, the computer is caught between its natural pluralism and the fact that certain styles of computing are more culturally resonant than others. On one hand, the computer encourages a natural diversity of responses. Different people make the computer their own in their own ways. On the other hand, computers are increasingly expressing a constellation of ideas associated with postmodernism, which has been called our new cultural dominant.38 We have moved in the direction of accepting the postmodern values of opacity, playful experimentation, and navigation of surface as privileged ways of knowing.

In the contest over where the computer fits into categories such as what is or is not intelligent, alive, or person-like, the game is still very much in play. Here, too, we saw tension. In one context, people treat the machine as sentient, an other; in a different context, they insist on its difference from us, its "other-ness." As people have become more comfortable psychologizing computers and have come to grant them a certain capacity for intelligence, the boundary dispute between people and machines now falls on the question of life.

The final contest concerns the notion of the real. In simulated science experiments, virtual chemicals are poured from virtual beakers, and virtual light bounces off virtual walls. In financial transactions, virtual money changes hands. In film and photography, realistic-looking images depict scenes that never took place between people who never met. And on the networked computers of our everyday lives, people have compelling interactions that are entirely dependent on their online self-representations. In cyberspace, hundreds of thousands, perhaps already millions, of users create online personae who live in a diverse group of virtual communities where the routine formation of multiple identities undermines any notion of a real and unitary self. Yet the notion of the real fights back. People who live parallel lives on the screen are nevertheless bound by the desires, pain, and mortality of their physical selves. Virtual communities offer a dramatic new context in which to think about human
identity in the age of the Internet. They are spaces for learning about the lived meaning of a culture of simulation. Will it be a separate world where people get lost in the surfaces or will we learn to see how the real and the virtual can be made permeable, each having the potential for enriching and expanding the other? The citizens of MUDs are our pioneers.

As we stand on the boundary between the real and the virtual, our experience recalls what the anthropologist Victor Turner termed a liminal moment, a moment of passage when new cultural symbols and meanings can emerge. Liminal moments are times of tension, extreme reactions, and great opportunity. In our time, we are simultaneously flooded with predictions of doom and predictions of imminent utopia. We live in a crucible of contradictory experience. When Turner talked about liminality, he understood it as a transitional state—but living with flux may no longer be temporary. Donna Haraway's characterization of irony illuminates our situation: "Irony is about contradictions that do not resolve into larger wholes ... about the tension of holding incompatible things together because both or all are necessary and true." It is fitting that the technology that is bringing postmodernism down to earth itself refuses modernist resolutions and requires an openness to multiple viewpoints.

Multiple viewpoints call for a new moral discourse. I have said that the culture of simulation may help us achieve a vision of a multiple but integrated identity whose flexibility, resilience, and capacity for joy comes from having access to our many selves. But if we have lost reality in the process, we shall have struck a poor bargain. In Wim Wenders's film Until the End of the World, a scientist develops a device that translates the electrochemical activity of the brain into digital images. He gives this technology to his family and closest friends, who are now able to hold small battery-driven monitors and watch their dreams. At first, they are charmed. They see their treasured fantasies, their secret selves. They see the images they otherwise would forget, the scenes they otherwise would repress. As with the personae one can play in a MUD, watching dreams on a screen opens up new aspects of the self.

However, the story soon turns dark. The images seduce. They are richer and more compelling than the real life around them. Wenders's characters fall in love with their dreams, become addicted to them. People wander about with blankets over their heads the better to see the monitors from which they cannot bear to be parted. They are imprisoned by the screens, imprisoned by the keys to their past that the screens seem to hold.

We, too, are vulnerable to using our screens in these ways. People can get lost in virtual worlds. Some are tempted to think of life in cyberspace as insignificant, as escape or meaningless diversion. It is not. Our experiences there are serious play. We belittle them at our risk. We must understand the dynamics of virtual experience both to foresee who might be in danger and to put these experiences to best use. Without a deep understanding of the many selves that we express in the virtual we cannot use our experiences there to enrich the real. If we cultivate our awareness of what stands behind our screen personae, we are more likely to succeed in using virtual experience for personal transformation.

The imperative to self-knowledge has always been at the heart of philosophical inquiry. In the twentieth century, it found expression in the psychoanalytic culture as well. One might say that it constitutes the ethic of psychoanalysis. From the perspective of this ethic, we work to know ourselves in order to improve not only our own lives, but those of our families and society. I have said that psychoanalysis is a survivor discourse. Born of a modernist worldview, it has evolved into forms relevant to postmodern times. With mechanistic roots in the culture of calculation, psychoanalytic ideas become newly relevant in the culture of simulation. Some believe that we are at the end of the Freudian century. But the reality is more complex. Our need for a practical philosophy of self-knowledge has never been greater as we struggle to make meaning from our lives on the screen.