



Configurations

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Additional Information

Split Subjects, Not Atoms; or, How I Fell in Love with My Prosthesis

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Increasingly I have Problems

Increasingly I have problems working out my theory in advance of writing. This may be the result of spending so much time studying communities that exist in deceptively fleeting manner as lines of text on a computer screen. Discourse in the virtual communities is ephemeral and thoroughly interactive. Also, some of my colleagues might say, trivial. Not much serious work gets done in there, they say, pointing to the screen—which always gives me a chuckle, since with that airy gesture they simultaneously accept the interface metaphor and dismiss its implications.

Thus this will be not so much a linear discussion of work in the field of virtual systems studies as it will be a **series of provocations**, and at the end there will be not so much a summary as an attempt to thread the provocations, to point out some resonances among them and to **hold them in productive tension without allowing them to collapse into anything approximating a univocal account.**

Evening in the ACTLab

Evening in the Department of Radio, TV, and Film's Advanced Communication Technologies Laboratory (the ACTLab, whose acronym foregrounds the dramatic basis of prosthetic interaction) finds bunches of young, computer-savvy students batting the keys with abandon. As I watch them, or rather their bodies (since their selves are off in the net, simultaneously everywhere and nowhere, **[End Page 173]** living out fragmentation, multiplicity, and playfulness faster than I can theorize it), it all comes rushing back . . .

I Have Bad History

I have bad history: I am a person who fell in love with her own prostheses. Not once, but twice. But that wasn't enough. Then I fell in love with somebody *else's* prosthesis.

The first time love struck was in 1950. I was hunkered down in the dark late at night, on my bed with the big iron bedstead on the second floor, listening absently to the crickets singing, and helping a friend scratch around on the surface of a galena crystal that was part of a primitive radio. We were looking for one of the hot spots, places where the crystal had active sites that worked like diodes and could detect radio waves. Nothing but silence for a long, long time, and then suddenly the earphones burst into life and there was a whole new universe raging in our heads—the ranting voice of Jean Shepherd, boiling into the atmosphere from the massive transmitter of WOR-AM, 250 kilowatts strong and only a few miles away. At that distance we could have heard the signal in our tooth fillings if we'd had any, but the transmitter might as well have been in Rangoon, for all the fragrant breath of exotic worlds it suggested. I was hooked. Hooked on technology. **I could take a couple of coils of wire and a hunk of galena and send a whole part of myself out into the ether. An extension of my will, of my instrumentality—that's a prosthesis, all right.**

The second time happened in 1955, while I was peering over the edge of a 24X24 recording console. As I stood on tiptoe, my nose just clearing the top of the console, from my age and vantage point the massive thing looked as wide as a football field. Knobs and switches from hell, all the way to the horizon . . . there was something about that vast forest of controls that suggested the same breath of exotic worlds that the simple coil of wire and the rickety crystal had. I was hooked again. Hooked on even bigger technology, on another extension of my instrumentality. **I could create whole oceans of sound**, universes of sound, could at last begin on my life's path of learning how to make people laugh, cry, and throw up in dark rooms. And I hadn't even heard it turned *on*. ¹

But the third time . . .

The third time was when Hawking came to town. Steven Hawking, the world-famous physicist, came to Santa Cruz to give a talk **[End Page 174]** at the University. The auditorium

was jammed to capacity, and the organizers of the event had accommodated the overflow crowd outside on the lawn. The lawn was a patchwork of bright color, like a medieval fair, with people sitting on blankets and towels, others standing or milling around, and all ears cocked toward the loudspeakers that were broadcasting Hawking's address across the landscape.

If you haven't seen Steven Hawking give a talk, let me give you a quick background. Hawking has amyotrophic lateral sclerosis, which makes it virtually impossible for him to move anything more than his fingers, or to speak. A friendly computer engineer put together a nice little system for him, a program that displays a menu of words, a storage buffer, and a Votrax allophone generator—i.e., an artificial speech device. He selects words and phrases, the word processor stores them until he forms a paragraph, and the Votrax says it. Or he calls up a prepared file, and the Votrax says that.

So I and a zillion other people are on the lawn, listening to Hawking's speech, when I get the idea that I don't want to be outside with the P.A. system—what I really want to do is sneak into the auditorium, so I can actually hear Hawking give the talk. In practice this proves not too hard. The lecture is under way, security is light—after all, it's a *physicist*, dammit, not the UC Board of Regents, for which they would have had armed guards with two-way radios—so it doesn't take long for me to worm my way into the first row.

And there is Hawking. Sitting, as he always does, in his wheelchair, utterly motionless, except for his fingers on the joystick of the laptop; and on the floor to one side of him is the P.A. system microphone, nuzzling into the Votrax's tiny loudspeaker.

And a thing happens in my head. Exactly where, I say to myself, is Hawking? Am I any closer to him now than I was outside? Who is it doing the talking up there on stage? In an important sense, Hawking doesn't stop being Hawking at the edge of his visible body. There is the obvious physical Hawking, vividly outlined by the way our social conditioning teaches us to see a person as a person. But a serious part of Hawking extends into the box in his lap. In mirror image, a serious part of that silicon and plastic assemblage in his lap extends into him as well . . . not to mention the invisible ways, displaced in time and space, in which discourses of medical technology and their physical accretions already permeate him and us. No box, no discourse; in the absence of the prosthetic, Hawking's intellect becomes a tree falling in the forest with nobody **[End Page 175]** around to hear it. On the other hand, **with the box his voice is auditory and simultaneously electric, in a radically different way from that of a person speaking into a microphone.** Where *does* he stop? Where are his edges? The issues his person and his communication prostheses raise are **boundary debates**, *borderland/frontera* questions. Here at the close of the mechanical age, they are the things that occupy a lot of my attention.²

Flashback: I Was Idly Looking

I was idly looking out my window, taking a break from some nasty piece of academic writing, when up the dusty, rutted hill that constitutes my driveway and bastion against the world there abruptly rode, on a nasty little Suzuki Virago, a brusque, sharp-tongued person of questionable sexuality. Doffing her helmet, she revealed herself, both verbally and physically, as Valkyrie, a postoperative m/f transgender with dark hair and piercing black eyes who evinced a pronounced affinity for black leather. She announced that there were things we had to do and places we had to go, and before I could mutter “Science fiction” we were off on her bike.³

Valkyrie proceeded to introduce me to a small community of women in the San Francisco bay area. Women’s collectives were not new to me; I had recently worked with several groups of women who ran businesses and housed themselves under one roof.⁴ But the group to which my new friend now introduced me did not at all fit the model I had learned to recognize. This collective ran a business, and the business was hetero phone sex—not something of which the purist businesswomen with whom I had recently broken bread would have approved.

For reasons best described as kismet, the phone sex workers and I became good friends. We found each other endlessly fascinating. They were intrigued by my odd history and by what I’d managed **[End Page 176]** to make out of it. In turn, I was intrigued by the way they negotiated the minefields of ethics and personal integrity while maintaining a lifestyle I had come to consider unthinkable. In the evenings, after a long interview session and a few Bushmill’s, we’d jam about how to eliminate the last link in the phone sex chain: the phone sex worker. Of course, it would be even better to eliminate the client, while keeping his or her money, but we were trying to be practical. So eventually we combined our respective skills and designed the phone sex robot . . . but I’m getting ahead of my story.

After a while, we sorted out two main threads of our mutual attraction. From my point of view, the more I observed phone sex the more I realized I was observing **very practical applications of data compression**. Usually sex involves as many of the senses as possible: taste, touch, smell, sight, hearing—and, for all I know, short-range psychic interactions—all work together to heighten the erotic sense. **Consciously or unconsciously, phone sex workers translate all the modalities of experience into audible form**. In doing so they have reinvented the art of radio drama, complete down to its sound effects, including the fact that some sounds were best represented by *other* improbable sounds, which they resembled only in certain iconic ways. On the radio, for example, the sound men (they were always literally men) represented fire by crumpling cellophane, because to the audience it sounded *more like* fire than holding a microphone to a real fire did.

The sex workers did similar stuff. I made a little mental model out of this: The sex workers took an extremely complex, highly detailed set of behaviors, translated them into a single sense modality, then further boiled them down to a series of highly compressed tokens. They then squirted those tokens down a voice-grade phone line. At the other end of the line the recipient of all this effort added boiling water, so to speak, and reconstituted the tokens into a fully detailed set of images and interactions in multiple sensory modes.

Further, what was being sent back and forth over the wires wasn't just information, it was *bodies*. The majority of people assume that erotics implies bodies; a body is part of the idea of erotic interaction and its concomitants, and the erotic sensibilities are mobilized and organized around the idea of a physical body that is the seat of the whole thing. The sex workers' descriptions were invariably and quite directly about physical bodies and what they were doing, or what was being done to them.

Later I came to be troubled by this because of its relation to a remark of Elaine Scarry's. In a discussion of human experience in her [End Page 177] book *The Body In Pain*, she says: "Pain and imagining are the 'framing events' within whose boundaries all other perceptual, somatic, and emotional events occur; thus, between the two extremes can be mapped the whole terrain of the human psyche."⁵

By That Time I Had Stopped Thinking

By that time I had stopped thinking of the collective as a group of sex workers, and had begun to think of them in rather traditional anthropological terms as *my* sex workers. I had also moved on to a more complex mode of fieldwork known as participant observation, and was getting an education I hadn't expected. Their experience of the world, their ethical sense, the ways they interpreted concepts like work and play were becoming part of my own experience. I began to think about how I could describe them in ways that would make sense to a casual reader. As I did so, Scarry's remark returned to worry me. It seemed to me that the sex workers' experiential world was organized in a way that was almost at right angles to Scarry's description of the continuum of pain and imagining. The world of the sex workers and their clients, I observed, was not organized along a continuum of pain and imagination, but rather within an experiential field in which *pleasure* and imagination were the important attractors.

Patently, it's not difficult in these times to show how phone sex interactions take place within a field of power by means of which desire comes to have a particular shape and character. In the early days of phone sex that view would have been irrefutable, but things are changing rather fast in the phone sex business; more traditional hetero and hetero-modeled interactions may still get their kick from very old patterns of asymmetrical power, but there seems little doubt that the newer forums for phone sex (as well as other forms of

technologically mediated human interaction) have made asymmetrical power relationships part of a much larger and more diverse erotic and experiential toolkit.

This has obvious and interesting implications for studies of community and prosthetics, not to mention social formations; but it's not in any way to imply that a hypothetical "new erotics," if that's what I'm describing, has escaped from the bottomless gravity well of the same power structures within which we find ourselves fixed in position, regardless of what our favorite position is. It does seem **[End Page 178]** to mean, though, that a good many of the people I observe are aware of the effects of those structures, even though as of this writing I see little effort to alter or transcend them. There does appear to be a central and critical reason for this, particularly in regard to erotics, and that is that none of the people I observe who *do* erotics—even those who play with different structures of power— have yet begun to speculate on how erotics really works. So as we approach the inception of the virtual age, it's useful to pay close attention to the structure of pleasure and play, which is certainly not part of communication technology in any necessary way, but which is the heart and soul of prosthetic sociality. Prosthetic sociality implies new and frequently strange definitions of space, volume, surface, and distance; in prosthetic sociality the medium of connection defines the meaning of community.

Let's take one example from the qualities I just mentioned, and look at what's happening to it at the close of the mechanical age.

How Technology Got Surface: An Origin Myth

The traditional approach to representations of technology in popular culture (still instantiated in such venues as *The Sharper Image*) is technology as sleek, gleaming, seamless, efficient. In its very seamlessness lives its specular construction: beginning in the 1930s, the guts of things—the visual apprehension of the way they worked, and the consequent link to a rational comprehension of their function—began to recede inward, and the skin of devices such as toasters and vacuum cleaners became smooth and shiny. The newly constituted "shroud," described as streamlined, futuristic, and decorative, not only conceals the operation of the device (which had been hitherto implicit in its specularity), thus producing the interiorized space of desire, but also redirects the gaze to a featureless, shiny screen upon which is projected the new meaning and purpose of technological prosthetics in an age in which the physicality of agency is irrelevant. The surface that in Deleuze and Guattari's words becomes deterritorialized, also becomes *hypertactile*; the ontic quality of touch decouples from the object being touched. Thus the dual character of machinic desire, of cyborg envy, begins with the divergence of the specular (what Foucault called the majestic violence of light) from that which is specifically hidden, which remains mysterious, and mobilizes a phantasmatic

interiority in tension with the perspicuous surface. And thus, on one hand, the whole arena of machinic surface becomes organized in relation to the gaze, while on the other, the chthonic interior **[End Page 179]** space of technology is heightened in its mystery and allure. The polished exterior carapace, with its suggestion of brutality,⁶ calls into being the soft, vulnerable organs of the technological body. The gendering of such a dual phantasmatic is obvious, although the precise quality of that gendering is not.

At this point we are already far from the Enlightenment ontologization of the relationship between knowledge and perception. With the development of industrial design in consort with strategies of commodification, as meaning moved to the surface of things, machines themselves became spectacle much as the Elizabethan body had been, taking on the qualities of desire that formerly sought their meaning and purpose in body surface—but meaning decoupled in complex and troubling ways from the shape that function had dictated. This worked to create a dual desire, at once for the hypertactility of the smooth surface and also for the mysterious hidden organs that nestled beneath. The shroud, the surface upon which the meaning of technological objects was more firmly projected, became harder, shinier, and more brittle.

But such a clean boundary between exteriority and interiority— not to mention public and private—couldn't exist for long, and in the seventies technology got dirty. Street tech took its place alongside switchblade knives, zip guns, and later, AK-47s, as an expression of marginalization.⁷ In *Star Wars*—the first street tech film—it was the *bad* guys who had the shiny, polished equipment, and the good guys who had the dirty, leaking stuff, the stuff with the potential for contamination and infection.

In such fashion electronic prosthetics hits the street. Electronic prosthetics gets dirty, accretes unsavory ideas and people, becomes capable of contamination—raising the boundary issues of meaning control now being debated in industry and government. Foucault, thou shouldst be living at this hour.

A Disembodied Subjectivity

A disembodied subjectivity messes with *whereness*. In cyberspace you are everywhere and somewhere and nowhere, but almost never *here* in the positivist sense. In the less-virtual environments of everyday life, governmental and regulatory structures work to increase the definition of whereness. Things like phone numbers and **[End Page 180]** addresses increase whereness. In virtual systems theory we call these things location technologies. The purpose of location technology is to halt or reverse the gradual and pervasive disappearance of the socially and legally constituted individual in a society in which the meanings of terms such as distance and direction are subject to increasing slippage. This slippage, of course, doesn't

refer only to the physical or geographic, but to other, non-Cartesian modes of location. Freud was one of the first to perform a kind of codification upon this imaginal territory, in that he produced a detailed and perhaps replicable body of knowledge that was concerned with the territory of the unconscious.

More pertinent here is the textual residue of Freud's work—the seeds of what is now called the Diagnostic and Statistical Manual (DSM), the manual of diagnostic criteria for psychological disorders. The DSM is an example of the kinds of location technologies I am talking about, because in the process of defining a psychological disorder it simultaneously produces, organizes, and legitimizes a discursive space that has quasi-Cartesian concomitants. The inhabitant proper to this space is the virtual entity of psychological testing, census taking, legal documentation, telephone numbers, street addresses—in brief, a collection of virtual elements that, taken together, form (in Haraway's terms) a materialized discursivity of their own that we might call the fiduciary subject. It is a way to articulate the (always political) tie between what our society defines as a single physical body and a single awareness of self.

Let's Talk a Bit More about This Coupling

Let's talk a bit more about this coupling between the phantasmatic space that location technology calls into being, and the physical space of pain and pleasure that the human body inhabits. In virtual systems theory the production and maintenance of this link between a discursive space and a physical space is called "warranting." By means of warranting, the political apparatus of government is able to guarantee the production of stable concepts of citizenry. Broadly, the politically intelligible citizen is composed of two parts: one is the collection of physical attributes that Judith Butler and Kobena Mercer call the culturally intelligible body;⁸ the other is the collection of virtual attributes that, taken together, compose a structure of meaning and intention for the culturally intelligible body. Taken together, these two broadly defined elements **[End Page 181]** compose a citizen who is socially apprehensible—who fits the cognitive criteria. It walks like a citizen, it quacks like a citizen . . .⁹

A socially apprehensible citizen is a collection of physical and discursive elements. Although the physical elements possess a special and bounded order of reality on account of their particular relationship to the social disciplines of pain and pleasure, the remainder of the citizen—by far the greater part, the part that is also concerned with the production of meaning of the physical part—is discursive. The discursive part of the package, including meaning ascribed to the physical body, is produced by means of inscription, such as legal, medical, and psychological texts. Because so much of such an identity is discursive, it seems reasonable to

call it *legible* body—that is, textually mediated physicality. Legible body displays the social meaning of “body” inscribed on its surface, presenting a set of cultural codes that organize the ways the body is understood and that determine a range of socially appropriate responses. ¹⁰

It is this constellation of fixed relationships that virtual communication prosthetics, instantiated as cyberspace, disrupts so thoroughly.

This Way of Experiencing

This way of experiencing the world raises issues of authority, agency, and the underlying and quite fundamental one of *presence*. In most societies we know, a likely story of the development of authority is that authority was originally grounded in the person of a ruler or several rulers, through their physical presence. Thus agency was proximate—attached to a person. Of course there were ways to delegate power, so that things could get done outside of a head [End Page 182] honcho’s physical presence. This led to some problems. In order to delegate power it must to some extent be made discursive, turned into something recognizable. The abstract idea of force as an expression of will gets turned into an object that represents force, a little iconic gizmo that reminds people of an absent power. Mimetics and iconics—styles of clothing, heraldic devices, wax seals on documents, badges of authority. Belief gets into the system along with mimesis, because the efficacy of the symbol is backed by practical results: people tend to stay alive longer if they believe in whatever the symbol stands for.

Time passes. Literacy appears, and some time later telegraphs, and then phones. Power is expressed in new ways, as disembodied voices, backed up by a more elaborate system of iconography. Voices are not the only things sent through the wires, other things are sent right along with them: Agency. Icons. Bodies. Desire. Where is Hawking, exactly? Such virtual systems operate on sets of assumptions that are already in place—one of which is that humans act at a distance by delegating their agency to someone or something else that has the freedom to travel out of their sight, and if we follow that agency back far enough, eventually we can trace it to the original human’s physical presence, where the buck stops.

If I say that in another way, it comes out that agency is always grounded in a physical body, a process that we might call warranting. But here at the close of the mechanical age and the beginning of the virtual age, warranting is problematic. There is conflict between the technologies of government by which societies have traditionally kept order and the multiple fragmenting entities that political “citizens” are actually becoming. Governments’ response to the fragmentation of their subjects is to develop a hypertrophy of location technologies. These work by fixing people in place in a fiduciary sense, by creating a paper trail that attaches to a particularized physical body; for example, social security numbers, passports and street

addresses. And of course a citizen can be fixed in place in ways that don't correspond with physical directions or locations, by means such as psychological testing. In the technologized nations there has been a veritable explosion of new ways for governments to keep track of their citizens, abetted in large part by the development of more sophisticated technologies of communication. At the same time, like some wonderful dance in which the movements of both partners are synchronized, some people become harder to track. Not by getting physically shifty, but by *dissolving, fragmenting*—by being many persons in many places simultaneously, by saying “up yours” to warranting, by refusing to be **[End Page 183]** one thing, by *choosing* to be many things. It is this fragmentation and multiplicity that characterize communities mediated by technological prosthetics of presence, and it may explain something of the extent to which in some quarters they are suspect.

Let's Get Back to the Discussion of Work

Let's get back to the discussion of work versus play once again, from the standpoint of computation and instrumentality. Viewing computers as calculatory devices that assist or mediate human work is part of a paradigm that consists of two main elements. The first is a primary *human work ethic*; the second is a particularized view of *computers as tools*. The emergence of the work ethic has been the subject of innumerable essays, but the view of computers as tools has been so totally pervasive among those with the power to determine meaning in such forums as school policy and corporate ethics that only recently has the idea begun to be seriously challenged.

The paradigm of computers as tools burst into existence, more or less, out of the allied victory in World War II (although the Nazis were working on their own computers). A paradigm of computers as something other than number crunchers does not have a similar launching platform, but the signs of such an imminent upheaval are perspicuous. Instead of carrying on an established work ethic, the beliefs and practices of the cultures I observe incorporate a *play ethic*—not to displace the corporate agendas that produce their paychecks, but to complexify them. This is manifest in many of the communities and situations I've been studying over the past few years. It is visible in the northern California Forth community, a group of radical programmers who have adopted for their own an unusual and controversial programming language and have raised it to the level of a spiritual practice; in the CommuniTree community, an early text-based virtual discussion group, which adopted such mottos as “If you meet the electronic avatar on the road, laserblast Hir”; and in the research laboratory of a major computer corporation, where a group of presence hackers created an artificial person who became real enough to become pro tem Lab Director.

The people who play at these technosocial games do not do it out of any specific

transformative agenda, but they have seized upon advantages afforded by differences of skill, education, and income to make space for play in the very belly of the monster that is the communication industry. It is in such homely, messy, and un-directly-purposive ways that the foundations for prosthetic community **[End Page 184]** actually get put in place—emerging organically from the highly formalized discourses of computer science and corporate capital, assuming their own shape and purpose, technologically *detoured* by hackers, crackers, smackers, whackers, knackers, and anybody else with a keyboard, a modem, and raw determination, and so ultimately remolded nearer the street's desire.

Producing and Inserting an Unruly Play Ethic

Producing and inserting an unruly play ethic like a mutation into the corporate genome is a specifically situated activity, one that is only possible to workers at a certain job level and type. In specific it is only possible to the communities who are perhaps best described as **hackers—mostly young, mostly educated, mostly white, and mostly male. They create and use a broad variety of technological prosthetics to manifest novel and promising views of the purpose of communication technology.** In particular, because they are thoroughly accustomed to engaging in nontrivial social interactions through the use of their computers, they view computers not only as tools but as loci, places, forums, agoras, arenas—arenas for social experiments, for community and its discourses, for the messy evolution of prosthetic sociality driven by specifically located knowledges, needs, and productions.

This irruptive, ludically based view of community inevitably suggests a multiple view of the state of the art in communication technology. When addressing the question of what's new about prosthetic communication, it's possible to give at least two answers. Let's stick with two for now.

Answer #1: Nothing. The tools of networking are essentially the same as they have been since the telephone, which was the first electronic network prosthesis. In this dispensation, computers are engines of calculation, and their output is used for quantitative analysis. Inside the little box is information. I recently had a discussion with a colleague in which he maintained that there was nothing new about virtual reality. "When you sit and read a book," he said, "you create characters and action in your head. That's the same thing as VR, without all the electronics." Missing the point, of course, but understandably.

Answer #2: Everything. In this dispensation, computers are arenas for social experimentation and dramatic interaction, a type of medium more like public theater, and their output is used for qualitative interaction, dialogue and conversation. Inside the little box are *other people*, and this constitutes the box's most urgent significance. **[End Page 185]**

This Plops Us onto the Threshold of Textuality

This plops us onto the threshold of **textuality as the mediator of virtual systems**. The interplay of textuality and sociality (as recounted by, e.g., Francis Barker) is a history of progressively ramifying divisions of the social locus of community from a predominantly public space to a congeries of spaces increasingly privatized.¹¹ The *physicality* of this new privatized space is a link to the *metaphoricality* of a symbolic and psychological private space that is both elicited by and mutually supportive of the physical body. This progressus leads to prosthetic social assemblages—passing through the stages of development of separate interior spaces, and later of rooms within small dwellings, through changes in philosophies of architecture and in methods of carpentry, and pausing at the isolated, privatized individual sitting at a computer terminal—who breaks through the electronic interface into a refigured social space on the other side.¹²

Into This Setting of Psychological Privatization

Into this setting of psychological privatization and digital communication technology come some of its most remarkable inhabitants, the people who represent much of the potential market for virtual technologies: hackers, and in particular, interactive gamers.

Interactive gaming has emerged as a primary pursuit of the coming generation of computerkids. It provides the essential attraction of exotic total-immersion visual environments, coupled with the proven thrill of bang-bang-shoot-‘em-up action. The production values of arcade-type games, which not long ago began to incorporate realtime dramatic video segments (one of the first was directed by John Dykstra, of *Star Wars* fame), are a significant drive behind technological innovation in multiple-user gaming—and, by extension, invirtual environments. This means that the paradigm of multiple-user interactive gaming will be part of the experience of prosthetic sociality. **[End Page 186]**

A significant number of young people are spending an increasing proportion of their waking hours playing computer-based games in one form or another, and so far the implications of this trend have yet to be addressed. A major obstacle to this appears to be the feeling on the part of many academics that computer games are beneath serious notice, a situation perhaps best characterized as holding our cocktail party in a house that is already ablaze. Within a short time, the number of hours that a fair number of kids will spend playing computer-based games will exceed the number of hours that they spend watching television. It’s entirely possible that computer-based games will turn out to be the major unacknowledged source of socialization *and* education in industrialized societies before the 1990s have run their course.

The designers of these games are among the fiercest of the techno entrepreneurs. Keep in mind that of all the commercial uses bruited about for virtual worlds equipment, multiple-user games are the only commercial application that is currently returning a profit. There will inevitably be more of them. As the kids who use them begin to age, their view of how interaction works—whatever that view is—will be a major factor in shaping electronic community.

Evening in the ACTLab

Evening in the ACTLab finds bunches of young, computer-savvy men (and increasingly, women) batting the keys with abandon. As I watch them, or rather their bodies (since their selves are off in the net), I remind myself that these are the people who are writing the descriptors right there in front of me—writing the computer code that makes the phantasmatic structures of prosthetic sociality. Then they will inhabit the structures they write. These people, not the big system designers, are the architects of virtual community. They remind me of a more familiar example, that of musicians. The **[End Page 187]** social, performative, and technical worlds of music are complexly structured, inhabited by powerful record companies, flacks, lawyers, engineers, and roadies; but the final shapers of the entire *gemut* of the thing are the musicians, because in an irreducible fashion *they are the music*. So it is with the hackers . . . in the instant case, in the anthropological sense, with *my* hackers. And so I wonder, as I watch their intent, excited expressions taking on the electric glow of the screens they face—do they understand what they are doing? Are they aware of the sheer power in the multiply situated text their flying fingers produce, the power to create worlds, to change lives?

There is no mandate in our culture to do anything in particular with the powerful technologies we have at our disposal, and information technology in all its wonderful forms is one of those. The game industry suffers from a feedback loop no more and no less pernicious than any other in a market-driven economy, which is that it is very easy and low-risk to go on endlessly making games for the same market. Among the things these games do, many of them denigrate women, either deliberately or offhandedly. Quite a few people, including people of both of the major genders, have tried for quite a long time to bring about even modest change in that regard. They have not been very successful. In large part (though not entirely) this is due to the character and habits of the people who actually program the games. The programmers, who as of this writing are overwhelmingly (99%+) young adolescent or postadolescent males, tend to live their lives as they write their games—with singleminded determination and a very narrow set of goals. Usually they have little in the way of social lives; they don't read books, but occasionally read comics; and they tend to perpetuate extraordinarily immature ideas of personal interaction styles. One of these is the way they

relate to women. Women tend to be the same kinds of objects for them in their lives as they are in their games, and this is the heart of the problem of how pernicious the loop is: They don't believe there is a problem, because it's invisible to them. They resist intense questioning. They believe there is no sexism in their games, just as they believe there is no sexism in their lives.

There is a hard reality here. We've gone with explosive speed from a few kids making up games for their friends to a few more kids making up games for millions of other kids. The level of sophistication hasn't changed, but the scale has changed drastically. Ethics haven't kept up—in fact, have never been an issue, since the [End Page 188] thing is market-driven and kids as a market are a relatively new phenomenon.

This Loops Back to the Question

This loops back to the question of the ludic dimension. Should things that are so terrifically absorbing and that take up so much waking time—so much precious, irreplaceable waking time—be expected to possess a modicum of invention, to be able to stretch players' imaginations and skills beyond the ability to hit targets and dodge obstacles? (Not that those aren't valuable skills, but they aren't the only valuable skills either.) Should we expect play to be edifying, or on the other hand will kids manage to make anything that comes to hand edifying against all odds? Is the field of interactive games simply a dead loss from the standpoint of sexism and education, something we have to learn to live with as we had to learn to live with the Bomb? In the seats of the powerful, the most successful of the game companies, *how is it that the very young, the very talented, don't perceive the incredible power for change that has fallen to them by default?* and the hideous consequences of failing to grasp that weapon when it's offered? How very like the hero mythoid, that strange and problematic knot at the heart of so many interactive games.

I got to this point from huddling under the covers with a galena crystal, listening to Steven Hawking, doing phone sex, and incidentally paying attention to how none of those versions of me was unitary or complete. They are all embedded in a particular context—the close of the mechanical age—without which they wouldn't exist. Endings are also beginnings, and the close of the mechanical age is the dawn of the virtual age, in which agency is in such danger of decoupling from politically stable bodies and floating off into the prosthetic never-never that our society's hottest hot buttons have to do with location technology. What does your friendly clerk ask you for when you write a check? Virtual systems are dangerous because the agency/body coupling so diligently fostered by every facet of our society is in danger of becoming irrelevant. Does that mean that virtual systems represent some kind of redemptive nexus, an agonistic force with the potential to subvert the forces that try to gain closure on one small set

of permissible descriptions of a politically warranted identity? When all is said and done, and it comes down to *what is electronic prosthesis good for*—

I don't have answers, but I've tried to pose a few questions. I [End Page 189] wanted to point out the problematic relationships, in prosthetic community, between architecture and play, physicality and metaphoricality, bodies and selves, whereness and politics, sex and bandwidth, interior and surface and desire. If this has raised questions for you, then I've done my job. I hope to continue the dialogue when we meet, as we inevitably will whether our avatars recognize each other or not, in cyberspace—the troubling and productive space of desire, of play, and most of all, of possibility. Work there, play there, love there—but if you have sex in cyberspace, be sure to always use a modem.

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Allucqu re Rosanne Stone

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In studying issues of presence, warranting, and agency, the work of theorists of dramatic interaction vis- -vis computation, of which Brenda Laurel is an outstanding example, is invaluable. Much of this research would not have been possible without the arguments Laurel presents in *Computers as Theatre* and elsewhere, not to mention some magnificent conversations we've had. My netsurfing buddies in Austin, Paco Xander Nathan and Jon Lebkowsky, have provided more mindfood, as has colleague Dick Cutler. Thanks to Roddey Reid and Sharon Traweek, and to the academic forums that have hosted the performance art that is my chosen method of presenting scholarly work. Donna Haraway is, as always, an  minence not-so-grise in the text.

Footnotes

1. Just a brief caution: The first two events are emblematic rather than specific, fictional inventions in the sense of being several actual events collapsed in time and in other ways modified.

2. All of this, of course, is about the interplay between communication technology, prosthetic community, the human body, and the uses of pleasure. Note also that the expression "borderline/

frontera" is a reference to Glória Anzaldúa's polysemic and urgently political exploration of the boundary areas between cultures and languages, *Borderlands/La Frontera: The New Mestiza*. (San Francisco: Spinsters/Aunt Lute, 1987)

3. For some reason this sort of thing—having someone barge into my humdrum life and drag me off on some adventure—keeps happening, and I have gotten more good story material in such fashion than I like to admit.

4. This is perhaps the most egregious point of convergence of the multiple research projects I pursue. A more thorough description and analysis of the oddly interdependent issues of lesbian separatism and transgender can be found in A. R. Stone, *Transgression: Tales from the Edges of Identity* (forthcoming).

5. Elaine Scarry, *The Body in Pain: The Making and Unmaking of the World* (New York: Oxford University Press, 1985), pp. 161–180.6.

6. For example, Robocop, *Star Wars*' Imperial stormtroopers, the robot Maria in *Metropolis*.

7. And, like any marginalization, street tech provided a focus to mobilize a congeries of border cultures, of which cyberpunk is a perspicuous example.

8. E.g., Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity*. (New York: Routledge, 1991); and Kobena Mercer, "Black Hairstyle Politics," *New Formations* 3 (1987).

9. I want to be careful, in making these distinctions, that I don't reify dichotomies already in place. There is always a danger in distinguishing the body from some other collection of attributes linked to the body. I want to be quite clear that the physical/virtual distinction is *not* a mind/body distinction. The concept of mind is not part of virtual systems theory, and the virtual component of the socially apprehensible citizen is not a disembodied thinking thing, but rather a different way of conceptualizing a *relationship* to the human (or, for that matter, the transhuman or posthuman) body.

10. William Gibson was probably the first recent writer to deal with the issue of warranting. In *Neuromancer* (1984), a death in cyberspace meant that the physical body in biological space also died—so there was an implied link between the virtual body (into which term I pack Haraway's "materialized discursivities" that constitute the body in cyberspace) and the convergences of discourses, some of which are of similar nature to the virtual, that constitute the body in physical space—a link powerful enough to carry information that the physical (i.e., biological) body interprets or understands as physical (e.g., sickness and death).

11. See Francis Barker, *The Tremulous Private Body: Essays in Subjection* (New York: Methuen, 1984).

12. In the course of this paper I sometimes organize these developments as a progressus, an ensemble of events that had a beginning and that leads in a particular direction. In doing so, I nod in the direction of Gilles Deleuze and Felix Guattari, Paul Virilio, and Manuel De Landa. But I am large; I contain multitudes. At other times the story is not meant to be teleological at all, because I don't foresee the telos toward which it tends. I may make some suggestions in that regard, but they are suggestions only, and do not arise from any prophetic vision. I try to leave the prophetic side of things to my academic betters in the same line of work.

13. My use of the term "computer-based" is already becoming an anachronism, since the meanings of

culturally defined objects such as television, telephone, cable, and computers, and the boundaries between them, are already in hot debate and considerable flux. Nicholas Negroponte had already pointed out in the late 1970s that there would soon come a time when there would be more MIPS (a measurement of processor speed) in kitchen appliances than in the objects commonly called computers. This prefigures, in part at least, the cultural redefinition, now under way, of these objects. It is driven partly by economics and partly by the effect of ubiquitous technology (technology so familiar as to be culturally invisible) on engineers' interpretations of the boundaries of their specialties, as well as ubiquitous technology's effect on the cultural paradigm of biological-machinic binarism. An exhilarating and problematic time.

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