This Might Be a Game:
Ubiquitous Play and Performance at the Turn of the Twenty-First Century

by

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Abstract

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This Might Be a Game examines the historical intersection of *ubiquitous computing* and *experimental game design*, circa 2001 AD. Ubiquitous computing, or ubicomp, is the emerging field of computer science that seeks to augment everyday objects and physical environments with invisible and networked computing functionality. Experimental game design is the field of interactive arts that seeks to discover new platforms and contexts for digital play. The convergence of these two fields has produced a significant body of games that challenge and expand our notions of where, when, and with whom we can play. This dissertation explores how and to what ends these playful projects reconfigure the technical, formal and social limits of games in relation to everyday life.

To mark the heterogeneity of this experimental design space at the turn of the twenty-first century, I propose three distinct categories of ubiquitous play and performance. They are: *ubicomp games*, research prototypes that advance the scientific agenda of ubiquitous computing through game design; *pervasive games*, performance-based interventions that use game imagery to disrupt the normative conventions of public spaces and private

technologies; and *ubiquitous games*, commercial entertainment projects that replicate the interactive affordances of video and computer games in the real world.

I examine seminal games from each of these three categories, including *Can You See Me Now?* (Blast Theory/Mixed Reality Lab, 2001); the *Big Urban Game* (The Design Institute, 2003); and *The Beast* (Microsoft, 2001) respectively. My discussion draws on original gameplay media, design statements, and first-person player accounts. My critical framework is based on close readings of the play and performance values expressed in the founding ubicomp manifestos of Rich Gold and Mark Weiser. I conclude by outlining a course for the future study of these categories that is based in the *pre-digital* games theory of Johann Huizinga, Roger Caillois, and Brian Sutton-Smith. I argue that as the perceived opportunities for digitally networked play become increasingly ubiquitous, game designers and researchers must attend more carefully to the insights of philosophers, anthropologists and psychologists who historically have explored play as an embodied, social and highly consequential ritual, always already grounded in the practices of everyday life.

I dedicate this dissertation to the ubiquitous gamers.

Through their collective and playful performances, they have embodied and embraced a more intimate relationship between gameplay and everyday life.

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This dissertation would not have been possible without the exceptionally valuable guidance and support I have received from my co-chairs, Professor William B. Worthen and Professor Gregory Niemeyer. They have broadened and deepened my understanding of performance and play immeasurably, while helping me develop the critical perspective necessary to balance my games research with my game design practice. This dissertation also has benefited enormously from the critical review of committee members Professor Ken Goldberg and Professor Peter Glazer, who have informed greatly my understanding of where art practice meets research, while helping me to clarify the technological, social and political stakes of this project.

I want to thank the innovative game designers and developers who invited me to be a part of the playful experiments that inspired this dissertation. In the fall of 2001, Ian Fraser and Finnegan Kelly at *The Go Game* (Wink Back, Inc.) gave me my first opportunity to participate in experimental game design. Since the summer of 2004, my colleagues at 42 Entertainment have given me a home to continue exploring and inventing new platforms and contexts for gameplay. I especially am grateful to Elan Lee and Sean Stewart, who supported this research project even before there was a 42 Entertainment.

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have expanded, tremendously, my understanding of the relationship between technological innovation and play.

Looking back over the course of this dissertation's development, two particular moments stand out as having led, quite unexpectedly but fortuitously, to its final shape and subject matter. In the spring of 2002, Professor Mark Sandberg organized the most enriching seminar I have had the pleasure of participating in, and guided me in developing my first digital games paper: a study of *The Beast* (Microsoft, 2001) as interactive back story. Through Professor Sandberg's support and interest in that seminar paper, I came to realize that I had something important to say about games. Without his early attention to this project, this dissertation would not exist. And in the fall of 2003, Professor Gregory Niemeyer invited me to collaborate on a playful installation at the Fifth International Conference on Ubiquitous Computing. Without this opportunity and my subsequent exposure to the field of ubicomp research, I never could have conceived of this project in its current form. I am most grateful to Professor Niemeyer for trusting me as an artistic collaborator, and for being the first person to introduce me to a field of research that has changed the way I think about how and why we interact with computer systems.

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I thank my husband Kiyash Monsef, because of whom I think more clearly, play more often and live more fully.

CHAPTER ONE

Introduction: A Ubiquitous Computing Approach to Play and Performance

> *We live in a complex world, filled with myriad objects, tools, toys, and people. Our lives are spent in diverse interaction with this environment. Yet, for the most part, our computing takes place sitting in front of, and staring at, a single glowing screen attached to an array of buttons and a mouse. From the isolation of our workstations we try to interact with our surrounding environment, but the two worlds have little in common. How can we escape from the computer screen and bring these two worlds together?*
>
> —Pierre Wellner, Wendy MacKay, Rich Gold, "Computer Augmented Environments: Back to the Real World" (24)

1.1 "This is Not" a(s) Design Philosophy

In 1993, digital artist and technologist Rich Gold published a short essay on what was then the brand-new field of *ubiquitous computing*, the invisible integration of networked computer functionality into everyday objects and physical environments. Gold, a founding member of the Xerox Palo Alto Research Center (PARC) team that first coined the term, argued that ubiquitous computing was more than a new technological practice.[1] It was, he wrote, a novel worldview, one that would invert the operational metaphor of the digital age.

To capture the reigning worldview he predicted ubiquitous computing would overturn, Gold titled his thought-piece "This is Not a Pipe." This title is meant to invoke French surrealist René Magritte's famous painting of a pipe (*The Treachery of Images*, 1929), which is captioned with the same disavowal. A small black-and-white reproduction of

[1] Xerox was the official corporate sponsor of the Palo Alto Research Center (PARC) when the ubiquitous computing project was first conceived in 1991. On January 4, 2002, PARC incorporated as an independent company, dropping Xerox from its name. However, as a historical matter, it was the Xerox PARC team that launched ubiquitous computing, which is why I have opted to use the now anachronistic name when writing about the early era of the ubicomp project.

3.1 Reproduction of *The Treachery of Images*. This black-and-white reproduction of René Magritte's painting appears at the top of Gold's essay "This Is Not a Pipe". (Gold, 1993)

Magritte's painting appears at the top of Gold's essay (see figure 1.1). This electronically reproduced image is a performative reference, which Gold makes to draw our attention to the ubiquity of *visual reproduction* in contemporary computing culture. Gold observes: "The twin inventions of photography and electricity shattered objects into new and novel pieces. The camera could skin an object and then reproduce the pelt over and over, collaging it into nearly any context" (72). As a demonstration of the profusion of electronically mimetic images, Gold digitally skins Magritte's oil painting and reproduces it in a rather unexpected context: the computing research magazine *The Communications of the Association for Computing Machinery* (72). For Gold, this kind of promiscuous visibility—semblances allow themselves to be reproduced by anyone, anywhere, anytime—is the defining wonder of what he calls the "postmodern" computing age (72). It is "the skin," as he puts it, that current technology desires. And as a result of this desire, resemblances—digitally-enabled images of real referents—blanket the world. For Gold, it is ubiquitous *imaging*, we might say, that precedes the coming age of ubiquitous computing.

What is ultimately being made pervasive via this process of endlessly replicated and recontexualized skins? Gold reminds us that it is not just the images themselves, but also the *notion* of their referents. He observes how effectively, on a cognitive level, skins stand in for the animal itself: “Our [brain’s] pattern-matching mechanisms seem to make only a lazy distinction between the symbol and the symbolized” (72). In other words, mimetic semblances are excellent conductors of cognitive concepts. We know what the skins *mean*, or at least what they mean to call to mind. And if we are not inclined to make a more emphatic distinction, Gold suggests, our brains may well process the idea suggested by the image exactly as it would process an unmediated experience of its referent. The age of ubiquitous imaging, then, is a period of prolific and powerful *semantic* replication.[2]

The ability to trigger successful recognition, however, does not mean that the skinned object is rendered in all of its *phenomenological* fullness. Gold writes: “As Magritte so surreally points out, the image of an object is not the same as its Real McCoy, 3D Cousin. While the painting of a pipe might produce a pattern on our retina similar to a real pipe, the pipe of pigment cannot be held, weighed, fingered, stuffed, lit, puffed or thrown” (72). Here, Gold’s reading of Magritte’s famous caption, “*Ceci n’est pas une pipe*”, differs significantly from some of the more well-known critical theory of the painting. Michel Foucault, for example, in *This Is Not a Pipe*, famously calls Magritte’s work a break from “the old equivalence between resemblance and affirmation” (43). Mimetic efforts, Foucault observes, have traditionally been aligned very closely with an identity claim, an

[2] Gold’s emphasis on image reproduction and replication in general presents an uncanny reminder of the official corporate sponsor of the original ubiquitous computing project: Xerox Technology, which made its name and fortune precisely in the field of document reproduction. The thematic connection between Gold’s critical computing vision and the corporate sponsor of his research is an excellent reminder of the importance of social and historical context to the production of any critical theory.

affirmation of sameness. And the disavowal “This is not a pipe,” Foucault suggests, cautions the viewer against accepting this claim. “*Don’t be misled*,” Foucault speaks for the painting, “*I am mere similarity*” (48). Paired with the sensory-realistic image of a pipe, Foucault writes, the caption emphatically “denies the assertion of reality resemblance conveys” (47). The treachery of Magritte’s image without such a disclaimer, then, would be to mislead the viewer into eliding the difference between what is real and what is mimetic of the real.

Here, I want to suggest, Foucault is exploring the critical work of Magritte’s provocatively captioned painting in primarily *ontological* terms. If the painting asks us to attend to the difference between persuasive appearance and full material substantiation, then the stakes of this difference according to Foucault are the right to be perceived as real, rather than as mere imitation. Gold, however, considers the painting in primarily *phenomenological* terms. He does not ask how *real* the image of a pipe is versus how real a material pipe is. Instead, he asks, what can we *experience* of an actual pipe that we cannot experience of its perceptually persuasive image? What interactions are possible with the object that its skin alone could never afford?

When Gold speaks of holding, weighing, fingering, stuffing, lighting, puffing and throwing an actual pipe, he is laying out a spectrum of *physical affordances*, or what design psychologist Donald Norman would call “the actionable properties between the world and an actor” (“Affordances and Design”). Affordances are physical properties that invite action and interaction; as such, they are the domain of the material, embodied world. Images do not, as a rule, have affordances. They invite only perception, recognition. What Gold calls the skin of an object, like language, replicates meaning and content. It does not replicate the functionality or interactivity that we might also associate with the referent. As Gold has argued elsewhere, "A virtual lunchbox, while it looks like it has the affordances of a phenomenal lunchbox, actually has only the affordances of two pictures of a lunchbox, one presented to each eye." ("Art in the Age of Ubiquitous Computing" [29]) For Gold, then, the importance of the phrase *Ceci n'est pas une pipe* is the way in which it points to the lack of pervasive affordances in a post-modern, or ubiquitous imaging, computer culture. There is, instead, a disproportionate focus on the non-actionable skins of things and, concomitantly, an underdeveloped curiosity about how we might digitally reproduce not just the image, but also *the interactive features*, or phenomena, of their original referents.

Ubiquitous computing, or ubicomp for short, addresses precisely this underdeveloped curiosity about the reproduction of phenomenal functionality. It drives digital design beneath surfaces toward a focus on what happens *under* the skin. Ubicomp culture, to extend Gold's metaphor, cares not for the pelt, but rather for the blood and the bones of the beast—the structures and systems that make the animal work. If, as Gold argues, the defining desire of the electronic age so far has been its ability to rip and replicate the perceivable, surface data of a thing, then the ubicomp era finds as its main attraction that which we cannot perceive, but rather must *engage*: the *inner life* of the digital systems. Ubiquitous computing aims to reproduce not appearances, but rather network structure and computational functionality, embedding *systems* rather than *semblances* within nearly any context. It is not the mimetic references or cognitive concepts that ubicomp wants to proliferate; it is rather interactive experiences and phenomenal affordances that will be made pervasive.

There is, by design, a kind of secretiveness inherent to this proliferation of embedded functionality. Not all in a ubicomp world is what it seems. As Gold defines his vision for the nascent field, “Ubiquitous computing is a new metaphor in which computers are spread invisibly throughout the environment, embedded and hiding as it were, within the objects of our everyday life” (72). Here, Gold suggests, features and connectivity go under cover. Interactivity and active networks hide where we least expect them. “The everyday objects themselves become a kind of ruse” (72). One way to think about this change in computing design philosophy, about the move away from perceptible surfaces to imperceptible functionality, is to view it as a shift from powerful *simulation* to masterful *dissimulation*. In both cases, what you see is not necessarily what you get, but for very different reasons. In a world of computer-driven simulation, that is to say in the “skins” scenario, appearances *make empty promises*. The image is not in fact the thing itself, the referent, but rather simply one of infinitely many cognitively convincing references. However, in a world of computer-driven dissimulation, that is to say in the secret “inner life” scenario, appearances *feign a lack of promise*. The seemingly ordinary object conceals its own extraordinary capabilities. The simulation, the reproduction of semblances, likes to show-off. It aggressively and proudly demonstrates its mimetic charms to you. The dissimulation, the reproduction of systems, on the other hand, is coy. It reveals its true affordances only to those who pay special attention, who investigate its properties further than the surface.

Gold’s invocation of Magritte’s painting, then, not only is illustrative of the post-modern computing era; it also provides leverage for understanding the coming age of ubiquitous computing. In the earlier technological culture of simulation, “this is not a pipe" means *this is not* really *a pipe*. But in the new technological culture of dissimulation, "this is not a pipe" means *this is not* only *a pipe.* The difference between "really" and "only" here is profound. The former is a dismissal; the latter, an invitation.

In his essay, Gold imagines what extraordinary kinds of interaction a "not only" a pipe might invite. He anticipates a "Magritte's Ubi-Pipe of the not-so-distant future," describing it as having the appearance of an ordinary pipe, but *secretly* containing a range of interactive systems: "a location device so it knows where it is, a small microphone for speaking to friends… [and] a pointing device that works with large, wall-sized, electronic displays (to be used during lectures, say)" (72). It might also possess, Gold notes, the surprising network-enabled abilities of "detecting legal and illegal areas of smoking" and also "monitoring vital medical signs" (72). Here, Gold shows us how ubiquitous computing offers the possibility of replicating specific features and functionalities, stripped from their original system locations—a collection that might include a separate global positioning system reader, a cellular phone, a laser pointer, a digital thermometer, a blood pressure monitor, and so on. Ubiquitous computing collages and recontextualizes these systems inside everyday objects to create new networks of interactivity and functionality. The skins and original sensory forms of the referents stay behind; the pipe does not *resemble* any of the original functioning objects. However, the referents' underlying affordances are reproduced; the pipe successfully reproduces the technological *performances* of the original objects. They may not look the same, but they *act* the same.

Although Gold never uses the term 'performance' to describe the phenomenon of ubiquitous computing, the concept of performance is in fact key to his vision of embedded and networked systems. He closes his essay by describing the world of ubiquitous computing as an "enchanted village, in which common objects have magically acquired new abilities, a village where toy blocks really do sing and dance when I turn out the lights" (72). I want to linger on this fanciful notion, these closing words. What does it mean to compare computing-enhanced objects to inanimate props that secretly come to life? Why leave the reader with a vision of technologies as *toys*, as playthings? What does it mean to end with the performing arts, the singing and the dancing? And why does this performance take place in the dark? These questions matter a great deal, as I want to argue that Gold's vision for ubiquitous computing is fundamentally a vision of distributed networks of play and performance. It therefore is essential to understand precisely which specific kinds of play and performance ubicomp culture is designed to generate. Here, it helps to consider a few theoretical perspectives on the relationship between performance and technology, and between performance and play.

1.2 Technological Performance and Dark Play in Ubiquitous Computing

Gold's use of a performing arts metaphor to describe the lively function of computing-enhanced objects must first be contextualized as part of the larger trend of talking about technology in terms of performance. Jon McKenzie's 2001 *Perform or Else: From Discipline to Performance* traces the emergence of performance as a metaphor for the functionality of technological systems at the turn of the twenty-firsts century. Noting "capability, operation, function, and efficiency" as synonyms for a technology's performance, McKenzie defines technological performance as a system's "effectiveness at a given task" (97). This effectiveness is measurable and comparative, so that individual technologies can be competitively evaluated and refined to deliver ever higher performance. McKenzie argues that both the processes for evaluation and the venues for demonstrating and evangelizing a system's performance abilities are as ubiquitous as the technologies themselves. In other words, a technology must be not only effective at the thing it is designed to do, but also effective *publicly*. A technology's total worth is measured through its ability first to perform (to function), and second to perform for an audience (to demonstrate). It successful operation must be a *visible* part of the technological culture.

The first order of performance described by McKenzie, performance as the ability to complete a specific technological function, is certainly a kind of performance that Gold envisions for ubiquitous computing. Gold intends to strip specific functionalities from their original computing sources and to reproduce and recombine them pervasively in entirely new contexts. This act of recombinant repetition, the restoration of interactive capacity in novel arrangements, aligns perfectly with McKenzie's notion of technological performance, which as he notes, is always a matter of repetition. McKenzie cites performance theorist Richard Schechner's well-known definition: "Performance means: never for the first time. It means: for the second to the *n*th time. Performance is twice-behaved behavior, restored behavior…. These strips of behavior can be rearranged or reconstructed; they are independent of the causal systems that brought them into existence. *They have a life of their own*" (214). Here, in Schechner's description of recontextualized patterns of behavior, we find the model of performance that underlies the reproductive aims of Gold's ubiquitous computing. The ubicomp object is a collage of restored functionality, rather than a collage of semblances. And where Schechner suggests that the strips of behavior that constitute performance "have a life of their own," Gold clearly sees the strips of computing functionality as having an animating effect—the computing-enhanced toy blocks *come to life* with performance. Elsewhere, Gold has called ubicomp objects “deeply enspirited,” a coin termed to indicate the *embedding* of spirit in previously inanimate things (“Art in the Age of Ubiquitous Computing” [13]). I want to suggest that this animating spirit is best understood through McKenzie’s use of Schechner—that is to say, it is best understood as the enspiriting force of restored functionality. This force puts performance at the very heart of all ubiquitous computing.

But what about the second order of performance in McKenzie’s framework, in which technologies are called upon to demonstrate *publicly* their ability to perform? This aspect of McKenzie’s theory is significantly challenged by Gold’s vision of secretly embedded computing. His technologies are not meant to perform visibly—remember, “invisible” is one of the defining terms of ubiquitous computing. The computing happens as if by magic; the virtuoso system is not meant to be observed directly. But what kind of performance is cloaked in secrecy? What is the point of performance in the dark?

The *in-the-darkness* of ubiquitous computing calls to mind a particular genre of performance identified by Schechner: *dark play*. In *Performance Studies: An Introduction*, Schechner defines dark play as follows: ‘Playing in the dark means that some of the players don’t know they are playing” (106). In other words, there are two kinds of participants: those who are cognizant of the underlying play-aspect of an interaction and those who see only the surface ordinariness of the interaction. To those who are “in the dark,” the play looks like everyday behavior, *for real* rather than for play. The basic parallel between dark play and ubiquitous computing, then, is that in both scenarios, there is a disparity in information. Some ubicomp users, presumably, will be aware of the “secret” performance abilities of seemingly ordinary objects, while others are not, just as the dark players are aware of the secret performance taking place in a seemingly ordinary context, while others are not. But beyond this basic parallel, there are two important elements in Schechner’s definition of dark play that I want to draw out further: dark play’s architecture and its frame.

There is an implicit architecture universal to all acts of dark play: it must be embedded in some ordinary context where play is unexpected. In order for the knowing players to rub up against a pool of non-knowing players, the game must take place in an environment and social context not typically associated with play. The structural elements of dark play require it to be *out in the world*. The connection here to ubiquitous computing is clear: it is also built to be out in the world. Technological systems are embedded in unexpected contexts, in the everyday locations and social situations where users do not (yet) expect to encounter computing. The work of both dark play and ubiquitous computing, then, is a process of tacitly challenging the environmental and socio-contextual categories for their respective modes of interaction. And this work is accomplished through a layered architecting of experience. The hidden performances of ubicomp technologies are designed according to the same interactive blueprint as the hidden performance of dark play.

The second element of Schechner’s definition that I want to address is that of frame. Schechner writes of dark players: “They subvert the metacommunicative message ‘this is play’ that Gregory Bateson posited as necessary for play to begin, continue, and thrive” (107). Here, Schechner refers to anthropologist Gregory Bateson’s term for the culturally-specific signals, like winking or smirking, that indicate a playful intention. This term, ‘metacommunication,’ establishes the proper cognitive frame for interpreting behavior. In dark play, Schechner suggests, the frame is absent; dark players actively avoid giving the proper signal. If ubiquitous computing is like dark play, does that mean ubicomp technologies intentionally offer up an intentionally misleading interpretive frame? For that to be possible, we would have to accept that technologies, in general, engage in metacommunication. Do they? And if so, can we say that ubicomp technologies are designed to stifle that metacommunication?

I think there is, in fact, a clear analog to the idea of metacommunication in computer culture: *interface design*, or the process of designing how a user will engage with a system. Of the countless books and scholarly articles that have been written on the subject of computer interfaces, the vast majority of attention has been paid to how thoughtful design can communicate to users the best and most efficient ways to interact with the system. But has there been any work done on the question of how users are first alerted to the opportunity for computing? What signals ‘this is a computer’? In recent work in the field of ubiquitous computing, in fact, some effort has been made to establish visual cues for interactive opportunities. A research team at the University of Oulu published the article “Requesting Pervasive Services”, in which they identify the need for what I would call a metacommunication for computing. The authors write: “As the vision of pervasive computing gradually becomes a reality, we are seeing an increasing number of services in our everyday environments…. Although a positive phenomenon, this transition also introduces considerable challenges to *discovering* and selecting services” (Riekki et al 40, emphasis mine). The authors note the need for a computing signal, a conventional gesture that indicates the otherwise hidden interactive affordances. They therefore propose a general framework for making passersby aware of ubiquitous computing's undercover functionality: "Visual symbols communicate to users the objects that they can touch and that activate services" (40). In other words, the computing opportunities will be framed.

This kind of conventional symbolic cue to interaction actively works to mitigate the in-the-darkness of ubiquitous computing. It is the first of no doubt many future attempts to metacommunicate the idea: *You are now in a computing-enhanced space*. But in Gold's original vision for the field, it is not clear what, if anything, is meant to signal to the user that this is not only a pipe—it is also a networked computer. I understand Gold's imagined Ubi-Pipe as being completely unframed. There is no mention of a Magritte-style caption for the Ubi-Pipe, no visual symbol to indicate its secret abilities. It is precisely this lack of a visible frame for the computing system that creates the sense of being "in the dark"—visual perception is no longer a reliable cue to frame. Instead, the object requires *exploratory physical engagement* to determine which frame is appropriate. Rather than inhaling traditionally from the pipe, for example, a few experimental exhalations in rapid succession might yield unexpected biometric output. Waving the pipe dramatically in the air as if to emphasize a point through gesticulation might trigger, through accelerometers, the laser pointer system. The Ubi-Pipe is just another object on the shelf—until you play with it.

Here, I think, is where it starts to become quite meaningful that Gold chooses *toys* as his metaphor for ubicomp objects. A toy, of course, is designed for play. And without a conventional system of computing metacommunication, I want to suggest, the only effective way to gauge the proper cognitive frame—can I compute with this or not?—is to experiment playfully with the space or object in question. Wave it, throw it, drop it, suck on it… this is all, metaphorically, play in the dark. The user must *feel* his or her way to discover the interactive opportunities and to learn the invisible system's rules of engagement.

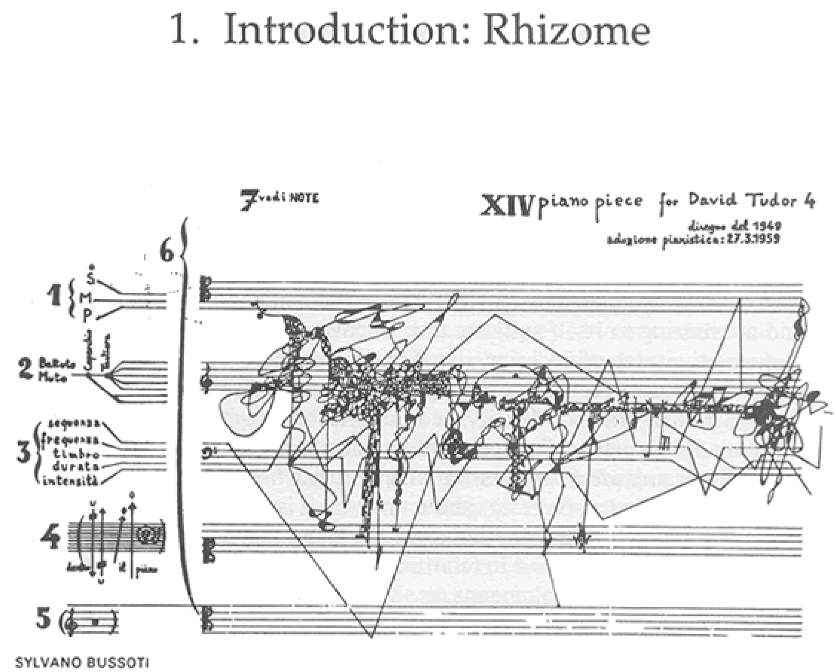
If ubiquitous computing as envisioned by Gold seems to be itself a form of dark play, then it is important to note that Schechner identifies the motivations of dark play as always, to some degree, hostile and self-serving. He writes: "Dark play's goals are deceit, disruption, excess, and gratification" (107). It mocks and manipulates those who are not in the know. To what extent is this true of ubiquitous computing? Some bystanders will be blind to the ubiquitous computing going on around them, no doubt. And it is equally probable that inadvertent users may occasionally engage the system without understanding how, or to what ends, the system has engendered their participation. However, in Gold's articulation of dark computing, there is no contempt expressed toward those who are unknowing. There is, instead, an invitation to become knowing. Even with the lights out, Gold suggests, it may be possible to discover the secret performance, to become a cognizant player in the enchanted encounter. I would argue that Gold's use of the term "enchanted" to describe his ubicomp village is quite meaningful and telling of his more benevolent vision of dark play. To enchant is to *attract* and to *delight*. These are the aims of the dark play of Gold's ubiquitous computing—not to deceive, but to surprise; not to remain hidden, but to be discovered. Gold's ubicomp toys extend an invitation to all who are willing to be engaged by the things around them. Whereas Schechner's dark play is exclusionary, elitist, Gold's dark play is inclusive; its enchanted objects mean to draw you in, to solicit human action as a way of revealing the liveliness underneath the deceptively still and ordinary surfaces of ubiquitous computing. This solicited interaction seeks to enable a more balanced relationship between the user and the technology, and to include more potential users in the community of knowing players. Accordingly, the power imbalance Schechner identifies as essential to dark play shifts to a state of mutual and common engagement. With the formation of this relationship built on mutual awareness, the line of dark play is crossed and knowledge of the interactive system is revealed.

Gold's decidedly benevolent vision of dark play, of course, is by no means an obvious or certain outcome of ubiquitous computing. Ubicomp culture as developed and theorized by other ubicomp researchers might not seek so consistently to inform and to engage those who enter computing-augmented spaces or encounter computing-augmented objects "in the dark". It is quite possible and not entirely implausible, instead, to imagine a technological future in which Schechner's more malevolent dark play is manifest as a defining characteristic of ubicomp society—for example, through secret surveillance practices and socio-technological class warfare. Gold's description of the enchanted village, to be sure, is an optimistic view of the technological future to come. However, it is *not*, I would argue, a naïve one. Gold actively recognizes that technological innovation is not neutral; "This Is Not a Pipe" therefore seeks to shape a socially *positive* set of values for future ubicomp work. In proposing a more benevolent picture of dark play, Gold is not ignoring the negative possibilities of dark computing. Rather, he is outlining an ethical approach to designing, developing and deploying ubicomp systems, an approach that works specifically and strategically against what for him (and arguably for most of us) would represent a dystopic ubicomp society.

I have suggested that Gold's ubicomp objects are capable of overcoming the power imbalance of dark technology to form relationships among users and their computing systems, relationships based on mutual and common engagement. In the next section, I will explore in further detail how relationship formation is a central theme and a core mechanic of the Gold's envisioned ubicomp network.

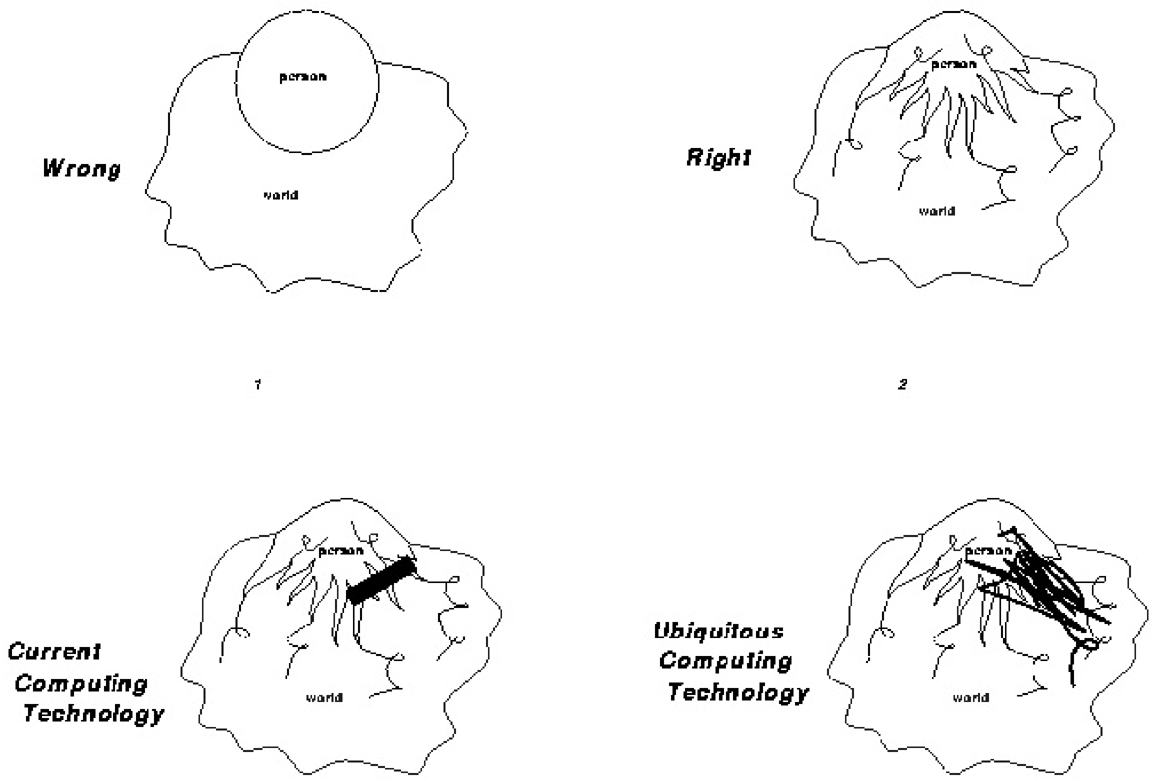
1.3 Relationships and Rhizomes in the Ubicomp Network

Gold's ubicomp systems are designed to communicate and to interact not only with local users and the local environment, but also with each other, and therefore potentially with remote users and remote environments. The ubicomp infrastructure, we might say, is a kind of *relationship engine*—an always-growing rhizome, with infinitely many points of potential connection. I use the term 'rhizome' here in the sense that French theorists Gilles Deleuze and Felix Guattari adopted the biological stem structure in order to talk about late twentieth-century systems of language and politics, and also in the tradition that their work has been taken up by countless theorists of digital network culture. As Deleuze and Guattari describe such systems, "any point of a rhizome can be connected to anything other, and must be. This is very different from the tree or root, which plots a point, fixes an order" (7). For their work *A Thousand Plateaus: Capitalism and Schizophrenia*, which introduces this notion of the rhizome, the authors choose a section of a musical score by Sylvano Bussoti as their graphical representation of the post-modern configuration (see figure 1.2). In the illustration, *Five Pieces for Piano for David Tudo*r, we see that the individual notes of the score are connected multiply and explosively. The bold lines and fervent squiggles across the musical staff suggest a passionate and almost impossible degree of simultaneous connectivity.



1.4 “Introduction: Rhizome.” The authors of *A Thousand Plateaus* use this experimental musical composition to represent the frenetic interconnectivity of their theoretical concept, the rhizome. (Deleuze and Guattari, 1987)

Mark Weiser, who directed Rich Gold’s work at Xerox PARC and is widely considered to be the founder of ubiquitous computing, has explained the ubicomp project in terms strikingly similar to those of Deleuze and Guattari. In 1996, Weiser created and published a cartoon on his personal web site under the title “Phenomenological post-modernism explained and related to computer science, in cartoons” (see figure 1.3). Although Weiser does not offer any further explanation of the cartoon, both the reference to post-modernism in the title and the striking similarity between Weiser’s squiggles and Bussoti’s score suggests to me the possibility that Weiser is, in fact, referring specifically to Deleuze and Guattari’s work on the rhizome. However, even if the reference is not a conscious one, the rhizomatic design of the two drawings on the right-hand side of the cartoon nevertheless suggests a significant conceptual link between ubiquitous computing



1.3 "Phenomenological Post-Modernism Explained and Related to Computer Science, in Cartoons." Here, the founder of ubiquitous computing graphically represents its explosive connectivity. (Weiser, 1996)

and the rhizome. In what Weiser labels as "the right way" for ubiquitous computing to proceed, the single node of an individual user sprouts multiple connections to the surrounding world. Indeed, the stroke of Weiser's lines here are as frenetic and suggestive of the desire to connect to everything at once as the lines of Bussoti's score. Juxtaposing these two figures reveals, I believe, a critical bond between the connective infrastructure of ubiquitous computing, as envisioned by Weiser, and the rhizome, as theorized by Deleuze and Guattari.

If we take ubiquitous computing to be a rhizomatic structure, then what might be the result of its successful multiplicity of relations, its promiscuous connecting of others to others to others? Gold describes his ubicomp system as an enchanted village, and I am very much struck by the term 'village', both in its implications of community and its intimation of a kind of social life for the technological objects. Gold, in fact, likens the network of ubicomp technologies to a living ecosystem: “Each of these computers can talk with any of the other computers much like chattering animals in a living jungle, sometimes exchanging detailed information, sometimes just noting who’s around” (72). Does the network of ubiquitous computing really constitute a social ecosystem? And if so, what are the implications of socializing our technologies? Here, I turn to the work of philosopher of science and technology Bruno Latour, who offers us a rich theory of community across technology networks: *the technoscience collective*.

1.4 The Social Structures of Ubiquitous Computing

In his 1999 essay “A Collective of Humans and Nonhumans”, Latour proposes the technoscience collective as a critical framework for understanding three intersecting orders of social relations: the social life of technologies, the social life of technology users, and the social life that develops between technologies and their users. Gold has described these same three orders of social interaction across ubicomp culture: “Ubi-objects are communicative. They talk a lot amongst themselves, between themselves and other ubi-objects, and between themselves and us” (“Art in the Age of Ubiquitous Computing” [21]) Latour asserts that in order to understand how these three orders of techno-social relations function, we must reconsider the traditional dichotomy of subject-object, in which the subject is the human user and the object is the applied technology. He suggests instead the more collaborative pairing of *human-nonhuman*, which he hopes will argue against the perceived passivity of our technologies. Technologies are, he argues, “full-fledged actors in our collective”(174). By *full-fledged actors*, Latour means to indicate that technologies are neither objects fully controlled and instrumentally deployed by their users, nor are they independent subjects capable of autonomy or spontaneous agency. Rather, they somehow participate collaboratively in the design and execution of technological action. But what is the nature of this participation? Here, Latour's choice of the term *actor* is significant and worth unpacking. What does it mean to say a technology is *acting*? There is a different kind of performance implied here than in McKenzie's notion of computational function.

First, we must understand what Latour means by *collective*, the context in which technological action takes place. For Latour is not just defining technologies as actors, but also defining them as part of what we might call a performance network, across which any member of the network may be called upon to act in collaboration with other actors.[3] Latour uses the term collective, then, to describe the coming together of the material world and the human world into a mutually transformative relationship. He writes: "Our collectives are tying themselves ever more deeply, more intimately, into imbroglios of humans and nonhumans" (201). Of this growing imbroglio, Latour writes: "At each stage the scale and the entanglement increase" (213). Here, the notion of ever-increasing scale and interconnectivity should remind us of both the ambition and implied intimacy of a ubiquitous computing culture. Ubiquitous, or all-reaching, is quite simply the greatest imaginable scale. And the growing entanglement between users and their technologies, or humans and nonhumans in Latour's terms, is strongly suggested by both

[3] Those familiar with Latour's work may be reminded here of his work with Michel Callon to develop the Actor Network Theory (ANT). Latour does not reference ANT in this particular text, although clearly his notion of the technoscience collective echoes many of ANT's principles. I myself prefer to work with Latour's technoscience collective because although ANT is technically called a theory, Latour has frequently argued that it is in fact *not* a theory and cannot be applied as such. Rather, it is a methodology for conducting ethnographic research. (See, for example, Latour's 2004 essay "A Dialog on ANT".) The technoscience collective, I want to suggest, is Latour's actual theorization of the same concepts that he earlier developed as the ANT methodology. As I am doing primarily theoretical work, I will use the technoscience collective theory rather than the ANT methodology.

the *physicality* of ubicomp interfaces, thus requiring a more intimate kind of contact, as well as their *social situatedness*, which embeds them in increasingly personal and interpersonal contexts. Indeed, one of the most interesting areas of research in ubiquitous computing today is the sub-field known as "intimate computing", which explores precisely the physical and social entanglements of users *with* their technologies, and with each other *through* their technologies.[4]

This ever-scaling and increasingly intimate relationship between users and technologies, Latour suggests, leads to a transfer of metaphors and organizational practices across the two groups. "Whenever we learn something about the management of humans, we shift that knowledge to nonhumans and endow them with more and more organizational properties," Latour writes (207). In other words, "To relate nonhumans together… is to grant them a sort of social life" (207). Here, Latour observes that we build technology networks so that they reflect human ways of relating to each other. We socialize our technologies by enabling them to communicate, delegate, share resources, and so on. We observe this socializing practice clearly reflected in Gold's design statements. In a 1993 lecture for the International Symposium on Electronic Art, for instance, Gold elaborates on his previous "This Is Not a Pipe" intimation of a social life for ubiquitous computing. He states: "These enlivened objects help and hinder, collude and conspire, whisper and talk with each other" ("Art in the Age of Ubiquitous Computing" [6]). By adopting network design verbs like to *collude* and to *conspire*, Gold does indeed endow the technologies with human-social attributes. Meanwhile, Latour

[4] Leading researchers in this area include Joseph "Jofish" Kaye, Genevieve Bell, and Mizuko Ito. See, for example, "Intimate Objects" (Kaye, et al 2004); "Communicating Intimacy one Bit at a Time" (Kaye, et al, 2005); "Intimate Ubiquitous Computing" (Bell, et al 2003); and *Personal, Portable, Pedestrian* (Ito, et al 2005).

suggests, because the technocollective is such an intense and intimate entanglement, “The opposite process is at work: what has been learned from nonhumans is re-imported so as to reconfigure people” (208). That is, users start to organize themselves according to the social metaphor of distributed technologies.

If Latour’s assertion is correct, that technological infrastructure becomes a socializing force on the humans that designed them, then Gold’s vision of the social life of ubiquitous computing takes on added significance. Whatever relational behaviors emerge among ubicomp technologies, we should expect to see emerge within the community of ubicomp users as well. How will Gold’s ubicomp users connect with each other? What new metaphors of ubiquitous computing will organize their user-to-user relationships? Gold characterizes the social life of ubicomp technologies as an enchanted village in which objects plot and conspire; will users enjoy this feeling of playful conspiracy? His objects collaborate through dramatic song and dance; will a kind of technological dramaturgy and choreography become a social practice of the ubicomp set? Gold also describes the social ecosystem of a living jungle. There is a sense that its members are highly attuned to each other, with their constant chattering and tracking of whereabouts. Will ubicomp users therefore be more attentive to the minutiae of each others’ daily lives? Will actively perceiving the presence of others in the network, co-located or not, come to be a defining quality of ubicomp culture?

In all of these potential futures, community ties across groups of users are strengthened as the user communities themselves grow to resemble the dense network of computer systems. Indeed, Weiser predicted in 1991:

> By pushing computers into the background, embodied virtuality will make individuals more aware of the people on the other ends of their computer links… Ubiquitous computers reside in the human world and pose no barrier to personal interactions. If anything, the transparent connections that they offer between different locations and times may tend to bring communities closer together ("The Computer for the Twenty-First Century" 100).

Gold does not make such predictions in his design statements about how technological infrastructure might shape human social structures. However, his imaginative depictions of community across ubicomp technologies, considered alongside Latour's theory of the technoscience collective, suggests a future in which our notions and practices of community are profoundly affected, and potential points of connection massively multiplied, by the social life of our technologies.

Having established the fundamentally relational nature of the technoscience collective, Latour updates his earlier claim for technologies: "They deserve to be housed in our intellectual culture as full-fledged *social* actors" (214, emphasis mine). Here, Latour finally presents a full description of technologies' acting repertoire. To describe this range of "sociotechnical" action, he settles on the word *technique* (209). He writes: "At last we are in a position to define technique, in the sense of a *modus operandi*" (209). A modus operandi is a characteristic pattern and style of doing some particular work. The sociotechnical action of technologies, therefore, is to embody a particular pattern or style—that is, to propose through its very being a specific mode of operation. It must manifest physically and socially the structure of its own deployment. As we have already noted, Donald Norman, who first popularized the term affordance in the field of technology design, defines the affordances of tools as their actionable properties. Latour pushes further on this concept to describe the embodiment of an affordance as a kind of action in itself. It is a performance of what is technologically possible, a gesture toward what actions the user might take. Latour further describes techniques as "articulated subprograms for actions that subsist (in time) and extend (in space)" (209). These subprograms, or specific sequences of actions and formal parameters for carrying out those actions, are meant to be enacted by the human users. They are both the script and the mold for the users' technological performance. We see here, again, the cyclical flow of technology metaphors from the nonhumans to the community of human users—Latour describes the humans as being susceptible to programming, just as their own technologies are programmed. The mutual performance of technologies and their users, then, can be understood as the technologies' embodied potential for a specific action or interaction and the users' actual execution of that technique.

Do Gold's ubiquitous computing technologies perform through Latour's notion of technique? To say, as Latour does, that technologies are capable of *articulating* is to endow them with a particular kind of speech capacity—capable of speaking not just to each other, but also directly to their users. The signifying faculty of Latour's nonhuman actors certainly makes sense in a world where technologies are clearly on display, where their affordances are primarily at the surface. But ubiquitous computing has been described not only as invisible, but also as fundamentally "tacit"—that is to say, unspoken (Weiser 95). In a ubicomp world, will human users be capable of receiving an articulated message of technique, when it would seem that articulation is counter to the technology's mission statement?

Here, we return to the basic claim of Gold for ubiquitous computing: that it will replicate and resituate affordances, rather than semblances, or signs. What is being reproduced and embedded are invitations to specific *modus operandi*, opportunities to engage in a particular sociotechnical performance. But the dissimulation of ubicomp objects—it looks like a pipe, but it is not only a pipe—prevents us from recognizing the actionable properties through our usual visual, pattern-matching process. So how are the techniques discovered? Gold, in his brief and whimsical case study of a Ubi-Pipe, has suggested two means of discovery. First, ubiquitous computing invites our participation in the network through a kind of sensuous serendipity. While we may be used to recognizing things based on appearance, we will learn instead to practice a more intuitive kind of attention. What we cannot see, for instance, we will hear and feel as the performing technologies sing and bump into us. The song and dance are clues to a liveliness; they alert us to the need to investigate further. Where the retina fails, Gold suggests, other receptors may succeed in detecting patterns. We simply need to increase our sensitivity.

In his own mission statement for ubiquitous computing, "Open House", Weiser echoes Gold's belief in the potential sensitizing properties of ubicomp technologies. He argues that ubicomp may very well make humans more cognizant of the deep structure of interaction in the world. He writes: "Ubiquitous computing just might help connect us to the fundamental challenge that humans have always had: to understand the patterns in the universe and ourselves within them" (9). Weiser connects the idea of increased perceptual sensitivity to the rhizomatic infrastructure, adopting again the biological metaphor: "We become smarter as we put our roots deeper into what is around us" (8). He calls ubiquitous computing "one giant connection to the world," and I believe that this proliferation of connections, or receptors as Gold would suggest, requires not a higher *degree* of attention, but rather a greater *range* of sensitivities to the physical environment (8). Indeed, what is the point of escaping the computer screen if not to become entangled with the phenomenal world of objects and environments? The term 'open' in Weiser's title "Open House" works on many levels, but the meaning that I think has been less remarked upon than it ought to be is the sense in which Weiser is urging *us* as technology users to be more open to our computationally-augmented local and daily environments. We must open up more and more peripheral sensors for ubicomp technologies to trigger when we don't yet realize we should be paying attention.

This increased range of sensitivities represents a fundamental shift in the *kinds* of affordances users will be able to recognize. Weiser and fellow Xerox PARC researcher John Seely-Brown speak of an intuitive perception of non-surface affordances in "Designing Calm Technology", another early statement on ubiquitous computing:

> Our notion of technology in the periphery is related to the notion of affordances…. An affordance is a relationship between an object in the world and the intentions, perceptions, and capabilities of a person. The side of a door that only pushes out *affords* this action by offering a flat pushplate. The idea of affordance, powerful as it is, tends to describe the surface of a design. For us the term 'affordance' does not reach far enough

> into the periphery where a design must be attuned to but not attended to (4).

It is clear that both Weiser and Gold are interested in pushing beyond the surface when it comes to communicating affordances. Weiser's notion of tuning into actionable properties as kind of background data processing fits nicely with Gold's description of discovering interactive features in the dark. This kind of articulation of technique works through a higher order of pattern recognition than the more deliberate modes of perceptual recognition in which a user consciously asks, "What do I do with this thing?" The effect of peripheral affordances may be, Weiser suggests, to create a subtle sense of being drawn to something that has triggered our pattern detectors. Like Gold's enchanted village, Weiser's vision of ubiquitous computing simply requires a greater receptiveness on the part of users to their technologies' many charms.

The second means that Gold suggests for discovering the tacit techniques of the ubicomp world is far more direct than the kind of peripheral, intuitive, sensuous recognition of interactive patterns in the environment. We might call this second means the *collage* of affordances. That Gold chooses to work with a surrealist painting, when surrealism as a practice has so famously made extensive use of the collage, is certainly not an accident. Gold describes his Ubi-Pipe as being constructed through a fanciful layering of actionable properties. The first layer is conventional—the tapered stem of a pipe suggests the action of placing one's lips around it. This is the traditional affordance of material pipe. The underlying layers, or hidden computing affordances, are connected to the social and material conventions of the everyday object. Gold describes this design through collage: "It is a poetic act drawing equally from the functionalism of the Bauhaus and the symbolism of surrealism" (72). In other words, we have not lost Latour's articulated technique—we have merely buried (and connected) tacit techniques beneath symbolically appropriate, surface affordances. As Gold writes: "It is precisely the pipe's small pocketable size and traditional close proximity to the mouth that make it ideal for containing these features without straining social convention" (72). If the first layer of affordance, its pocketable size, suggests putting the object in a pocket, then it is only through acting on this surface property that a secret layer of affordance can be discovered—perhaps when an embedded computer system in the user's clothing senses the presence of the pipe and activates. What this suggests to me, then, is that in ubicomp world we may simply want to pick up everything of pocketable size and put it in our pockets—just to see what it does. We may want to put anything that looks like it was designed to rest between pursed lips in our mouth—just in case that action might reveal further interactive opportunities. Because as Gold has promised: "There is no telling what a given ubi-object might do" ("Art in the Age of Ubiquitous Computing" [24]).

It is impossible as we discuss this kind of radically tactile play and exploration not to be reminded of early childhood behavior, in which anything and everything is touched, tasted, and torn apart en route to learning what things are for and how they work. Is the experience of ubiquitous computing, in fact, a radical rediscovering of the material world that encourages us to play like children? Here, and finally, I want to return to Gold's decision to describe ubicomp technologies as an "enchanted village, in which common objects have magically acquired new abilities, a village where toy blocks really do sing and dance when I turn out the lights" (72). I have long found these final words profoundly evocative, but I have struggled to articulate why. Only in thinking about the nature of child's play, and particularly the role of magical thinking in early childhood exploration of the material world, have I come to understand what we might call the psychology of ubiquitous computing. For I believe that in "This Is Not a Pipe", Gold has laid the groundwork not only for an aesthetic and phenomenology of ubiquitous computing, but also for its psychology. And the best critical framework for exploring Gold's proposed ubicomp psychology, I want to suggest, is psychoanalyst D.W. Winnicott's theory of *transitional objects*.

1.5. A Theory of Transitional Play and Ubicomp Objects

Part of a larger work entitled *Playing and Reality*, Winnicott's essay on "Transitional Objects and Transitional Phenomena" outlines a theory of prop-based play, in which the player seems to exert an extraordinary, magical control over the things in his or her environment. Winnicott's primary concern is to understand what he calls "an intermediate area of *experiencing*, to which inner reality and external life both contribute… a resting place for the individual engaged in the perpetual human task of keeping inner and outer reality separate yet interrelated" (2). This intermediate area is first experienced in infancy, Winnicott suggests, calling it "the initiation of a relationship between the child and the world" (13). In infancy, Winnicott claims, there is an "intermediate state between a baby's inability and his growing ability to recognize and accept reality" (3). In other words, the baby must learn that there is world of things and people operating independently of the baby's own desires and impulses. This learning does not occur immediately, Winnicott suggests, because of the devoted attachment with which a mother cares for and feeds her baby. He writes: "The mother's adaptation to the infant's needs, when good enough, gives the infant the *illusion* that there is an external reality that corresponds to the infant's own capacity to create" (12). The baby wants to feed; magically, the mother's breast appears to satisfy that desire. The infant's resultant belief in his or her ability to affect the external environment through internal thought or feeling is what Winnicott calls the "experience of magical control, that is, experience of that which is called 'omnipotence' in the description of intrapsychic processes" (47). There is a degree of responsiveness and a quality of immediacy to the mother's response that makes the external world seem, to the baby, a fully controllable extension of itself.

In order to overcome this illusion of omnipotence, the child must discover the independent reality of things in his or her environment. This discovery, Winnicott suggests, occurs most commonly through toy objects. Toys engage a rich fantasy life, but also have a tactile reality that resists the complete control of the child. Winnicott calls such toys *transitional objects* and identifies them as the primary platform for *transitional phenomena*, that is, the experiential area "between primary creativity and objective perception based on reality-testing" (11). Here, primary creativity is the experience of being able to control completely the external world, as if one is the creator of all things and phenomena in the environment; whereas reality-testing is the state of being open to frustration, the ability to recognize which things are not under one's complete control and which therefore possess an external reality. A child's experience with these toy objects, like blocks, dolls and blankies, involves both fantasy play, such as projected personalities and superpowers, and real manipulation, such as construction, puppetry, and loving touch. As such, Winnicott writes, "fantasying gets links up with functional experiences" (4). Through this object-based play, "the infant passes from (magical) omnipotent control to control by manipulation (involving muscle and coordination pleasure)"(9). If this passing out of perceived omnipotence is the end-result of transitional phenomena, then we can understand the child's interaction with transitional objects as retaining some degree of magical thinking with a new and increasing attentiveness to material properties.

But do we ever pass completely out of magical thinking? According to Winnicott, no. While infancy may offer the most pronounced period of transitional phenomena, Winnicott suggests, the intermediate area of experience nevertheless maintains its importance to humans of all ages. He observes: "It is assumed that the task of reality-acceptance is never completed, that no human being is free from the strain of relating inner and outer reality, and that relief from this strain is provided by an intermediate area of experience which is not challenged (arts, religion, etc.). This intermediate area is in direct continuity with the play area of the small child"(13). In other words, even in adulthood, we take up transitional phenomena that allows us a temporary relief from reality and returns to us some of the satisfaction of magical thinking, while still engaging with physical artifacts (think here of the props necessary to both art and religious practice). How these adult forms of transitional phenomena differ from the earliest experience of mixed fantasy and functionality is an important point for Winnicott. He suggests that as we mature, we look for more communal ways to suspend reality and reassert magical control over the environment. This tendency is first seen in the developmental stage that immediately follows individual experience of transitional phenomena, a stage in which multiple children engage simultaneously with the same transitional objects. Sharing common toy objects allows children to "enjoy an overlap of play areas" (48). During this time, the children can agree to certain magical assertions and fantastic claims while perceiving and acknowledging in common certain physical aspects of the transitional objects. This shared transitional experience serves an important social function, Winnicott suggests: “Thus the way is paved for a playing together in a relationship” (48). As adults, we forge relationships in the same way. “Should an adult make claims on us for our acceptance of the objectivity of his subjective phenomena we discern or diagnose madness. If, however… we can acknowledge our own corresponding intermediate areas, we are pleased to find a degree of overlapping, that is to say common experience between members of a group” (14). Here, Winnicott acknowledges the fine line between acceptable fantasy play and what others perceive as delusional behavior. The question here is whether a player in fact believes in the magical control perceived during transitional phenomena or whether the player is merely inviting others to enjoy the same intermediate experience. Sometimes, Winnicott aptly observes, it can be difficult to tell the difference.

What I want to ask with respect to Winnicott’s theory of transitional play is this: Are the ubiquitous objects described by Gold, in fact, transitional objects? And if so, do they support a collective experience of transitional phenomena? When Gold writes that the toy blocks “really do sing and dance”, I am struck by his careful use of the phrase ‘really do.’ Gold could have described a village in which ‘the toy blocks sing and dance when I turn out the lights’, but the insertion of the phrase ‘really do’ indicates *a prior belief* that maybe, when I turn out the lights, the toy blocks will come to life. In the ‘really do’ scenario, it is not therefore a complete surprise when the objects’ performance begins. It is, instead, hoped for, wished for, and then confirmed. I find this final moment in Gold’s essay to be an excellent example of magical thinking: a fantastic, imagined event seems to manifest in physical reality exactly as it was first conceived in mental space. In other words, the outer world suddenly reflects the dreams and desires of the inner world. The external world of ubiquitous computing, I would argue, is portrayed as a space of intermediate experience, where the objects have both the degree of immediacy and responsiveness associated with the mother's breast and the material properties associated with mature reality-testing. When Gold calls the experience of ubiquitous computing "magical", I want to suggest that the technology is conducive to the combination of fantasy and functionality that can only be experienced through play. Ubiquitous computing offers to return to us the comforting feeling of having control over our environment. Ubicomp makes it okay to believe at least a little bit that our own imagination has the ability to activate the world around us.

This magical quality is a large part of what makes the promise of ubicomp so exciting to its earliest proponents, I want to suggest. "Play is immensely exciting," Winnicott argues. "The thing about playing is always the precariousness of the interplay of personal psychic reality and the experience of control of actual objects. This is the precariousness of magic itself, magic that arises in intimacy, in a relationship that is being found to be reliable" (47). Here, Winnicott describes the special quality of intimacy that arises from being physically connected to an object that is responsive in just the right way. As the embedded systems of ubiquitous computing are designed to be reliable, that is to say to work properly over time, consistently responding to our needs and desires almost before we have realized them ourselves, the opportunities for physically-enabled magical thinking increase.

Winnicott's notion of the inherent materiality of play, of the importance of objects, helps us understand why a ubiquitous computing practice focused on animating objects with functionality would be so conducive to play. Indeed, this practice would be conducive to *collective* play, I would argue, because of the shared nature of the environment and computer-enhanced objects. Weiser has described the pre-ubicomp desktop era of computing as having "one person and one computer in uneasy symbiosis", whereas the ubicomp era will have "many computers serving many people everywhere in the world" (2). The networked aspects of ubiquitous computing and the co-locatedness of multiple potential users for each object or system increases the potential for what Winnicott has called the "corresponding areas of intermediate experience", the areas where our subjective beliefs about what things might do are manifest for multiple people.

There is one other aspect to Winnicott's theory that I want to attend to by way of understanding not only the play, but also the performance, of ubiquitous computing. "The transitional object gives room for the process of becoming able to accept difference and similarity," Winnicott writes, where difference is *everything-that-is-not-me*, that is to say what is external reality, and similarity is everything-that-is-me, that is to say what is fully subject to internal will (6). The intimacy of ubiquitous computing, then, can also be understood as breaking down the perceived difference between us and our technologies, returning us to a mode of perception where there is more fuzziness about what is different and what is the same. As Latour has said of technologies: "Do they mediate our actions? No, *they are us*" (214, emphasis mine). If we view ubiquitous computing through the dual frame of Winnicott's and Latour's theories of play and performance, we can see that the social action, or performance, of ubiquitous technologies is to occupy that in-between space of what is different but what is also the same. That is, ubiquitous computing ultimately troubles the distinction between our own subjectivity and the performance of external technologies, as well as the distinction between our interpersonal relations and the social life of the digital network itself.

1.6 Ubicomp Research Culture: The Player and Performer in Residence

In teasing out the theoretical underpinnings and social implications of ubiquitous computing, I have focused on a particular vision of the emerging technological practice—the vision laid out by Rich Gold in his short text "This Is Not a Pipe." Gold's is not the best-known or most authoritative mission statement on ubiquitous computing. Mark Weiser's founding ubicomp essays, for example, and the first technical papers authored by Xerox PARC's ubicomp team are cited far more widely.[5] These other early ubicomp texts, several of which I have referred to already in as much as they underscore and clarify Gold's arguments, traditionally are privileged as more historically significant. They are considered to have played a more decisive role in defining the field and shaping the course of ubicomp research as it has actually unfolded, and therefore they appear repeatedly on reading lists, syllabi, and in works cited, whereas Gold's essay does not. However, I have chosen to work primarily with Rich Gold's essay for several reasons I will outline here.

First, despite having appeared in the prominent computing publication *Communications of the ACM*, Gold's "This Is Not a Pipe" is rarely referenced in the field. This is not too surprising: the essay resembles an art manifesto more than it does a

[5] A traditional reading list of the essential founding texts of ubiquitous computing would likely not include Rich Gold's "This Is Not a Pipe." Instead, it would include the following: "Some Computer Science Problems in Ubiquitous Computing" (Mark Weiser, 1993); "The Computer for the Twenty-First Century" (Weiser, 1994); "The ParcTab Ubiquitous Computing Experiment" (Roy Want, Bill N. Schilit, et al, 1995); "Open House" (Weiser, 1996); "Designing Calm Technology" (Weiser and John Seely Brown, 1996); and "The Origins of Ubiquitous Computing Research at PARC in the Late 1980s" (Weiser, Rich Gold, and John Seely Brown, 1999). For readers interested in a particularly thorough set of historical documents, Xerox PARC has also compiled the first 25 major research reports from their ubiquitous computing group at http://www.ubiq.com/weiser/researchreports.html.

scientific paper. But if Gold's complicated and playful analysis through the lens of an early twentieth-century surrealist painting has not lent itself, upon first reading, to widespread citation, I am hoping here to provide a second reading that encourages further discussion. Why does Gold's statement demand closer attention than it has been paid so far? Gold occupied a unique position on the original ubicomp research and development team, a position that I would argue makes his writing about the field especially important to thinking critically about both the history and future of ubiquitous computing.

Gold, notably, was both a practicing digital artist and an active advocate for the role of the artist in the development of new technologies. The same year that he published "This Is Not a Pipe", Gold created, and went on to manage, the influential PARC Artist-In-Residence program (PAIR), which paired fine artists and scientists together based on shared technologies. In a 1993 lecture for the International Symposium on Electronic Art, Gold described the PAIR program, which is also documented in the book *Art and Innovation*, as follows: "PAIR is a conscious attempt to boost and redirect the creative forces of PARC by providing alternative view points, theories, personalities and methodologies within the halls and long corridors of the community" ([2]). Although Gold was not one of the artists brought on board through PAIR, but rather an established researcher at the center, he nevertheless identified strongly as an artist in his PARC work. Indeed, Gold has said of one own PARC research presentations: "As an artist like myself who works full time inside of a corporation, this is how I do my art and get it shown" ("PAIR: The Xerox PARC Artist In Residence Program" [1]). Gold argued that artists in residence at a computer science lab could have a profound impact on the culture at large. He wrote: "PAIR is awake at a time when fascinating new genres of communication are forming; when the aesthetics of these genres are pushing against the sciences and technologies of various emerging media: a cusp when small activities can create large folds of culture in a not too distant future” ([5]) Indeed, PAIR has been the subject of much attention and praise for its courage in taking artists seriously as research collaborators. In 2001, Gold reflected on the program: “PAIR has become a draw and a source of pride for PARC. They say things like: ‘PARC even has Artists!’” (“The Dialectics of PAIR” [8]) Here, Gold suggests in what I take to be a teasing tone that PARC as an institution might in fact be paying more lip service to its artists than attention to their work. However, regardless of the institutional motivations for its public promotion of the PAIR initiative, Gold argues that whether or not everyone realizes it, “PAIR has a profound effect within PARC” ([8]). And I believe that if anyone’s work embodies the spirit of the PAIR experiment, and if any artist’s vision merits serious consideration as a force within the field of technological innovation, it is Rich Gold’s. To try to understand the culture of ubiquitous computing and ubicomp research without accounting for the work of the artist-researcher at the center of its conception would be to fail the recognize the very real institutional factors that have influenced both the definition of the field and its subsequent development.

It is worth making one more biographic remark regarding Gold. I have proposed through a close reading of his text and through a parallel consideration of relevant critical theory that ubiquitous computing as envisioned by Gold is fundamentally a network of play and performance. What I want to suggest here is that the spirit of play and performance that pervades Gold’s vision can be explained, in part, by examining his previous technological pursuits. An excerpt from the brief biography Gold composed for his own website reveals that games, toys, and the performing arts are a constant in Gold's professional background:

> Rich Gold is a digital artist, inventor, cartoonist, composer, lecturer and inter-disciplinary researcher who in the 1970s co-founded the League of Automatic Music Composers, the first network computer band…. In the 1980s he was director of the sound and music department of Sega USA's Coin-op Video game division and the inventor of the award winning *Little Computer People* (Activision), the first fully autonomous, computerized AI person you could buy and which was an inspiration for *The Sims*. From 1985 to 1990 he headed an electronic and computer toy research group at Mattel Toys and was the manager of, among other interactive toys, the Mattel PowerGlove ("Short Biography").

Gold's biography drives home an important fact often overlooked by those working in, or writing about, the field: The original design philosophy and goals of ubiquitous computing were constructed in part by someone with a lifelong interest in playful objects and collaborative performance.

That Gold brought to the original ubiquitous computing team a tremendous amount of experience with interactive toys, video games, and networked performance has been ignored, I think, because of the work-focused research context in which ubicomp was first conceived. The first Xerox PARC test of the ubiquitous computing philosophy was the PARCTAB system, developed specifically for the work environment. This experiment is famously documented in the paper "The PARCTAB Ubiquitous Computing Experiment," authored by all eight members of the original ubicomp team and dealing with "the design and application issues involved in constructing a mobile computing system within an office building" (1). Indeed, of the Xerox PARC research publications from the seminal period 1991-1995, all of those that report on actual applications and prototypes focus on the office environment: "Responsive office environments" (Elrod, Hall, Constaza et al); "Liveboard: A large interactive display supporting group meetings, presentations and remote collaboration" (Elrod, Bruce, Gold et al); "Dealing with tentative data values in disconnected work groups" (Theimer, et al); and so on. Under the weight of all of this work-oriented research, the origins of ubiquitous computing in play and the performing arts have been lost. Taking up Gold's essay, and taking it seriously, is a way of ensuring that the centrality of play and performance to the original aesthetics, phenomenology and psychology of ubiquitous computing will not be overlooked.

*

So far, I have focused almost exclusively on the early years of ubiquitous computing. Where is the field now, a decade and a half later? What has been achieved, and how, if at all, has the vision changed from its seminal design manifestos? As most researchers in the field readily acknowledge, the technological implementation of a truly ubiquitous computing practice has been more difficult to achieve than perhaps predicted. In particular, the goal of developing an infrastructure for *integrated* and infinitely *scalable* computing opportunities has struggled along the road to fruition, while deeply-ingrained social norms about when and where to engage technologies have been harder to change than expected. Recently, IBM researchers Lada Gorlenko and Roland Merrick observed:

> It is now clear that the goal of “anytime, anywhere, anyhow access for anybody” presents more challenges to its inventors and designers than had been originally anticipated. While many existing technological restrictions may be only a few steps away from being resolved, a large number of environmental constraints and some limitations on the human side will remain (639).

Indeed, the downscaling of ubiquitous computing’s ambitions, at least for the time being, has been one of the most consistent trends in the field in recent years. While certain goals remain the same—to make computing more tactile, more intuitive, more intimate, more mobile—the idea that the ubiquitous computing network will in fact be literally ubiquitous is very much falling out of favor. Computer scientist Matthew Chalmers calls the state of ubiquitous computing: “anything but seamless, pervasive, or ubiquitous” (174). And in the opening keynote for the 2006 Emerging Technologies Conference, design critic and science fiction author Bruce Sterling predicted to a standing ovation: “Personally, I don't believe that ubiquitous computation, as eventually seen in real life, will turn out to ubiquitous…. I don't think it will be ‘every-ware.’ I think it's going to be patchy and limited… instead of being some smooth, finished product, like a state-supported Ma Bell universal-access utility. Time will tell.”

If ubiquitous computing now finds itself slowly backing away from the scope and scale of the vision first laid out by Gold, Weiser, and other members of the Xerox PARC team, and if the technological infrastructure itself has unquestionably failed to emerge in the first fifteen years of development, must we, as Sterling suggests, wait for time to tell if the original ubicomp design philosophy will ever be achieved in practice?

Here, I want to make a rather bold claim—the central claim of this dissertation. The original design philosophy of ubiquitous computing, particularly as it was articulated by digital artist and Xerox PARC researcher Rich Gold, has in fact been thriving in practice since the turn of the twenty-first century. However, it is thriving *outside the domain of computer science*. We may not have realized (yet, or ever) the specific technological implementation imagined by the Xerox PARC team. But as for the aesthetic, phenomenological, and psychological dimensions of their envisioned ubicomp world, a significant body of experimental art and entertainment projects have absolutely "enspirited" contemporary network society with the kinds of pervasive and interconnected, but invisible and dissembled, opportunities for social action and interaction described in the earliest ubicomp manifestos. Most importantly, these projects have successfully embedded the phenomenal affordances of computer interaction in everyday objects and places—without necessarily embedding computing technology.

This dissertation is a historical and critical consideration of a series of *ludic*, or gamelike, works deployed between 2001 and 2006 that have built, I will argue, what we can recognize as a culture of ubiquitous play and performance, in which the term ubiquitous is meant to specify the original design philosophy of Rich Gold and Mark Weiser. This practice, which I will call *ubiquitous gaming*, is as much an intervention into the contemporary games culture as it is a reclaiming of the distributed play and performance ethos of early ubiquitous computing. In the epigraph for this chapter, three pioneering ubicomp researchers lament: "We live in a complex world, filled with myriad objects, tools, toys, and people.... Yet, for the most part, our computing takes place sitting in front of, and staring at, a single glowing screen attached to an array of buttons and a mouse.... How can we escape from the computer screen and bring these two worlds together?” (24) Computer-enabled play at the turn-of-the-twenty-first century, I want to suggest, has found itself in the same position as computing practices. Contemporary digital gaming is almost exclusively a screen-based affair, with buttons and mouses and the occasional novel interface like a dance pad or eye tracker that nevertheless keep the player focused on a screen—be it a home television hooked up to a gaming console, a personal computer monitor, a cell phone display, or the screens of a mobile gaming device. The mainstream computer gaming industry shows little sign, at this point, of moving gameplay away from the compartmentalized experience of interacting with content displayed on a digital screen. Gaming, then, is in as much need of seeking a return to the complex world of myriad objects, tools, toys, and people as other everyday computing practices.

To this end, the projects I will analyze as seminal examples of ubiquitous gaming are not computer or digital games in the way we traditionally conceive them—that is to say, not games that require game-specific engines, operating systems or controllers; not games whose primary platforms are PCs, consoles or handheld game devices. Rather they are computer-*enhanced*, digitally-*enabled* games whose interactive experiences and feedback are as much human-powered as they are generated by digital algorithms, games whose primary platform is the phenomenal world.

1.7 The Defining Characteristics of Ubiquitous Gaming

On the fringes of experimental game design and performance practice, Rich Gold’s vision for distributed networks of play is both manifest and profoundly changing the technological habits, perceptual techniques and social identities of millions of players worldwide. Ubiquitous gaming projects include both commercial and independent, grassroots efforts that organize networked player groups ranging in size from the hundreds to the thousands, to even the hundreds-of-thousands. Here, I present the shared characteristics of the experiences that comprise this emerging culture of ubiquitous gaming. While these fifteen points will require further elaboration and exploration through concrete examples, the general theoretical groundwork I have laid above should serve in the short term to activate, if not to explicate completely, these classificatory criteria. Therefore, I am putting these characteristics into play now, in advance of the more complete elaboration this dissertation ultimately will provide.

1. Ubiquitous games are designed experiences with a strong potential for emergent, that is to say unexpectedly complex, group play and performance.

2. They are distributed experiences: distributed across multiple media, platforms, locations, and times.

3. They have a significant *physical* component, phenomenologically speaking, and a significant *material* component, ontologically speaking.

4. They are embedded at least partially in everyday contexts and/or environments, rather than in marked-off gaming contexts and spaces. They prefer to adopt everyday software, services and technologies rather than exclusively gaming-platforms.

5. They have the effect of sensitizing participants to affordances, real or imagined. That is to say, they increase perception of opportunities for interaction.

6. Many, if not most, of their distributed elements are not clearly identified as part of the experience. Thus active investigation of, and live interaction with, both in-game and out-of-game elements is a significant component of the experience.

7. They have the effect of making all data seem connected, or at least plausibly connected.

8. They make surfaces less convincing. Underlying structures are what matter.

9. They establish a network of players who are in the know. They intentionally involve or engage others who are, at least temporarily, in the dark.

10. Through the relationship rhizome, they aspire to a massively-multiplayer scale.

11. They inexorably create community.

12. They structure player relationships with each other according to relevant computing metaphors.

13. They encourage collective magical thinking.

14. They aspire to persistent and perpetual gaming.

15. They encourage players to construct, consciously, a more intimate relationship between gameplay and everyday life.

Each characteristic I have proposed here, in the order I will present and explore them in this dissertation, is a direct extension of the theoretical work conducted in this chapter. And it should be evident in their articulation that in the following chapters, the critical frameworks of Norman, McKenzie, Schechner, Deleuze and Guattari, Latour and Winnicott will continue to provide important theoretical leverage for understanding the novel recombinations of play and performance that ubicomp enables and provokes.

However: ubiquitous gaming as I have defined it above is not the *only* category of playful projects seeking to escape from the computer screen and to return to more embodied, context-rich, and location-aware interactions. Indeed, other powerful, but ideologically and aesthetically quite different, visions for the future of techno-social play are emerging from the same historical intersection of ubiquitous computing and experimental game design. To ignore them would be to portray Gold's vision as the only conceivable path forward, when in fact several divergent paths are being forged.

Ultimately, I will argue that ubiquitous gaming represents the most scalable, perceptually powerful and socially important vision for future networked play. At the same time, however, I do not wish to take up either a deterministic position or an unduly limited view of the diverse modes and notions of play that are arising currently through the technology and metaphors of ubiquitous computing. Therefore, I will also explore the competing values and stakes of other experimental games and ludic performances that explicitly identify the ubiquitous computing movement as their primary inspiration. In the next chapter, I outline a classification scheme that situates *ubiquitous gaming* in a larger possibility space of ubiquitous play and performance, a space in which design decisions about *what* should be made ubiquitous, *who* should play, and to *which ends* we and our technologies should perform are very much still being made.

CHAPTER TWO

Three Kinds of Everywhere: The Multiple Genres of Ubiquitous Play and Performance

> *In the case of ubiquitous computation… people are still trying to find the loose verbal grab-bag just to put the concepts into. So I would argue that this work is basically a literary endeavor. When it comes to remote technical eventualities, you don't want to freeze the language too early. Instead, you need some empirical evidence on the ground, some working prototypes, something commercial, governmental, academic or military. Otherwise you are trying to freeze an emergent technology into the shape of today's verbal descriptions. This prejudices people. It is bad attention economics. It limits their ability to find and understand the intrinsic advantages of the technology…. So language is of consequence. Those of us who make up words about these matters probably ought to do a better job.*
>
> –Technologist Bruce Sterling, "The Internet of Things"

> *What's the name of the game?/ Does it mean anything to you?*
>
> – Pop group ABBA, "The Name of the Game"

2.1 Contentious Terms and Consequential Language

When the Institute of Electrical and Electronics Engineers (IEEE) published its first issue of *Pervasive Computing* in 2002, new editor-in-chief Satyanarayanan Mahadev pronounced: "This magazine will treat *ubiquitous computing* and *pervasive computing* as synonyms—they mean exactly the same thing and will be used interchangeably throughout the magazine" (3). This announcement, a kind of pre-emptive strike against semantic debate, was an attempt to address the considerable variation in nomenclature already then apparent in both developers' and researchers' work in the emerging field. As Adam Greenfield, author of *Everyware: The Dawning Age of Ubiquitous Computing*, has argued, it is possible to trace significant differences in the goals and methodologies surrounding the original coining of, and early allegiances to, ‘ubiquitous’ vs. ‘pervasive’ computing, and other related terminology. Greenfield writes: “Each of the terms in use—‘ubicomp,’ ‘pervasive computing,’ ‘tangible media,’ ‘physical computing,’ and so on—is contentious. They’re associated with one or another viewpoint, institution, funding source, or dominant personality” (“Hiding in Plain Sight” [4]). But simply because it is possible to identify these originary allegiances, must we actively preserve them? Technologist Max Goff counters: “Many authors do not distinguish between ‘pervasive’ and ‘ubiquitous’ when it comes to computing visions; even Mark Weiser used the terms synonymously” (65). Accordingly, rather than argue the merits of one term over the other or privilege a particular historical viewpoint or institution, *Pervasive Computing* magazine accepted the terms ‘pervasive’ and ‘ubiquitous’ as equally valid and perfectly synonymous. As a practical matter, so too have most researchers and developers: in the past five years, there has been no official discussion over the terms’ semantic differences or respective rhetorical merits in the proceedings of any major ubicomp conference or in the published literature of either the IEEE or the Association for Computing Machinery (ACM), the two leading research organization in the field.

Strictly speaking, of course, as English-language words ‘ubiquitous’ and ‘pervasive’ are not perfect synonyms. What nuances in design philosophy and development strategies might be lost by treating them as such? Here it is helpful to consider the following pairs of related definitions, all from the American Heritage Dictionary of the English Language. First, *ubiquitous*: “Being or seeming to be everywhere at the same time; omnipresent,” with its synonym, *omnipresent*: “Present everywhere simultaneously.” And second, *pervasive*: “Having the quality or tendency to pervade or permeate,” with its active form *permeate*: “1. To spread or flow throughout. 2. To pass through the openings or interstices of: as in, liquid permeating a membrane.” Although clear affinities exist between these two sets, so does one powerful distinction. ‘Ubiquitous’ and ‘omnipresent’ suggest a stable environment, in which the ubiquitous or omnipresent thing is always already there. These words do not indicate movement or manifestation; they have, instead a kind of passive aspect. We can contrast this *always already* quality with the terms ‘pervasive’ and ‘permeate,’ both of which share a *becoming* quality. Their definitions suggest a highly active process of spreading and flowing, especially when there are occasions of rupture in boundaries. ‘Ubiquitous’ says nothing of boundaries; the concept of borders is less relevant when whatever is ubiquitous has located itself successfully in every possible space. ‘Pervasive’, on the other hand, very much recognizes boundaries. It associates itself with their active dissolution or rupture.

While the larger field of ubiquitous and pervasive computing research may find it a practical solution to elide these differences, I want to suggest here that there may still be significant critical benefit in acknowledging the two terms’ distinct connotations in the area of gaming. What might we come to understand about the state of networked play at the turn of the twenty-first century by using the terms more intentionally—for example, to distinguish between projects that strive to create persistent, *always already* gaming infrastructures (what we could more carefully call, according to the above definitions, “ubiquitous” games) and projects that aim to construct more mobile, intermittent infrastructures, emphasizing the *active*, and frequently *disruptive*, transition to gameplay (what we could more meaningfully term “pervasive” games)? Furthermore, if we are making an effort to apply names more strategically, what might we learn by differentiating between projects primarily concerned with advancing the state of ubiquitous computing research through the medium of games (a category we might describe as "ubicomp" games) and projects inspired by the ubicomp design *philosophy*, but not necessarily interested in deploying ubicomp *technologies* as the means to enacting that philosophy?

Such distinctions are not being made at present. Like the effectively merged fields of ubiquitous and pervasive computing, both theorists and practitioners interested in the rapid expansion of real-world platforms, social environments, and everyday contexts for play have taken to using *pervasive gaming*, *ubiquitous gaming* and *ubiquitous computer gaming* interchangeably. It is not unusual, for example, to encounter a designer or researcher speaking of the same work as pervasive in one context and ubiquitous in another.[6] A survey of the terms' usage among the most prolific writers and designers in this space confirms this practice. Games research and development team Staffan Björk and Jussi Holopainen, for instance, variously use "ubiquitous computing games" (at the Third International Conference on Ubiquitous Computing, for example), "ubiquitous gaming" (in the *Journal of Personal and Ubiquitous Computing*'s "Special Issue on Ubiquitous Games") , and "pervasive games" (for the pervasive panel at the First International Conference of the Digital Games Research Association). Digital theorist and artist Julian Bleecker alternates between "ubiquitous games" (at the Seventh International Conference on Ubiquitous Computing, for example) and "pervasive electronic games" (at the Fourth Emerging Technologies Conference), while computer

[6] Indeed, I myself have used both "pervasive gaming" and "ubiquitous gaming" in previous publications, conference presentations and lectures to describe the same projects, without making a clear distinction between the two terms. My own previous work, then, has contributed to the problem of semantic fuzziness I wish to address with a more rigorous approach to naming conventions in this space.

scientist Matthew Chalmers describes his projects as both “pervasive games” (at the Fourth International Conference on Pervasive Computing, for example) and “ubicomp games” (at the ACM SIGGCHI International Conference on Advances in Computing Entertainment).

It seems clear from these examples that context, rather than implied differences in the subjects discussed, is the primary influence on which term is applied where—a workshop at a conference that identifies its subject as “ubiquitous computing” is more likely to attract talks on “ubiquitous games” or “ubiquitous computing games”, while a conference on “pervasive computing” is more likely to attract papers on “pervasive games”. A particularly telling and recent instance of this context-specific, rather than content-specific, naming involves two papers presenting the same research under alternate classifications: “Gaming on the Edge: Using Seams in Pervasive Games” (authors Matthew Chalmers, Marek Bell, Barry Brown, et al), which was presented at the 2005 International Workshop on Pervasive Games, and “Gaming on the Edge: Using Seams in Ubicomp Games” (authors Matthew Chalmers, Marek Bell, Barry Brown, et al), which was presented at the 2005 ACM SIGCHI Conference on Advances in Computer Entertainment. Here, the terms are employed not for their semantic distinctions, but rather for their rhetorical effect. Choosing the right term signifies relevance to a particular audience or publication. In a December 2005 conversation with Bleecker, I asked him about the common practice of using ‘pervasive’ and ‘ubiquitous’ synonymously according to the intended audience. He stated: “I personally use whichever term helps align the talk or workshop with the larger conference or theme…. I don’t think it really matters what you call it. As far as I can tell, we're all talking about the same thing, right?" ("Personal Interview" 12/28/2005)

To the contrary, I want to suggest that the field is not nearly homogenous enough in its goals, preferred platforms and design strategies to warrant such casual interchangeability of terms. I believe, instead, that attending to the traditional semantic variations between 'ubiquitous' and 'pervasive', as well as distinguishing between ubicomp design *practice* and ubicomp design *philosophy*, will provide substantial critical leverage in exploring difference across projects that have been conducted to date at the intersection of the fields of ubiquitous computing and experimental game design. In this chapter, I will suggest that three distinct pairs of design philosophies and aesthetic practices have emerged at this particular techno-historical juncture: what I will refer to as *ubicomp gaming*, *pervasive gaming*, and *ubiquitous gaming*. While all three of these terms are already widely used in both the ubiquitous computing and game studies literature, I want to make them do more specific work. Allowing each term to represent its own set of research aims, artistic intentions, and social impacts will enable us to recognize significant divergences in the field, divergences that often go unnoticed simply because the language that could be used to name them has been stripped of its ability to mark difference.

I want to be clear here: I do not intend these newly differentiated terms to be proscriptive for future design, or even necessarily to last as critical tools for examining contemporary work in the coming decades of gaming. I cannot say whether they will serve as genre distinctions of any long-term usefulness; rather, I am proposing them as historically specific tools. I am interested in mapping a range of experimentation at the turn of the twenty-first century, and I want to mark the differences in this range now in order to note and to preserve the heterogeneity of impulses and strategies across this experimental design space. I have no doubt that current computing technologies, the metaphors they map onto their human users, and the aesthetic practices they inspire will continue to evolve as dramatically in the coming century as computer culture has over the last 50 years. That is to say, I fully acknowledge that these three categories of gaming projects fueled by various late twentieth and early twenty-first century notions of ubiquitous computing are as specific to this era and as likely to obsolesce as the digital technologies themselves.

So why bother being careful about naming them? Why not allow a continued slippage of terminology? I believe these categories serve an important critical function, even in the face of their own probable obsolescence. The paradigm of their application now lays a foundation for a more rigorous general approach to analyzing experimental design practices and emerging genres in the future. It is intended to be an approach that opens up a diversity of potential development paths rather than prematurely foreclosing on an overarching vision that may not, in fact, reflect the proliferating examples and tests. In this specific case, what I want to argue is that not all ubicomp-inspired game projects have the same objectives, criteria for success, or subjective impact on their players. Not all experimental efforts in this space push us in the same direction, despite a pronounced tendency in the field to treat each and every "pervasive game" or "ubicomp game" or "ubiquitous game" as just one more step toward liberating digital games from the computer monitor or the television screen. To act as if this were the case is to ignore the very real *range* of potential futures for massively networked play and performance. As Bruce Sterling argued in his keynote address to the 2006 Emerging Technologies

Conference, “When it comes to remote technical eventualities, you don't want to freeze the language too early. Otherwise you are trying to freeze an emergent technology into the shape of today's verbal descriptions. This prejudices people. It is bad attention economics. It limits their ability to find and understand the intrinsic advantages of the technology.” Here, Sterling suggests that under-considered names have the power to derail thoughtful exploration of a new technological space. Are today’s somewhat careless verbal descriptions of games emerging in and around the ubicomp arena limiting our ability to find the phenomena, and to pay attention to their individual and inherent qualities?

If, as Sterling insists, “language is of consequence” and “those of us who make up words about these matters probably ought to do a better job,” then this chapter is an attempt at doing a better job. Sterling argues that to find the right words for talking abut emerging technological practice, “you need some empirical evidence on the ground, some working prototypes, something commercial, governmental, academic or military.” This dissertation can be written now precisely because there is significant evidence, five year’s worth, on the ground—prominent examples of each of the three proposed categories that are thoroughly documented through a variety of means: original game websites, design statements, published research, photos and videos of live gameplay, and first-person gaming accounts on player blogs and forums. And precisely because naming conventions are still in such a state of flux that it hardly seems to matter to designers and researchers which term gets applied to their work, I believe it is an excellent moment to attempt to vitalize the terminology of the field. Even if only through total disinterest, the language has not hardened yet. We therefore can still open up our ability, through more considered naming, to clarify distinct and important differences. In doing so, we may be better able to find and to understand the intrinsic advantages, and yes, potential dangers, of these emerging technologies and concomitant metaphors for structuring aesthetic experience and social relations.

In the 2006 inaugural issue of the *Games and Culture* journal, games ethnographer Tom Boellstorff observes: “The information age has, under our noses, become the gaming age. It appears likely that gaming and its associated notion of play may become a master metaphor for a range of human social relations, with the potential for new freedoms and new creativity as well as new oppressions and inequality” (29). Here, then, I aim to reflect the fullness of that range, by presenting three such master metaphors generated by three different approaches to both the problem and the potential of play in the era of ubiquitous computing. These metaphors we can characterize as *colonization* through gameplay (the ubicomp games); *disruption* through gameplay (the pervasive games); and *activation* through gameplay (the ubiquitous games).

In the previous chapter, I identified the focus of this dissertation as the last of these three metaphors, the activation through gameplay of ubiquitous games. I described ubiquitous gaming as the design philosophy and practice that represents the most direct legacy of the play and performance roots of early ubicomp manifestos. However, in order not to settle on a particular vision of the future of play and games through ubiquitous computing prematurely, I want to dedicate a significant portion of this work to examining the two other major vectors of experimental design leading out of this particular historical moment. I present these ubicomp gaming and pervasive gaming as robust alternatives, which dialectically may very well influence the course of the future of ubiquitous gaming.

For as my analysis will demonstrate, these three genres of ubiquitous play and performance are not necessarily opposed practices. Instead, they form a network of distinct, but related, efforts to redefine the relationship between everyday life and play. Certain common strategies serve as central nodes connecting the three categories, while other strategies diverge to create an explosion of differentiation in both ludic agendas and impacts.

I will now present a comparative overview of these three distinct visions for the future of play and performance through ubiquitous computing. In the remainder of this chapter, I will outline the theoretical basis for the specific goals and tactics of each category. Then, in the following chapters, I will perform close readings of major examples from each category, one at a time, to illuminate their individual design strategies, aesthetic choices and social impacts.

2.2 Colonization through Gameplay

If, as game designer Eric Zimmerman suggests, "Design is a way to ask questions," then the genre of *ubicomp gaming* asks the questions: Does ubiquitous computing have a Manifest Destiny? (176) And if so, can that destiny be achieved through gameplay?

Consider the historical fact that novel computing technologies tend to be harnessed for gaming almost as soon as they are invented. Examples of this tendency toward play abound even in the earliest decades of computing: In 1952, A.S. Douglas programmed *OXO*, a graphical version of Tic-Tac-Toe on the University of Cambridge's EDSAC vacuum-tube computer; in 1958, William Higinbotham combined an analog computer and an oscilloscope to create the *Pong*-predecessor *Tennis for Two* at the Brookhaven National Laboratory; in 1962, Steve Russell invented *SpaceWar!* on the PDP-1 mainframe computer at MIT; and so on, as documented by the international History of Computing Project.[7] Today, in addition to game-specific home consoles (the Xbox 360, PlayStation 2 and Nintendo Gamecube, e.g.) and mobile devices (the Nintendo DS and the PlayStation Portable, e.g.), new games have been created for, or old games ported over to, virtually every personal digital device you could think of: games for MP3 players, games for mobile phones, games for graphing calculators, games for Personal Digital Assistants (PDAs), even games for digital cameras.[8]

Jan Jörnmark, a historian of the games industry, has argued that this consistent proliferation of innovative hardware platforms for play is a direct result of an intrinsic, colonizing quality of digital games. “Games have had an unprecedented ability to conquer new platforms and incorporate new technologies,” Jörnmark observes (1). He credits this seemingly innate ability to the fact that digital games have an almost genetic relationship to their platforms.

> Video gaming was the first truly digital entertainment medium, requiring processing power both in the production and consumption stage. Born out of the transistor, it has always been intimately connected with the logic

[7] In addition to the historical timeline compiled by the History of Computing Project’s “Chronology of the History of Video Games”, readers interested in experiencing these early games or examining documentation of their original gameplay can refer to the following online resources: An excellent EDSAC simulator operating the original source code for *OXO* is available at http://www.dcs.warwick.ac.uk/~edsac/; the government website for Brookhaven National Laboratory features a remarkable video of the *Table for Two* game: http://www.osti.gov/accomplishments/ videogame.html; the text of a 1962 article about the original lab culture surrounding the game *SpaceWar!* can be read at http://www.wheels.org/spacewar/ decuscope.html, while a simulation of the game can be played here: http://lcs.www.media.mit.edu/groups/ el/projects/spacewar/.

[8] While there is a well-known range of downloadable commercial gaming products for mobile phones and PDAs, games for graphing calculators, digital cameras and MP3 players so far have largely been the result of amateur developers and fan efforts to port familiar genres like text adventures or emulations of classic arcade games to their new devices. Examples include the grassroots distribution of Mario-themed games for the TI-83 calculator; Adventure Gamers’ collection of interactive fiction for iPod MP3 players; and the Mamed! Project to port emulations of PacMan, Doom and other early games to Digita OS digital cameras.

> that is inherent in Moore's famous law: the doubling of the processor capacity every eighteenth month or the halving of the price for the same processing capacity in the same time (1).

The intimate connection between the entertainment medium and its constantly evolving platforms, Jörnmark suggests, has led to a co-evolutionary trend, in which digital games demonstrate a remarkable adaptability to changing technology environments. The transformations in technology mark mutations in the medium's DNA, we might say, spawning novel game forms and genres with each new generation of technology.

Jörnmark, however, does not develop a theory of how precisely this co-evolution takes place. Instead, he is interested primarily in the business ramifications of the process. He optimistically predicts: "The co-evolution between games, computer technology and networked solutions… seems to be able to create a very large number of new game related industries. The room for new innovations seems almost limitless" (2). Jörnmark makes this claim most succinctly in the title of his analysis of the historical proliferation of gaming platforms: "Wherever Hardware, There'll Be Games." In other words, wherever computing platforms exist, designers and developers will soon discover opportunities for gameplay.

Is Jörnmark right? Is it the fate of all computing technologies to be adopted for gameplay? If so, the prediction "wherever hardware, games" arguably takes on dramatic new significance in a ubiquitous computing culture, in which anything is likely to be transformed into computing hardware. If literally any physical object or environment can become a platform for computing, then by extension any such thing and any such place can be adopted for gameplay. When Jörnmark observes that "the video game industry seems to be characterized by a tendency towards *ubiquity*", therefore his choice of words seems quite apt (2, emphasis mine). Indeed, one of the most interesting phenomena to emerge at the intersection of ubiquitous computing research and game design is a concerted effort to speed up the co-evolutionary process of increasingly ubiquitous computing technologies and digital games through a strategic cooperation between the two fields. This phenomenon can best be understood, I want to propose, as a theory of a shared Manifest Destiny.

The original political theory of Manifest Destiny, as articulated by nineteenth century American expansionists, argued that the United States' tendency toward annexing new territories and settling new frontiers was a powerful and civilizing force for good. Moreover, the American right and choice to exercise this force was seen to be both self-evident—hence the use of the term "manifest"—and inevitable—hence the term "destiny". We can clearly see a similar ideology at work, separately, in both game development and ubiquitous computing research. Jörnmark's repeated use of the word "conquer" to speak about the expansion of games onto new platform conjures the militaristic dimensions of the original Manifest Destiny proponents' approach to territory annexation. He writes, for example, that through platform migration "video games have been able to conquer society in an evolutionary process" (1). And the kind of full-blown expansionist fever that characterized the original Manifest Destiny movement seems apparent in Jörnmark's statement: "Gaming has become ubiquitous and all-encompassing. The limits to its growth seem to have eroded almost completely" (8). The passionate enthusiasm Jörnmark shows for the future growth of digital games can only be understood as an ideological stance that more games, in more places, is not only a good thing, but also an obvious and inevitable development of the continuing evolution of technological hardware.

Likewise, ubicomp visionary Rich Gold has on occasion adopted the rhetoric of colonization to make the point that a truly ubiquitous computing culture requires our willingness to allow computer systems complete access to all parts of our daily environment. “UBIQUITOUS COMPUTING OBJECTS ARE EVERYWHERE, COLONIZING,” reads the headline of one of Gold’s “Art in the Age of Ubiquitous Computing” lecture slides ([27]). Like Jörnmark, whose emphasis is on the growth of the game industry, Gold sees this expansion as offering excellent financial prospects to a potential ubicomp industry. He writes: “It makes little sense to talk about a single ubi-object. Every object in our current world must be replaced by a nearly iso-morphic ubi-version of itself. Sounds like a good business to get into. This replacement (or colonization) of every object with a ubi-object will certainly be very good for the economy” ([27-28]). Here, as in Jörnmark’s description of the boundless evolution of the games industry, the unchecked expansion of ubicomp technology is assumed to be a foregone conclusion, with significant benefits to the culture at large.

What happens when these two ideologies come together? A co-evolutionary effort is born, intended to make both ubicomp technologies and computer gaming more ubiquitous. This is the primary work of the category of experimental game design I am calling *ubiquitous computing gaming*, or *ubicomp gaming* for short. It can be defined as the research and development practice driven by a belief that the ludic instinct can and will conquer all technological objects, not only transforming each and every interactive system into infinitely proliferating platforms for play, but also aiding the proliferation of the technological platforms themselves.

Ubicomp gaming is firmly entrenched in the academic and industry research culture of ubiquitous and pervasive computing. It generates test games specifically in the name of ubicomp research, either in experimental application or further development of its specialized technologies. It has two mutually-reinforcing agendas: To use ubicomp technologies to put games into new objects and spaces, and to use the medium of games to put ubicomp technologies into more contexts and into the hands of more users.

In Chapter Three, “Colonizing Play: Citations Everywhere, or, The Ubicomp Games”, I will explore how major projects in this category pursue their expansionist goals. The projects I will examine include the location-sensing adventure game *Pirates!* (Nokia Research and Interactive Institute, 2001), the mixed-reality tag game *Can You See Me Now?* (Blast Theory and the Mixed Reality Lab, 2002), and the augmented-reality driving game *The Invisible Train* (The Handheld Augmented Reality Project, 2005). My discussion will focus first on ubiquitous computing’s use of gameplay as a *rhetorical medium* and as a *research platform*. I will then analyze the particular *play values* of games designed in the name of ubiquitous computing, and how these values seek to organize social relations among players. Finally, I will explore the genre’s performative practice of playtesting, which I will argue prioritizes the mass replication of *citations* of gameplay over the ubiquitous proliferation of gameplay itself.

2.3 Disruption through Gameplay

When Mark Weiser first introduced the notion of ubiquitous computing, he issued a single warning: “If computers are everywhere, they better stay out of the way” (3). The genre of *pervasive gaming* asks the question: What would the cultural landscape look like if computer games refused to stay out of the way?

Weiser's directive stemmed from a concern that proliferating technologies would overwhelm users unless a fundamental change was made in the way designers conceive of human-computer interaction. In "The Coming Age of Calm Technology", Weiser writes: "Computers for personal use have focused on the excitement of interaction. But when computers are all around, so that we want to compute while doing something else and have more time to be more fully human, we must radically rethink the goals, context and technology of the computer and all the other technology crowding into our lives" (3). Weiser argues for human-computer interaction that demands less attention and empowers users to relegate most computing to an area of peripheral awareness until they choose to engage more directly. Such a relationship, Weiser predicts, would be fundamentally *encalming*. It would assure the user of increased overall awareness and power over a greater and more diverse range of interactions. He therefore concludes: "Calmness is a fundamental challenge for all technological design of the next fifty years" (3).

Well—*almost* all technological design. In fact, when Weiser imagined the future of computing, he did not envision a world in which truly every interactive system would be designed to recede into the background of our lives. He specifically identifies gaming as an area in which the peripheral design and encalming goals of ubiquitous computing would be counterproductive. Games, Weiser suggests, are meant to be played in the foreground. By commanding all of our attention, they engage us with an emotional, cognitive and physiological intensity that is the distinct pleasure of a challenging game. "A calm videogame," Weiser suggests, "would get little use; the point is to be excited"

(4). According to Weiser, then, the concept of *ubiquitous computer gaming* is actually a paradox. As such, ubicomp games would never work.

Of course, the many university departments and technology companies who have taken up ubicomp gaming as a research and development platform represent a break from Weiser's early assessment. Ubicomp games are possible, their work suggests—as long as we redefine our expectations about how gaming fits into the calm technology landscape. Games may be exciting to their players, but it is precisely the encalming nature of ubicomp technologies that can help situate such excitement in everyday contexts without endangering the players or disturbing the more traditional use of the space. A 2005 paper by a research team at the Interactive Institute seeks to formalize the range of available design strategies for creating these kinds of calm, ubicomp games. The paper, titled "Socially Adaptable Games" and co-authored by Daniel Eriksson, Johan Peitz, and Staffan Björk, insists that the potential disruptiveness of gameplay in unexpected contexts and spaces can (and must) be mitigated through proper ubicomp design. They write: "The motivation for this paper is grounded in the observation that the full potential of mobile and pervasive computer games will not be possible until these games are able to coexist with complex and changing social environments, as the introduction of technology is usually disruptive in a social environment" (1). The authors first identify physical danger as a possible outcome of a game that requires complete, rather than peripheral, attention. "For instance, a handheld game using players' physical location in a city as input puts players in a dilemma between navigating the physical world (e.g. avoiding traffic) and attending events in the virtual game world" (1). They also note the potentially negative impact of a game on others using the space: "Activities that are normally socially unacceptable are unlikely to be regarded differently to observers when part of gameplay, especially if it is difficult to discern that the activity is actually part of a game” (1). Given the “invisible” nature of much of ubicomp gameplay, this latter scenario is particularly likely to occur. The conflict is clear: The novel kinds of gameplay made possible by ubicomp technologies are likely to conflict directly with the stated goals of ubiquitous computing. How can researchers resolve this design dissonance?

To solve this problem, Eriksson, Peitz, and Björk propose a series of encalming design strategies for ubiquitous computing games. Their suggestions include “supporting interruptability of the game”—that is, allowing players to self-select breaks in order to deal with other environmental factors; “offering multiple communication channels”—letting players choose the least disruptive technology at any given moment, whether that be text message or voice call, for instance; and “allowing players to seamlessly move between being active players and lurkers”—enabling players to switch to more subtle modes of participation as social or personal factors require (6). Each of these toggle-style solutions are directly inspired by Weiser’s notion of encalming technology, which “will move easily from the periphery of our attention, to the center, and back” (Weiser 4).

Eriksson, Peitz, and Björk take Weiser’s admonition that computers had “better stay out of the way” one step further. Their proscribed design strategies not only allow users to push ubicomp gaming technologies to the periphery, but also strive to keep the interaction completely off the radar of bystanders. Non-players are not forced to engage with, or even be aware of, local computing and its associated ludic activities. Under this notion of calm, in which all potential users maintain the right to be blissfully ignorant of the computing around them, the authors strongly urge designers to make the games *invisible* to, and otherwise undetectable by, non-players. “These games are likely to occupy the same space as non-playing people. In order to minimize the impact on these bystanders, the game should be designed for minimal social weight” (7). In other words, ubicomp games should be designed to cause the least social disruption possible while still providing a manageably exciting interactive experience for those who have chosen to play.

If the genre of ubicomp gaming has taken steps to resolve the potential conflict between the exciting, attention-claiming nature of games and the desired calmness of ubicomp technologies, then the genre of *pervasive gaming* has taken steps in precisely the opposite design direction. Pervasive gaming is driven by artists, design critics and game developers who identify thrilling disruption as their games’ signature design feature. A pervasive game strives for *maximum social weight* by spectacularly drawing attention to itself. Pervasive game designers’ primary strategy for gaining this attention is to defy visibly the boundaries that are traditionally placed around play.

In a 2005 article for *Digital Arts and Culture*, “Exploring the Edge of the Magic Circle: Defining Pervasive Games”, digital games researcher Markus Montola examines the genre’s penchant for this particular kind of disruption. He offers the following definition: “Pervasive gaming is a genre of gaming systematically blurring and breaking the traditional boundaries of games” (1). Here, Montola makes literal use of the term ‘pervasive’, describing a genre that intentionally permeates the artificial membrane games traditionally place around play. What are these membranes, and how are they traditionally enforced? Montola identifies three axes of non-pervasive gameplay that typically are bounded: “The regular game is played in *certain spaces* at *certain times* by *certain players*” (1). Usually, these three boundaries are protected by the “magic circle of play”, which Montola defines as a “voluntary, contractual structure that is limited in time and space”. The term ‘magic circle’ comes from Dutch historian Johan Huizinga, who first mentioned it briefly in his seminal study of human play *Homo Ludens*; later, the ‘magic circle’ was developed more fully as a theory of game design by Katie Salen and Eric Zimmerman in *Rules of Play: Fundamentals of Game Design.* For both Huizinga and Salen & Zimmerman, the primary function of the magic circle is to prevent both the game and everyday “real life” from interfering with each other in any detectable way.

In traditional computing and non-computing games, the magic circle is defined and enforced collectively, through social convention and the temporary agreement of all those playing. In a calm ubicomp game, however, we might say that the magic circle would be less monolithic in any given game. Instead, it can be individually and variously shaped and enforced through the peripheral practices of ubiquitous computing. Such a game’s boundaries would differ from player to player, and from moment to moment. The individually assigned boundaries would be actively created and protected according to the available attention and ludic desires of the player, who actively decides *when* and *where* to toggle in out and out of gameplay, and presumably to *whom* to reveal the otherwise invisible gameplay.

The notion of an individually crafted and customized magic circle is a significant departure from classic game design and deployment. If ubicomp gaming is truly headed in the direction proscribed in “Socially Adaptable Games”—and as it is a recent design manifesto, it is hard to judge its impact yet—then this practice will surely become one of the most theoretically interesting and aesthetically challenging aspects of the genre.

Pervasive gaming, however, has already adopted a radically oppositional approach to the magic circle. Rather than making it a more personal and malleable system under the control of the individual user, in order to preserve the social order such boundaries enact, pervasive gaming prefers to preserve the collective notion of a magic circle—precisely so it can openly disturb that social agreement. As Montola argues: “Pervasive gaming is not limited to the contractual play space of the traditional magic circle” (4). That is to say, pervasive gaming does not *redefine* or *renegotiate* the traditional magic circle. Instead, it acknowledges the magic circle and then *defies* it.

In order to be maximally disruptive, that is to say in order to ensure that its defiance of the magic circle is detected, pervasive gameplay must be both *visible* and *legibly ludic*. That is to say, the game should seek maximal social weight for gaming through its striking visual presence, attracting attention and clearly marking itself as a ludic event even as it defies our expectations of where and when to encounter games.

In Chapter Four, “Disruptive Play: Spectacle Everywhere, or, The Pervasive Games”, I will discuss some of the genre’s best-known works, with an eye toward their disruptive goals and high-visibility strategies. The projects I will examine include the city-wide board game the *Big Urban Game* (The Design Institute, 2003), the urban tag game *PacManhattan* (The Interactive Telecommunications Program, 2004), and the follow-the-leader game *The Mp3 Experiment 2.0* (Improv Everywhere, 2005). I will consider how these projects approach game design as medium of *technosocial critique* and *public intervention*. I will suggest that the central design problem of the genre is a tension between *performing* gameplay in public and *inviting* the public to play. I will explore the projects’ strategies for resolving this tension, as well as some of the political dimensions of so dramatically rupturing the magic circle of play. Finally, I will argue that the genre's preference for visual spectacle leads it to generate massively-scaled *semblances* of gameplay, rather than massively-participatory *affordances*—a choice that ultimately aligns its reproductive practices more closely with the era of ubiquitous imaging than with ubiquitous computing.

2.4 Activation through Gameplay

In *Homo Ludens*, Johan Huizinga proposes that "the charm of play is enhanced by making a 'secret' out of it" (12). The genre of *ubiquitous gaming* asks the question: What are the secret gaming affordances of everyday objects and spaces?

Design critic Donald Norman first introduced the term 'affordance' to the field of everyday object design in *The Psychology of Everyday Things*, published in 1988 and then republished in 1990 under the new title *The Design of Everyday Things*. Norman's user-oriented philosophy emphasizes the importance of sensory cues that help users understand how to interact with designed things and built environments. The designer's ability to create effective cues depends, Norman suggests, on a "psychology of materials and things", which he defines as "the study of affordances of objects" (9). He clarifies the central term: "*Affordance* refers to the perceived and actual properties of the thing, those fundamental properties that determine just how the thing could possibly be used" (9). For example, "knobs are for turning. Slots are for inserting things into. Balls are for throwing or bouncing" (9). In other words, the perceivable properties of things—not only their physical shape, size, position in space, but also their culturally recognizable form as something one traditionally pushes, pulls, dials, detaches, grabs, or sits on—tell us exactly what to do with them in order to make them work. Visibility is key to Norman's notion of affordances: “When affordances are taken advantage of, the user knows what to do *just by looking*” (9, emphasis mine).

Although Norman is credited with bringing widespread attention to the concept of affordances, it does not originate with him. As Norman observes in a footnote, its source is perceptual psychologist J.J. Gibson’s 1977 article “The Theory of Affordances.” The tone of the footnote indicates, however, that Norman struggled with how to present and repurpose Gibson’s work for the field of design. He writes: “My view of affordances is somewhat in conflict with the views of many Gibsonian psychologists” (219). Norman does not summarize Gibson’s original argument or discuss this point further in *Everyday Things*. The nature of the conflict is left obscured until fifteen years later, when Norman revisits the theory’s genesis in an online essay called “Affordances and Design”. Because this essay is self-published on Norman’s website and previously appeared only as a message on the ACM “SIGCHI WWW Human Factors (Open Discussion)” listserv, it has not received, perhaps, as much attention as it deserves. In fact, it represents a significant clarification of Norman’s earlier work and, as such, offers an important opportunity to reconsider the role of affordances in design in general and more specifically, in game design.

In the 2004 essay, Norman seems intent on undoing part of the tremendous success of *Everyday Things*—namely, his success in stripping ‘affordance’ of some of the complexity of its original intended meaning. Norman reveals his regret that what he intended as a special-case use of “affordance” came to stand in for its full definition. He writes: “The concept has caught on, but not always with true understanding. Part of the blame lies with me: I should have used the term ‘perceived affordance,’ for in design, we care much more about what the user perceives than what is actually true. What the designer cares about is whether the user perceives that some action is possible" ([3]). But perception of an affordance does not perfectly overlap with actual affordance, Norman suggests. "Where one deals with real, physical objects, there can be both real and perceived affordances, and the two need not be the same" ([4]). Indeed, Norman argues that some real affordances—that is to say, actual opportunities for interaction—are not perceived by users, whereas some users perceive that they are effectively acting upon a thing or system when in fact that affordance does not exist.

What does it mean to perceive an affordance? Here, Norman is not speaking about sensory perception, although affordances are often communicated through the sensuous qualities of a thing (especially its form). Instead, affordance perception depends on the user's cognitive *belief* that taking a particular action will produce an effect, positive or negative, in relation to a specific use goal. Consider, for example, Norman's discussion of the affordances of a point-and-click graphic interface. He writes: "Because I can click [the mouse button] anytime I want, it is wrong to argue whether a graphical object on the screen 'affords' clicking. It does. The real question is about the perceived affordance: Does the user perceive that clicking on that location is a meaningful, useful action to perform?" Norman's point that a user can click a mouse button at any time is well-taken—it is an affordance of the button itself, not an affordance of the overall computing system. A user can click a mouse button even if in the computer is turned off, or if the mouse peripheral is disconnected from the main system. In both such cases, the only real interaction is the tactile pleasure of depressing and releasing a button. As an act of computing, however, clicking lacks meaningful affordance unless something in the system responds to the click. In other words, the perception of affordance occurs when a system is responsive to a particular kind of user interaction. Interaction that is predicted or directly observed (rightly or wrongly) to *activate* some aspect of the object or program is what constitutes a perceived affordance.

So is an affordance really an independent property of a designed object or built environment? Yes, it is, and no, it is not. As Norman notes, “To Gibson, affordances are a relationship” ([2]). We can better understand the nature of this relationship by turning to one of Gibson’s unpublished manuscripts, notes for a 1979 university lecture clarifying his recent work on the theory of affordances. In the manuscript, “A Note on Substances, Surfaces, Places, Objects, Events”, Gibson emphasizes that affordances are both objective (properties of the thing itself) and yet subjective (perceived by a living being with a personal agenda). He writes: “In the *Ecological Approach to Visual Perception* I propose what animals perceive are the *meaningful* properties of substances, surfaces, etc. instead of the *primary* and *secondary* qualities of physical objects” ([1]). By primary and secondary qualities, Gibson refers to the properties that a scientist might ascribe to a thing. While these qualities might accurately describe the physical world in an objective sense, Gibson concedes, they do not adequately account for the physical world in a subjective sense. Here, Gibson makes explicit what he is resisting with his theory: the (then) trend in perceptual psychology to think about human perception in terms of physical stimuli that activate physical receptors. He writes: “Ever since Descartes, human psychology has been held back by the doctrine that what we have to perceive is the ‘physical’ world that is described by physics. I am suggesting that what we have to perceive and cope with is the world considered as the environment” ([4]). By “the world considered as the environment", Gibson means the world considered as a physical system of things and phenomena with specific actionable properties. In other words, to a large extent, *what* things are does not matter. Instead, it is the *how* of physicality that matters—how things engage us and are engaged by us.

To this end, Gibson is interested in affordances particularly as "behavior is *motivated*" by them ([9]). He provides a range of examples that indicates he is not speaking simply about designed objects or built environments, but rather also about both naturally occurring substances and accidental phenomena:

> A substance that is nutritive invites eating, water invites drinking, pouring, or washing (but not walking on), clay invites molding, and dry wood affords fire-making. A surface support invites sitting, standing, walking, or running; a surface that is a barrier to locomotion demands a halt; a double surface that is flexible affords wearing; a warm, soft, suitably shaped, animate surface invites caressing. A place that is enclosed affords getting out of the rain, a place that is hidden and safe affords sleeping, a place where prey is found allows food-getting but a place where predators lurk affords danger; a grocery store also affords food-getting but a six-lane highway with trucks is as bad as a place with saber-toothed tigers. … According to this formula, behavior consists primarily of acts that *take advantage* of the existing substances, surfaces, places, objects, and events of the environment while avoiding painful encounters with them ([9-11]).

Here, we see that affordances can be both positive and negative, that a single object or place can afford multiple and potentially contradictory behaviors, and that there is something of the survival instinct involved in correctly perceiving physical affordances. To this end, there is something almost entirely and surprisingly *unconventional* about Gibson's affordances. That is to say, they are not culturally determined, but rather a naturalized aspect of human instincts and desires.

The point Norman wishes to clarify in "Affordances and Design", by gesturing back to Gibson, is that much of what has come to pass for affordance in human-computer interaction is, in fact, *cultural* constraints rather than *physical* constraints. He writes: "Cultural constraints are learned conventions that are shared by a cultural group…. that one should move the cursor to it, hold down a mouse button, and 'drag' it downward—all this is a cultural, learned convention. The choice of action is arbitrary: there is nothing inherent in the devices or design that requires the system to act in this way" ([6]). However, Norman is careful to note: "The word 'arbitrary' does not mean that any random depiction would do equally well: the current choice is an intelligent fit to human cognition" ([6]). Therefore, Norman allows, designers are right to follow established conventions as much as possible; conventions are usually good models, and moreover, they are often known to new users.

Norman encourages us, however, to begin differentiating between cultural constraints and physical constraints. The former increasingly limits interface design to a set of well-known and generally understood interaction patterns; the current path of design is therefore heading toward a premature foreclosure of most of the possibilities in the interaction design space. According to Norman, this is not necessarily a bad path; it makes things easier to use. However, design with respect to actual physical constraints, affordances instead of conventions, could actually continue to open up interaction possibilities. He concludes:. “[Affordances] are a part of nature: they do not have to be visible, known, or desirable. Some affordances are yet to be discovered. Some are dangerous. I suspect that none of us know all the affordances of even everyday objects” ([2]).

What are some of these unknown affordances, and how might we discover them? Ubiquitous gaming proposes that many of these heretofore unperceived affordances are in fact *gameplay* affordances. That is, it is possible to play with things and spaces that conventionally do not invite a ludic mindset. Indeed, ubiquitous gaming suggests that play itself can make subjectively meaningful many of the objective actionable properties of things and spaces that ordinarily go unexplored or unrecognized because they seem unrelated to the goals of everyday users. Game goals and game procedures can activate these affordances and make them perceivable for the first time by inserting them into a larger system of play. The central premise of ubiquitous gaming, we might say, is this: If affordances are actionable properties, then games are contexts in which action is invited.

How, exactly, might ubiquitous gaming accomplish its goal of revealing the secret gameplay affordances of everyday objects and sites? Here, it helps to take a historical detour to consider two early genres of personal computer games: text adventures and graphic adventure games. These genres taught gamers a pair of strategies for investigating virtual worlds: what I call *affordance hunting* and *promiscuous activation*. I want to suggest that ubiquitous gaming aspires to teach gamers these same strategies for investigating the real world in everyday life.

The technique of affordance hunting can be defined as the highly experimental recombination of game objects deployed in different game locations and applied to different game characters. Affordance hunting was the primary lesson of the text adventures, a genre of text-based puzzle-solving and world exploring made famous by Infocom in more than thirty bestselling games such as *The Zork Trilogy* (1980), *Planetfall* (1983), and *The Lurking Horror* (1987). Affordance hunting emerged as a response to a hallmark interactive pattern of the genre, the "inventory puzzles", which required your character to carry multiple found items until you figured out where, how, and when to deploy them in a meaningful way. As digital media theorist Espen Aarseth observes in "The Adventure Game", this results in an "inappropriate attachment to objects", for the player "must collect and examine as many objects as possible, because you never know what you might need later" (116). The result of this style of puzzle was the tendency to treat everything and everyone in the environment as potentially useful. And that usefulness had to be *actively* discovered.

A popular example of the inventory puzzle is the "hacker puzzle" from *The Lurking Horror*.[9] At the beginning of the game, the player encounters a hacker in a university computer lab. Because every text adventure player knows that any person in the game environment poses a unique interactive opportunity, the player must figure out how best to engage the hacker. Conversation fails to produce interesting results, as does attempting to unplug the hacker's computer, kissing the hacker, insulting the hacker, and every other attempted interaction inspired by the affordances, or actionable properties, of another living human being. Thus, an investigation of the local environment ensues; the player must look for objects to apply to the hacker. The player discovers a nearby kitchen with a

[9] In addition to replaying *The Lurking Horror* on a Commodore 64 emulator for Windows XP during the process of writing this chapter, I consulted a 1997 walkthrough of the game compiled by Phillip M. Reynolds and posted online at http://www.darkmoon.force9.co.uk/lurking.htm. The game program is available at http://www.classic-pc-games.com/pc/adventure/the_lurking_horror.html.

variety of objects, including a microwave and a refrigerator with a carton of leftover Chinese food inside. While in real life, a player would likely ignore this mundane object, in a text adventure, the player must consider all of its potential uses. The natural affordances of these objects are considered and tested. Eating the cold Chinese food appears to accomplish nothing. Heating the Chinese food in the microwave and then eating it also appears to accomplish nothing. Now the player must consider: Was this Chinese food really meant to be consumed by me? Alternative affordances of a carton of Chinese food are explored. It is portable, suggesting that it could be removed from the kitchen and transported to the computer lab. There, its aerodynamic properties suggest it could serve as a weapon—perhaps throwing the carton at the hacker would initiate an interesting interaction. (It does not.) The purgability of a carton is considered: perhaps dumping the Chinese food on the hacker's monitor and keyboard would yield helpful results. (It does not.) Finally, the player may consider that one potential affordance of a carton is that it can be *handed* to someone; one interactive function of food is to be used as a bribe. Indeed, giving the heated Chinese food to the hacker makes him very happy and amenable to all requests. (As a result, he offers you a very important key hanging from his belt.) Here, the player learns to deploy common objects in both ordinary and creative ways, attending to the full scope of the objects' diverse physical properties and cultural functions. Likewise, the player is taught to engage strangers assertively, with the expectation that a meaningful exchange or experience of some kind will result.

Promiscuous activation, on the other hand, can be defined as the exhaustive search for every single interactive platform in a given environment. The technique of promiscuous activation was the primary lesson of the graphic adventure game, a successor to text adventures that incorporated a point-and-click graphic interface, replacing some or all of the typing input. Major graphic adventure games include *Tass Times in Tone Town* (Activision, 1986), *King's Quest VI* (Sierra Entertainment, 1992), *Myst* (Cyan, 1993), *The Pandora Directive* (Microsoft, 1996), and *Grim Fandango* (Lucas Arts, 1998). While the graphical landscapes of these games grew increasingly detailed as technology improved, only certain details in the gaming environment had interactive potential. It was up to the player to find them by, essentially, pointing and clicking at every discernable object on the screen. In a *Computer Times* review of a *Myst* sequel, Andrew Lim summarizes this essential strategy: "Leave no stone unturned, touch everything, click on everything in sight" ([3]). If a given game object were indeed programmed with some level of interactivity, it would activate upon clicking. The player could then choose to examine it, read it, eat it, throw it, keep it, or whatever else seemed a viable action to take (and here, of course, is where affordance hunting comes back into play). In early graphic adventure games, this search for interactive opportunities was made easier by what players dubbed the "hotspots" on the screen. When a player was pointing at a meaningful detail, the cursor would change from a pointer to some other icon to signify the latent interactive opportunity. In the case of *Tass Times in Tone Town*, for example, these icons included an eye to "look at the object"; a hand to "take the object"; a dollar bill to "buy the object"; and a mouth to "talk to the object"—usually most helpful when the 'object' was another character, although at one point in the game, it actually helps to talk to a gated wall (see figure 2.1).[10] As this genre developed, however, hotspots were phased out. In a *Game Zone* review of the graphic adventure game *Conspiracies* (Got Game, 2003), Robert

[10] I refer here to details observed playing *Tass Times in Tonetown* on a Commodore 64 emulator for Windows XP, available at http://www.classic-pc- games.com/pc/adventure/ tass_times_in_tonetown.html.

Gerbino writes: “Dragging the pointer across the screen to find objects of interest is especially frustrating because there are no hotspots. That is, if you do manage to run over something important, the mouse cursor does not change. So you must click on everything” ([5]). The first experience of encountering a new space in these games, then, consisted of checking each and every detail for interactive opportunities.

2.1 Screenshot from *Tass Times in Tonetown*. The player selects an interaction—such as pick up, talk to, buy, and look at—and then highlights objects in the game environment to see what can be activated. In this room, the paper on the table can be looked at. (Activision, 1986)

Often promiscuous activation was combined with affordance hunting to generate complicated sequences of highly improvisational gameplay. One of my favorite such moments occurs on the first level of *Grim Fandango*. The player, who has been assigned the mission of collecting a pair of pigeon eggs so that an underground revolutionary named Salvador can hatch messenger pigeons from them, wanders an outdoor street fair, searching for something to do to move the game forward. The graphic detail of the outdoor environment is remarkable, with hundreds of distinct objects and characters

2.2 Screenshot from *Grim Fandango*. The player must search the environment exhaustively for interactive platforms. Here, the loaves of bread can be activated, as can the clown and his balloons. (Lucas Arts, 1998)

rendered (see figure 2.2). The player must click through the noisy environment searching for a signal, eventually discovering an interactive platform: a sarcastic clown making animal balloons. It is not, however, immediately apparent what to do with the clown or the balloon animals. Here, the gameplay switches to affordance hunting. Because the subsequent series of game events is so rich, I will quote a walkthrough of the game. The walkthrough—a complete, fan-created guide to solving all of the game's puzzles and missions—is written in second-person address and describes exactly what actions the player should take stemming from this interaction with the clown:

> Ask the clown to make you a balloon animal (a cat, for instance). Steal the bread from the clown's tent. After you get the balloon, head to the alley

> again and climb to the ledge using the tie rope. There seems to be someone in Don's office, so get into Domino's office through the open window. Open his desk drawer and get the glowing green coral you find inside. Hit the punching bag on the wall until the mouthpiece on it falls down. Take it and head back out to the ledge. Walk to the tie rope and pick up the rope's loose short end. Tie the coral to it, and throw it over the gap. Head to the roof by using ladders and the bridge you just formed. Once on the roof, walk to the corner where the pigeons are nesting. If you try to approach the pigeon nests, the birds will attack you, so you'll need to think of a way to get rid of them. Put the balloon animal on the small dish on the roof, and grind the bread into crumbs on the balloon. Step back and watch the pigeons eat the bread... and fly away after being startled by the balloon blowing up. Walk to the pigeons' nests and take two eggs from them (Linkola [9-10]).

Consider the multitude of both intuitive and non-obvious affordances of the many objects and sites that need to be recognized and acted upon in order to complete this mission. A preoccupied clown invites the act of stealing, while a dangling rope inspires climbing up it. An open window suggests going through it, while a desk drawer wants to be opened and rifled through. Found objects can be stolen. A punching bag, hit. That rope you climbed up earlier? It also affords tying. And that heavy piece of coral? It can serve as a weight. A piece of bread? Instead of eating it, you could tear it into crumbs. And a blown-up balloon is not just decorative—it has the affordance of serving as a noisemaker when popped. And so the affordance hunting continues, so that each thing encountered can be called upon to play a meaningful role in the player's quest. While the walkthrough document presents each step in the mission as if it were the only and the most obvious option, typically a player would take at least several hours to complete such a mission, testing all the possible variations and combinations of affordances. For instance, what about throwing the coral rock at the pigeons? Or bribing the clown with the bread? How about putting on a balloon puppet show for the boss? Or tying up the clown with the rope? (These are all affordances I acted on when I first played *Grim Fandango*.)

What would real life be like if players applied these interactive strategies to everyday objects, places, and sites? Ubiquitous gaming seeks to answer this question. Rather than focusing on specifically technological platforms, ubiquitous gaming seeks to make everything in real-life environments as satisfyingly interactive as the objects and characters encountered in virtual game worlds. Instead of "wherever hardware, there'll be games", we have "wherever *whatever*, there'll be games." The genre, which includes both commercial and grassroots projects, ask players to take up two core mechanics: first, searching for and experimenting with the hidden affordances of everyday objects and places; and second, exhaustively seeking to activate everything in one's immediate environment. This activation is, in fact, mutual. Game structures activate the world by transforming everyday objects and places into interactive platforms; game structures also activate players by making them more responsive to potential calls to interaction. This is because the act of exposing previously unperceived affordances creates a more meaningful relationship between the actor and the object or the space in the world.

It is important to note here that of the three categories I propose in this chapter, ubiquitous gaming has produced to date by far the most scalable, reproducible and popular vision of a games-infused, everyday life. Because of the research and art-practice conditions under which they are produced respectively, both ubicomp games and pervasive games are typically deployed in a rather limited fashion. As prototypes and as provisional interventions, ubicomp and pervasive games take place over a relatively short period of time—usually just a few hours—and are iterated, or produced, usually just two or three times—a dozen at most. Ubiquitous games, on the other hand, typically are played persistently (without stop) over much longer periods of time: anywhere from several months to indefinitely. During this extended gameplay period, particular game missions, challenges and other ludic events are iterated hundreds, thousands, or tens of thousands of times. And if a ubiquitous game is not persistent, then as a live event, it is deployed on a much higher order that the other two categories: say, thousands of games produced over the course of several years. The number of players across the three categories of games also shifts dramatically upward when it comes to ubiquitous games. As I will document, ubicomp playtests and pervasive gaming events typically engage, directly, a few dozen players at a time—maximally, a few hundred. Ubiquitous games, on the other hand, engage players by the hundreds or thousands at minimum, more typically by the tens of thousands, and in the most successful ubiquitous games, by the hundreds of thousands at a time.[11]

Together, the massively-multiple *iterability* of ubiquitous game events and the massively-multiplayer *scale* of the ubiquitous games' communities allow this particular experimental category to generate a very different set of research insights and social impacts than either ubicomp or pervasive games. The quantitatively higher order of

[11] An excellent compilation of player statistics for ten major ubiquitous games has been compiled by new media researcher Christy Dena and is available at http://www.cross-mediaentertainment.com/index.php/2006/03/04/top-args-with-stats/.

connected gameplay events and players, and the resultant complexity of the game networks, provides three kinds of qualitatively different outcomes. These outcomes can be summarized as followed: More is *better*; more is *different*; and more is *needed.* As Andrew Fluegelman, founding member of the 1970s New Games Movement, has argued: "The more the better", in reference to the optimal number of players for the movement's patently oversized and intensely physical games (141). [12] In other words, players experience a distinct phenomenological pleasure in being part of a much larger, intimately connected whole. The production of this collective pleasure results in a desire to *keep gaming* that I will explore as the signature engine of the perpetual ubiquitous gaming experience.

Also, as physicist P.W. Anderson famously explained in the first scientific paper on the phenomenon of emergence, "More is different" (373). Here, Anderson argues that macro-systems operate in much more complicated and surprising ways than similarly structured micro-systems. Anderson was interested in the unpredictable atomic interaction in complex particle systems, but the same principle of emergence has been observed in physical, biological, technological and social systems across disciplines: Unexpected things happen when you scale up.[13] The study of new genres of networked play therefore benefits enormously from projects that, like the ubiquitous games, seek to explore higher levels of gameplay complexity. As I will demonstrate in the chapters on ubiquitous gaming, fundamentally different relations among players and phenomenal

[12] In the aftermath of the Vietnam War, Stewart Brand and other activists created the New Games Movement to encourage creative and collaborative, rather than competitive, gameplay. They pionoeered dozens of massively multi-player games for the real world. Today, the movement is referenced as pre-digital predecessor of pervasive and ubiquitous games in various game studies texts, such as *Rules of Play* (Salen & Zimmerman, 2004) and "Sustainable Play: Towards a New Games Movement for the Digital Age" (Pearce et al, 2006).

[13] Steven Johnson's *Emergence: The Connected Lives of Ants, Brains, Cities and Software* (2001) provides an excellent introduction to emergence across multiple kinds of complex systems.

qualities of play emerge through projects that both iterate massively multiple times and connect massively-multiple gamers into a single ludic network.

Finally, as computer scientist Pat Miller has observed of the design of grassroots supercomputers: "More is needed" ([2]). Miller refers here to the massive number of central processing units required to construct a "do-it-yourself" supercomputer.[14] To become exponentially more powerful, to pass the coveted threshold from *ordinary* computer to *super* computer, you need to connect as many individual parts as possible. Ubiquitous games, I will document, seek to empower players to change not only their own perception of the everyday environment, but also to alter the actual, conventional interaction patterns of everyday life. And just as distributed computer projects require massively-networked processors to produce a transcendent computational performance, so too do distributed games require massively-networked players to produce a transcendent ludic performance. The massively-scaled gamer network of players working together on the common problem of where, when and how to play produces both a magnitude and a quality of impact not possible in experimental games deployed under more limited conditions.

Because of the additional complexity generated by their massively-scaled play and player communities, I want to explore the category of ubiquitous games in considerable depth and detail, over the course of several chapters. In Chapter Five, "Activating Play: Affordances Everywhere, or, The Ubiquitous Games – Part I", I will explore two major examples of ubiquitous games: the original alternate reality game *The Beast* (Microsoft,

[14] On April 3, 2004, Pat Miller led a University of San Francisco effort to create the world's first "flash mob supercomputer", so called for its grassroots, ephemeral construction. Over seven hundred people brought their personal computers to network as a single, co-located, massively distributed computing system. This event is further discussed in my "SuperGaming! Ubiquitous Play and Performance for Massively Scaled Community" (McGonigal 2005).

2001) and its sequel *I Love Bees* (42 Entertainment, 2003). I will focus on how these projects seek to activate the gameplay affordances of everyday media objects and physical environments by embedding and replicating a *cognitive pattern of play*, rather than constructing a new technological infrastructure. I then will analyze how these projects approach games as a *hailing* medium, that is, as a medium for maximizing public engagement with things, places and people that players would ordinarily not perceive as offering meaningful interactive opportunities.

In Chapter Six, "Dangerous Mimesis", I will explore the purposes and pleasures of a signature phenomenon of ubiquitous games: the players' collective performance of *excessive immersion* and *credulous belief* in the game. I will argue that the players' sensationalized representation of their own ludic experience is required by the games' simultaneously *simulative* and *dissimulative* rhetoric.

In Chapter Seven, "Power and Superpowers: The Ubiquitous Games – Part II", I will explore another set of seminal ubiquitous game projects: the reality-based superhero games *The Go Game* (Wink Back, Inc., 2001-present) and *SFZero* (PLAYTIME, 2006-present). I will focus on how these games seek, also through affordance-based design, to create the perception that real life can be experienced more pleasurably and productively through a ludic frame. I will also continue to explore performance of belief in the game's ubiquitous presence as a primary factor in ubiquitous gaming.

Finally, in Chapter Eight, "The Collective Play Values of Ubiquitous Games", I will explore the play values and social structures of ubiquitous games. I will identify three specific community architectures that have emerged from the socio-technological themes and platforms of these most widely-played ubiquitous games. I will argue, ultimately, that these community architectures create massively-scaled gaming communities capable of, and prone to, perpetually perceiving and reproducing ludic affordances, everywhere.

Across all of these chapters, I will work to show how the process of perceiving and replicating the game is neither automatic nor unconscious, but rather thoughtful and deliberate. Indeed, I will argue that the responsiveness developed by players to potential ludic interaction represents a new kind of *critical gaming literacy*. The gamers grow to read the real world as rich with ludic opportunity, carefully testing everyday objects, sites, people and contexts for the potential benefits and drawbacks of bringing each inside the magic circle of play. Ultimately, then, the *ubiquity* of ubiquitous gaming is not a ubiquity of the actual game itself, but rather a ubiquity of *perceived gaming potential* that can be engaged critically and assessed for both payoffs and risks. In this way, ubiquitous games combine the *personal customization* of ubicomp games' approach to the magic circle of play, in which players decide when, where and with whom to play to create as minimal social impact as possible, with pervasive games' *defiant approach* to the magic circle of play, in which designers intentionally disrupt expectations about where, when and how to play. Ubiquitous gamers, first individually and then collectively through their documentation and meta-discussions of the game, take responsibility for articulating the current boundaries of the magic circle. They then must decide whether to protect or to transform them. In this way, it is the players who ultimately, and strategically, construct a new intimacy between real life and the game.

2.5 A Map to Three Kinds of Everywhere

In this chapter, I have proposed three different categories of ubiquitous play and performance: *ubiquitous computing games*, *pervasive games*, and *ubiquitous games*. As I have stated, each category works toward a different end: toward the mutual research and development goals of digital games and ubiquitous computing; toward techno-critical and ruptures of the magic circle of play; and toward the discovery of more platforms for meaningful interaction in everyday life, respectively. And as I will elaborate in the next three chapters, each has its own distinct reproductive practices: the proliferation of gameplay *citations*, the proliferation of gameplay *spectacles*, and the proliferation of gameplay *affordances*. As I discuss the design strategies and aesthetic choices that drive these various proliferations, I will also explore title of this dissertation *This Might Be a Game* in the critical context of each category. For ubicomp games, “this might be a game” is an expression of the forward-looking, prototyping nature of the genre. Games are hinted at and provisionally deployed as a way of investigating the future. In other words, *this might be a game… some day*. For pervasive games, it is an indication of the genre’s ambivalence about who gets to play, where, and when. Game-infused spectacles are performed in public, but there might not in fact be public opportunities for game play. In other words, *this might be a game… or it might just look like a game*. And finally, for ubiquitous games, the title evokes the sense of perpetual ambiguity created by genre. Game objects, game data, and game are not marked as such, requiring players to actively investigate the world around them for ludic opportunities. In other words, “This might be a game…and the only way to find out is to play it *as if*.”

CHAPTER THREE

Colonizing Play: Citations Everywhere, or, The Ubicomp Games

As ubiquitous computing researchers, we must be aware of this human tendency to play, and use it to our advantage.

—Ubicomp researcher Eric Paulos, "Intimate (Ubiquitous) Computing" (3)

3.1 Is Ubiquitous Computing There Yet?

For several years now, one of the most oft-articulated sentiments in pervasive and ubiquitous computing circles has been the question: "Are we there yet?" More than a decade after Mark Weiser first began talking about "The Coming Age of Calm Technology," many have started to wonder when, in fact, that age will come and what, exactly, it will take to get current technology from *here*, a state of desired and envisioned ubiquity to *there*, a state of actual ubiquity. In a keynote for the 2003 Mobile Human Computer Interaction conference, ubicomp researcher Albrecht Schmidt asks: "Is Ubicomp inevitable? Is it done? Are we there yet?" ([5]) After comparing Weiser's visionary statements with the most promising work in the field, Schmidt ultimately concludes: "Ubiquitous Computing: Not there yet", as if the defining characteristics of ubiquitous computing comprised a discrete destination that could be mapped, navigated toward and objectively arrived at ([7]).

In a field that takes its name from the Latin root for "everywhere" (*ubique*), it is not surprising that the ultimate goal of ubicomp research tends to be regarded as a "there". Success is symbolically conceived of as a location precisely because the entire ubiquitous computing project is linguistically bound up in the notion of whereness, or *ubiety*—the condition of being located in a particular place. While fields of research are often said to have metaphorical frontiers at which innovators push the limits of knowledge and technique, ubiquitous computing has real, physical frontiers—the objects and material sites it seeks to colonize for computing.

Frontiers pose a kind of territorial mystery: they remain unknown to their explorers until approached, investigated and claimed. So perhaps it is to be expected that ubiquitous computing does not always seem to know where it is going next, even as it asks if it is there yet. Consider the seemingly paradoxical pair of questions that a panel for the 2004 Mobile and Ubiquitous Computing Conference takes as its title: "Are We There Yet? Where Will We Go?" In answer to the first question, the panel reaches a conclusion similar to Schmidt's: "Despite a decade of research into the area, we are seeing very limited deployment of mobile/ubiquitous computing technology" ("Mobiquitous 2004 Conference Program"). The central themes of the panel, articulated in a series of uneasy bullet points, reveal an array of fundamental insecurities about the road to truly ubiquitous computing. "How close are we to seeing their widespread use?… Who will invest in the needed infrastructure? What social and technological barriers remain? Is the problem a lack of usable applications? Are there no good applications because the underlying technology is still very limited?"

The panel's second titular question can be read as an attempt to address these interwoven concerns. "Where will we go?" suggests that the *there* of ubiquitous computing is still being defined. Not being there yet is a consequence of not yet fully knowing what it *means* to be there. The goal of computing everywhere, it would seem, is too abstract—the infinitely many 'there's of everywhere must be accounted for to make a success condition discernible. What we have in the current state of ubiquitous computing is not so much a failure to *arrive* as it is a failure to *articulate*.

In this light, the question "Where will we go?" has a second function, a special tactical value. It proposes further exploration and definition of the possibility space as a potential strategy for dealing with the limited progress of ubiquitous computing, so far, toward its presumed manifest destiny. Here, the possibility space is a literal concept: the many potential sites for computing need to be identified, charted, occupied and tested. We will know where to go only by first fully staking out the terrain—that is, by provisionally planting the flag of computing in as many novel sites as possible. Being "there yet", the panel suggests, can only be achieved through meticulously surveying the computing landscape of the future. To adapt Gertrude Stein, there's no *where* there… yet.[15] Ubiquitous computing needs a map.

But how will the field generate such a map? In a lecture for the 2005 International Conference on Pervasive Computing, Laurent Ciarletta proposes a mapping strategy based on mimetic technological performance. Ciarletta opens his lecture, like so many others, with the question "Are we there yet?", by way of suggesting that we are most certainly not ([3]). He wants to know: "Where are the applications? ... Where is the public use?" ([2]) In the face of ubiquitous computing's failure to manifest itself in the present, Ciarletta suggests a playfully performative mode of redress: faking it. The title of Ciarletta's talk, "Emulating the Future", recommends *imitating* now an imagined, future state of truly ubiquitous computing in order to better understand the destiny of the field. In the accompanying paper, Ciarletta writes:

[15] Stein originally said of her childhood hometown Oakland, California "There is no there there" in her 1937 work *Everybody's Autobiography*.

> In order to specify good applications, it would be interesting to completely emulate those systems, creating fake worlds where the specific piece being developed can be embedded, tested, compared with other solutions and demonstrated in its context, even though some of the technologies have not been developed yet, or are available only as prototypes on a small scale (3).

In other words, by creating *as-if* ubicomp systems—working, local demonstrations of ubicomp technologies and infrastructures that are not ubiquitous yet, but which might someday be—the field can mimetically manifest ubiquitous computing's hoped-for "there".

Ciarletta's suggested "fake worlds" call to mind a kind of theatrical play, a staged magic circle in which computing behaves *as if* it were already ubiquitous. To paraphrase theater-games activist Augusto Boal, such emulation might not be the ubicomp revolution in itself—but it could be a *rehearsal* for the revolution.[16] If this language of revolution sounds rather confrontational, consider Schmidt's proposed solution to ubiquitous computing's problem of not being *there* yet. He encourages his HCI audience to continue aggressively pursuing Weiser' vision by "confronting real people in real everyday environments" with more and more functional ubicomp prototypes ([20]). His use of the term "confront" is telling—it evokes the conflict inherent in any colonizing effort. Frontiers, after all, are not usually uncontested spaces; negotiations or outright battles are likely to ensue when colonizers seek to appropriate new territory. If we are not at the desired "there" of ubiquitous computing yet, Schmidt suggests, perhaps it is because we have not staged a dramatic enough confrontation. Ciarletta's plan to fake effective

[16] Boal originally writes: "Perhaps the theater is not revolutionary in itself; but have no doubts, it is a rehearsal of revolution!" in the essay "Poetics of the Oppressed" from his 1979 collection *Theatre of the Oppressed*.

ubiquitous computing by “emulating the future” offers precisely such a dramatic means to advancing the field.

The term ‘emulation’, of course, has a special meaning in computer science: emulators are programs that allow computers to masquerade as a different make and model. The most popular computer emulators are those that allow users to run programs from the *past*—for example, I use a Commodore 64 emulator to install and run code written in 1988 on my 2005 Sony Vaio. Given the close relationship of technological evolution and games development, it is not surprising that game programs for obsolete personal computers and consoles comprise the vast majority of available emulator-related downloads. Widely circulated emulators for various Commodore, Amiga, Spectrum, and Colecovision models, to name just a few, enable users to play literally thousands of classic and cult-favorite computer games.[17]

Here I want to ask: Whereas computer emulators are designed to allow us to play games from the past, could *ubicomp* emulators let us play games from a hoped-for technological future? If so, what might we learn from such provisional, forward-looking games—about the present state of ubiquitous computing and about the future of gameplay in a ubicomp society? Would emulating the future of play help define and advance the field toward the ultimate *there* of ubiquitous computing, the there where we are not yet?

In this chapter, I explore the role of experimental, emulatory game development in furthering the expansionist efforts of ubiquitous computing. First, I will examine how researchers create novel game prototypes that aspire to be both *smart* and *persuasive.* By

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[17] Perhaps the best current emulator resource is The Old Computer (www.theoldcomputer.com), which houses downloadable emulators and game programs for 338 VIC-20 games; 842 Atari 2600 games; 913 Nintendo games; 2455 Commodore 64/+ games; and many, many more.

smart, I mean designed to produce research insight about current ubicomp platforms, infrastructure and interfaces. By persuasive, I mean designed to convince future ubicomp users and technology gatekeepers that the manifest destiny of ubiquitous computing is indeed a vision worth pursuing. A smart ubicomp game aims to advance the field *technically* closer to its goal of computing anywhere and everywhere by revealing how to better construct, embed, network and deploy ubicomp technologies. A persuasive ubicomp game aims to advance the field *socially* and *organizationally* by demonstrating to the public the potential benefits of ubicomp technologies.

Then, I will explore the performative function of play in ubicomp games research. It is not enough to design smart and persuasive games; their arguments and results must be made citable, that is to say, replicable. As a fundamentally scientific practice, ubicomp gaming therefore constructs its own "theater of proof", Bruno Latour's term for the mechanism through which scientific aims and findings are introduced into a network of circulating references (*The Pasteurization of France* 85). Organizational sociologist Diane Vaughan argues: "For engineers, a design is a hypothesis to be tested. But tests only approximate reality. *The proof is in the performance*" (quoted in McKenzie 96-7). Ubicomp game design, I will argue, formulates hypotheses about the value and feasibility of ubiquitous computing. *Playtests*—a term frequently used to describe the prototype demonstration of ubicomp games—are the experimental performances that provide citable proof of these hypotheses. I will examine how the network of playtests attempt to make manifest, that is to say to make legible and credible, the destiny of ubicomp technologies—a destiny whose *self*-evidence is arguably called into question by the persistence of the field's question: "Are we there yet?" The work of the playtests, then, is to provide better evidence, to construct a convincing map of viable future ubicomp sites—both in terms of contexts and locations.

Finally, I will consider the play values expressed through ubicomp game design. What are the particular qualities of play that are explored and enacted in these games? What kinds of gamers do they produce? As I have argued previously, ubicomp games represent the joining of two mutually supportive manifest destinies. It is not just that the ubicomp technologies are colonizing new objects and spaces, but also that games are conquering new technological platforms. I will argue that the games that conquer the ubiquitous computing platforms are dialectically influenced by the myths and dreams of their colonized technologies. In the field of postcolonial studies, scholars such as Edward Said (in his 1979 *Orientalism*, for example) and Homi Bhabha (in his 1994 *The Location of Culture*) have shown how colonizers take on significant aspects of the culture and identities of the colonized. I will therefore analyze how ubicomp technology values, as articulated in major manifestos of the field, subtly transform gaming and, more importantly, the players themselves to be more like ubiquitous computing's vision of itself.

2. Ubicomp Games as Research and Rhetoric – Academic Projects

In 2002, computer scientists Kay Römer and Svetlana Domnitecheva created *Smart Playing Cards*, a perfectly distilled example of a ubicomp game that attempts to be both smart and persuasive. The project augments a traditional four-player card game, Whist, with a range of novel ubicomp features. The centerpiece of its design is a deck of "smart cards", which Römer and Domnitecheva created by attaching Radio Frequency Identification (RFID) tags to ordinary playing cards. Each tag was tuned to uniquely

3.1 Smart Playing Cards. These ordinary playing cards are made "smart", or computationally enhanced and network-capable, through Radio Frequency Identification (RFID) tags attached to the backs of the cards. (Distributed Systems Group, 2005)

identify one of 52 distinct cards in the Whist deck (see figure 3.1). To accompany their smart deck, the researchers constructed a 'smart table' by mounting an RFID reader with an antenna to the underside of an ordinary card table. The reader picked up radio signals from the smart cards as they were laid on top of the table. This real-time gameplay data, such as which cards were played by whom, was processed by a hidden PC connected to the RFID reader. Gameplay data was then displayed to players in one of two ways. Public game information, such as the current score and a winner history, was displayed on a 'smart wall', equipped with a large flat panel monitor wirelessly connected to the PC. Private game information, such as hints for beginners and ratings of a player's individual moves, was relayed to individual Personal Digital Assistants (PDAs) through a wireless link. In this way, even the players were made smarter—in a ubicomp sense—than traditional card players. Finally, hidden wireless speakers in the 'smart room' enabled the game system to announce when players were cheating. An alarm was triggered whenever the central game server detected that a user had played an illegal card.

Despite all of this added functionality, the authors report in an article for the journal of *Personal and Ubiquitous Computing* that the technology was on the whole "unobtrusive… retaining the look and feel and social interactions of the classic game" (377). I would suggest, however, that there is in fact a significant and archetypal act of obtrusion taking place via the game's implementation. The game props, game environment and even the game players have been fundamentally and physically imposed upon by the technological infrastructure. Where once there was not silicon, now there is—attached to, embedded in, and grasped by new ubicomp objects, new ubicomp spaces, and new ubicomp users, respectively. This is a non-trivial intervention; it is successful ubicomp colonization of the kind Rich Gold predicted would be one of the hallmarks of the field. It is a tangible act of territorial flag-planting, with chips and sensors serving as the flags.

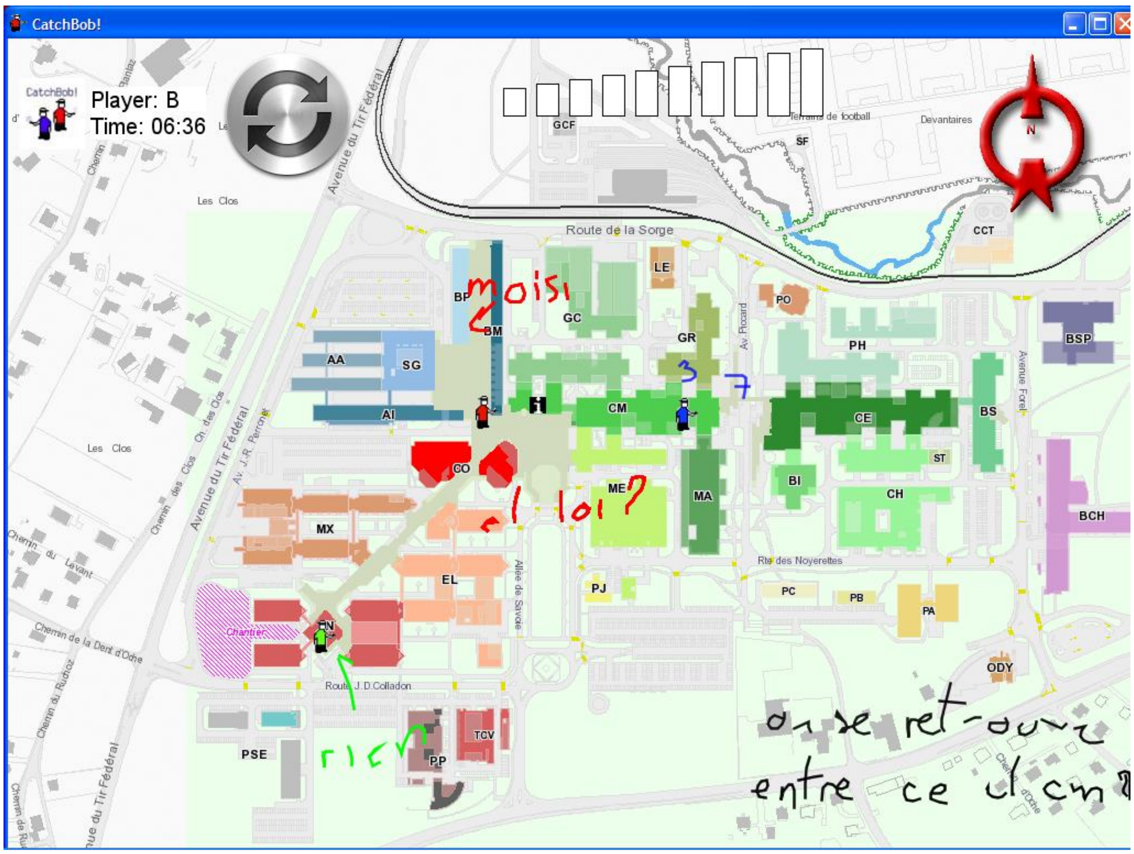
Why do Römer and Domnitecheva select *gameplay* as a medium for staking their ubicomp claims? As the *Smart Playing Cards* authors note in their introduction: "Recent technological advances allow for turning parts of our everyday environment into so-called smart environments, which augment the physical environment with useful IT functionality" (371). The authors are eager to develop infrastructure to support this transformation; however, they identify a considerable obstacle to significant IT expansion. "The main challenge of ubiquitous computing is to envision smart environments that provide a reasonable advantage for people using it, without violating the social and legal rules of our society and life" (371). In other words, before ubiquitous computing can approach any degree of actual ubiquity, future users must be convinced of the benefits of computationally enhanced objects and spaces. Researchers and developers therefore need a suitable medium for demonstrating the value of embedded IT functionality. Otherwise, the power of social norms, user expectations and practical inertia are likely to create significant friction against the widespread adoption of ubiquitous computing.

Games, Römer and Domnitecheva suggest, are the most persuasive medium available for their particular cause. They observe: "The area of games looks promising with respect to ubiquitous computing, since due to the entertaining nature of the social interactions, users are willing to explore innovative metaphors, modalities and hardware even when they are not as apparent or fluid as the designers might have hoped" (371). Here, the authors invoke an oft-referenced argument first made by computer scientist Thad Starner, whose 2000 article "Towards Augmented Reality Gaming" is frequently cited as a research rationale by ubicomp gaming projects. According to Starner's original discussion, gameplay offers technology researchers two major benefits. First, Starner writes, "there is a certain universality of a sense of play that entices users who would not be interested in testing prototype systems normally" (1). In other words, a prototype developed in the form of a game is likely to attract and to engage a more diverse group of testers than non-game prototypes. Developers looking to expand the user base for ubiquitous computing—a necessary step toward achieving ubiquitous computing's manifest destiny—will find that base through gameplay. Indeed, in the case of *Smart Playing Cards*, its authors note that a majority of their testers had no previous interest in, or experience interacting with, 'smart' objects or 'smart environments' like the RFID-enhanced playing cards and game room. However, in the section on "User Experiences", Römer and Domnitecheva report: “Our observations led us to the conclusion that people seem to basically like the idea of ubiquitous computing in this special setting” (4). Here, the authors present a finding that, if broadly true, would certainly be as important to the future success of the field as the technical innovation of their project’s implementation: ubiquitous computing can be made more appealing through gameplay. The authors’ emphasis on the “special setting” of the test—a gaming environment—underscores the fact that games are specially suited to doing this persuasive work, the work of making ubiquitous computing seem like a good idea.

The second major research benefit of the game medium, according to Starner, is that gameplay is perfectly suited to smoothing over the inevitable flaws or incompleteness of early technology deployment. He writes: “Another advantage is that game play can be designed to hide limitations in the current implementation of a system while exploring its potential” (1). Players are accustomed, Starner suggests, to trying multiple approaches until they find success. Practicing patience is part of learning the rules and the ropes of a new game. The flexibility and tolerance required of a gamer is ideally suited for interaction with novel computing devices and displays, which may not be grasped easily or effective continuously at the prototype stage.

In “Getting Real with Ubiquitous Computing,” a 2005 paper for the *International Journal of Human-Computer Interaction*, Fabien Girardin and Nicolas Nova take up Starner’s second point to explain their project *CatchBob!*, a game that studies flaws in existing ubicomp infrastructure. Like *Smart Playing Cards*, the experimental game design of *CatchBob!* is emulatory. But rather than emulating ubicomp infrastructure of the future, *CatchBob!* emulates ubicomp *interaction* of the future. It situates players in an already everyday ubicomp environment: a college campus, where the Wi-Fi access is spotty and the buildings significantly distort and interrupt the Global Positioning System (GPS) data. In this unmodified present-day environment, the players are then asked to accomplish a game mission better suited for a future ubicomp society. That is to say, the challenge is designed to reflect what players might be able to accomplish if the ubicomp infrastructure were better developed and more consistently deployed. The central gameplay unfolds as follows: First, teams of three players are separated from each other by up to a kilometer on the campus grounds. They must work together to discover, and simultaneously arrive at, the "Bob," a virtual object mapped to real-world coordinates somewhere on campus. Using location-sensing and Wi-Fi enabled mobile devices, such as an iPAQ or Tablet PC, players hunt for each other and "Bob". When more than one teammate has Wi-Fi access, they can log into the central game server to view a shared map of the campus grounds and to use instant messaging to coordinate their actions (see figure 3.2).

In a paper for the *International Journal on Human-Computer Interaction*, the *CatchBob!* designers outline their game-related research intentions in typical "Are we there yet?" fashion: "Ubiquitous computing is still a maturing field of investigation. Ubiquitous environments must deal with unreliable network, latency, bandwidth, security, unstable topology, and network homogeneity. The vision of the seamless integration of computers to people's life has yet to happen" (60). Girardin and Nova are interested in how user improvisation and collaboration may be able to make up for these present-day flaws and gaps. They note that users often grow skilled at overcoming the flaws of a technological system: "Many times we learn strategies to adapt, to avoid, or to rectify the systems' failures" (60). They liken this practice to gameplay, since it is typical for players to learn and to deploy multiple, improvisational strategies in their early and often frustrating interactions with a new game. Therefore, they argue, a game should actively produce a range of generalizable strategies for dealing with the frustrating *not-quite-there-yet* state of current ubiquitous computing.

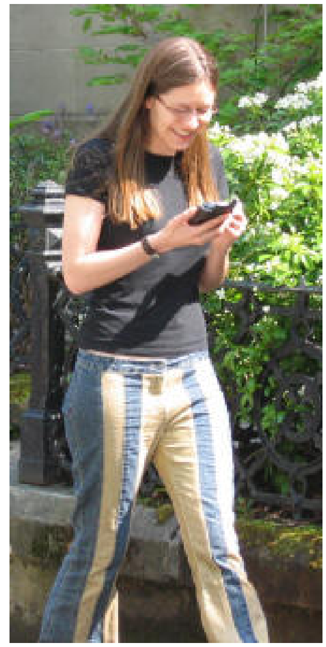


3.2 Screenshot from *CatchBob!* Three players in different locations share the same game display on personal tablet PCs. This screenshot shows how players could communicate strategies and directions by writing text messages as well as drawing arrows and X's on the game map. (CRAFT - Swiss Federal Institute of Technology, 2006)

In tests of the game, Girardin and Nova collected both quantitative data, such as how long and how frequently users were disconnected from the system, and qualitative data, such as the content of Instant Messages sent during the game and player-reported solutions for working around the technology gaps. This data was reported and analyzed in their research publication as a way of charting the road between the present, imperfect ubiquitous computing and a future, more seamless ubiquitous computing. In this way, *CatchBob!* effectively served as a research platform. The designers' primary intention, clearly, is not to explore new modes of gaming. Girardin and Nova write: "We are interested in studying the impacts of technological limitations on user manipulations. *The platform we use to meet this end* is the emerging field of ubiquitous computing games" (60, emphasis mine). And like Römer and Domnitecheva, Girardin and Nova not only are using gaming as a research platform; they also have rhetorical goals in mind. They propose that by presenting the technology in a particularly engaging context, their game can "support the more widespread acceptance of ubiquitous computing" (61). Here, as in *Smart Playing Cards*, we see that gaming is a means to an end.

Andrew Rosenbloom, editor of a special 2003 games-themed issue of the *Communications of the ACM*, captures such tactical use of gaming strikingly in his introductory essay "A Game Experience in Every Application". The essay praises games not for the play they produce, but rather for the data and public favor they are capable of generating on ubiquitous computing's behalf. Rosenbloom's title is both an observation and an entreaty. As an observation, it suggests the tremendous conquering momentum Jan Jörnmark ascribes to digital games. There is not one single interactive application, Rosenbloom proposes, that does not have the potential for gaming inherent in its design. Wherever *software*, there'll be games. As such, every researcher has the opportunity to take advantage of the specific research and rhetorical benefits of the gaming medium. Here, the title becomes an entreaty, urging computer scientists and software developers to harness games' momentum for the benefit of ubiquitous computing. Rosenbloom specifically advises researchers to consider using game design in the early stages of testing. He writes: “Games provide an ideal prototyping environment, constructing test beds for emerging technologies in a relatively rich environment before they are ready for the real world” (29). Rosenbloom’s choice of words is telling. Ubiquitous computing is expressly designed to put computing “back into the real world”, as its earliest manifestos have argued (Wellner, et al 24). But here, Rosenbloom suggests that ubicomp technologies are not always *ready* for the real world, that is to say, not ready to be experienced through the cognitive frame of ordinary life. Instead, the technologies must first be experienced through the cognitive frame of play, a frame that allows both the technologies and the users to fail safely while still producing interesting results.

Indeed, the major ubicomp research initiative *Seamful Games* argues that gaming is the perfect medium for learning about, and even embracing, the failure of ubiquitous computing to be effectively ubiquitous. Part of the Equator Project, sponsored by the Engineering and Physical Sciences Research Council, *Seamful Games* proposes that it is counterproductive to try to create a perfectly smooth experience of present ubicomp infrastructure. Instead, inevitable gaps in user access to wireless networks and positioning systems should be highlighted and designed into the experience. Project lead Matthew Chalmers explains on his Glasgow University homepage: “Seamfulness is about accepting… the edges and gaps in Wi-Fi cells, and the patterns of where you can and can't get GPS positioning. Sometimes you can't smooth these 'seams' away, and so seamful design is about taking account of these reminders of the finite, limited and physical nature of digital media.” He notes that ubiquitous computing has failed thus far to incorporate these seams effectively into interface and system design. “Seamful games are a means to try this kind of system design out.”



3.3 Screenshot from *Treasure*. Gold icons represent treasure that a player can collect, while colored blocks represent the strength of known network coverage. (Seamful Games, 2005)

3.4 Live *Treasure* Playtest. A *Treasure* player moves across the real-world campus lawn represented on her PDA's screen. (Seamful Games, 2005)

The *Seamful Games* project has developed two games as research platforms to date: *Treasure* (2005) and *Feeding Yoshi* (2006), both of which are played on handheld PDAs in real-world environments with variable Wi-Fi and GPS coverage. Each game—the former a collaborative quest for virtual gold and the latter a competitive game of hunting, gathering and trading—requires users to navigate strategically in and out of network coverage. During these seamful games, for example, it is sometimes advantageous to a player to be inside the network—to collect virtual treasure or virtual food, for example, and then to upload it to the central game server. At other times, it is preferable to be outside the network—to avoid being detected by other players, for example, or to prevent an opposing team from stealing your virtual inventory. Here, we see how the seamful games are designed to increase the social acceptance of the technologies while simultaneously producing research insight. By recasting flaws in ubicomp infrastructure as design features that can be leveraged by users, ubiquitous computing is made more appealing. What once may have proven frustrating now offers utility. At the same time, the seamful games engage users in the larger research project of mapping the current state of ubiquitous computing. Through play, the gamers articulate areas of network coverage and areas of network failure (see figure 3.3). A screenshot of a *Treasure* playtest shows the PDA's digital representation of the real-world terrain explored by players; colored blocks on the screen represent data collected by the players about varying signal strengths and gaps. The effectiveness of the local ubicomp infrastructure is literally mapped during gaming, and in this way, the players mimic the work of the ubicomp research community to chart the technological possibility space. The *Seamful Games* therefore propose that even if the current response to ubiquitous computing's constant query "Are we there yet?" is a pronounced "No," the public can be recruited now to embrace and to aid its futurist vision.

3.3 Ubicomp Games as Research and Rhetoric – Industry Projects

So far, I have focused on ubicomp games designed and developed at universities. However, academia is not the only arm of ubiquitous computing that has adopted gameplay as a research platform and a rhetorical medium. Both Jörnmark and Rich Gold have observed the powerful economic factors driving the manifest destiny of games and ubicomp technologies, respectively. And so it is that the industry has played an equally important role in the development of a ubicomp game design culture. Here, I want to discuss the economic aspects of ubicomp games research by analyzing the persuasive and intelligence-gathering work of two major industry-sponsored ubicomp game projects.

The very first documented experiment in developing original games for ubiquitous computing platforms was an industry-sponsored project: *Pirates!*, a joint initiative of the Nokia Research Center and the PLAY research studio at the Interactive Institute. Implemented on PDAs connected in a wireless local area network (WLAN), *Pirates!* combined physical, location-based gameplay with virtual, screen-based gameplay. In demonstrations of the game, as many as a dozen players explored the same physical environment while simultaneously navigating a fantasy archipelago depicted on their handheld PDA screens (see figure 3.5). The layout of stationary, sensor-augmented objects in the real-world game space corresponded precisely with the spatial arrangement of graphical islands in the virtual game space. As players wandered through the room in which *Pirates!* was played, proximity sensors attached to the PDAs and to the everyday objects triggered game events: a player discovered a new island, for instance, by standing next to one of the Radio Frequency-equipped objects in the local environment, and encountered other plundering pirates by approaching nearby players.

3.5 Screenshot from *Pirates!* The question marks represent islands that the player has not yet discovered, while the exclamation point represents an island the player has visited. The islands on the PDA display correspond with real-world, sensor-augmented locations in the room where the game is played. (Nokia Research, 2001)

Like *Smart Playing Cards*, the *Pirates!* prototype required the local environment to be temporarily modified with a range of embedded sensors and a stronger WLAN. The conference room where the game was played therefore was, in a sense, as fantastic and make-believe as the imaginary archipelago depicted on the PDA screens. It embodied a fantasy of the future of ubicomp technology. In an article for the 2001 Conference on Human-Computer Interaction, the *Pirates!* researchers proffer this fantasy as a probable eventuality. They describe their project as the obvious next step in the historical co-evolution of games and digital platforms. "With computers and other interactive technologies, new forms of games have been made possible. Indeed, some of the very first computer applications were games, and computer games have permeated every computer and operating system, sometimes even pushing the development of new hardware and software techniques" (1). This appeal to the intertwined histories of game and computer development positions *Pirates!* as a natural extension of the tendency for games to colonize new platforms. Moreover, it argues that this colonization is mutually beneficial—games get to evolve in new directions, while ubicomp hardware and software may be forced to improve as a result of the gaming medium's insatiable demands for newer and more robust technology.

In an interview with the popular digital gaming website *GameSpy*, lead designer Staffan Björk discusses how *Pirates!* relates to the expansionist goals of the ubicomp industry. When *GameSpy* reporter James Hill asks Björk, "How does this project fit into Nokia's core business of selling mobile phone handsets?", Björk describes experimental game design as an important tool in the effort to expand the ubicomp user base while improving the platform (2). He argues: "Mobile phone sets are constantly becoming more powerful as new use areas are constantly being discovered for them" (2). He then identifies games specifically as the new use area that is driving the development of, and demand for, personal mobile technologies. "The popularity of *Snake* [one of the first games for the Nokia mobile phone platform] shows that people at least partly see their sets as entertainment appliances. Supporting that… is strategically important for Nokia" (2). Here, we see again that experimental games are a means to an end—in this case, an economic end. It is important to note that Nokia never released *Pirates!* to the public—how could it? The infrastructure for the game still does not exist in the real world, yet. So there are no *immediate* financial stakes to such an experimental ubicomp game. But the clear hope is that word-of-mouth about the possibility of a game like *Pirates!* (word-of-mouth like the major *GameSpy* article) will advance ubiquitous computing socially, while the published research advances the field technically.

The *Pirates!* game, like all of the other projects discussed to this point, was developed as a working prototype. That is to say, it was played at least once by actual gamers. But are games so persuasive of the benefits of ubiquitous computing that publishing a strong game design *concept* could do the same rhetorical work as prototyping the actual game? Another significant industry project in the ubicomp gaming space suggests that this is indeed the case. *The Drop*, an original game concept developed by the Intel Research team of Ian Smith, Sunny Consolvo and Anthony LaMarca, is more of a thought experiment than an actual experimental game. In a 2005 article for *Computers in Entertainment*, the Intel researchers document a strictly *imagined* future ubicomp game that has been neither developed nor tested. *The Drop* scenario, instead, serves as a kind of meta-ubicomp game project. It self-consciously reflects on the relationship between the structural components of game design and the potential benefits to the industry of ubiquitous computing, without actually creating any play.

The Drop engages multiple ubicomp platforms: everyday consumer devices, such as mobile phones and laptops, as well as proprietary location-sensing systems, such as Intel's beacon-based Place Lab, which creates an indoors, micro-version of the Global Positioning System (GPS). The game is designed specifically for a shopping mall environment, where two teams of seven members each play a version of the traditional schoolyard game *Capture the Flag*. However, while the players move through the real, physical space of the mall, the flag is virtual. Complicating the gameplay, participants are not told which other seemingly ordinary shoppers are in fact the opposing team. To detect the other players and to discover the location of the invisible flag, or "the briefcase" in the fiction of the game, players use their mobile phones as local information displays,

3.6 Mock-up of Mobile Interface for *The Drop*. This figure from a technical paper on the proposed ubiquitous computing game shows a mock-up of the mobile interface. Since the game was not actually developed or tested, only imagined evidence of its future technological implementation exists. (Intel Research, 2005) complete with a game timer and detailed map of the playing area (see figure 3.6). These displays, which are continuously updated with real-time location data from the Place Lab system, report the presence of other players or the flag when the user is within 50 meters of a target. A speed limit, enforced by the Place Lab location tracking system, requires players to adjust their movements during the game—the fastest pace allowed is a brisk walk, the slowest pace enforced is standing completely still. A virtual combat system similar to the dice combat of *Dungeons and Dragons* allows players that have successfully located each other to fight over the flag without actually engaging in physical contact. Meanwhile, stationary team captains devise and update strategies, which are communicated to their teammates via text message or mobile phone calls. The captains track all of the gameplay on individual laptops, which are connected to the game system through a local Wi-Fi Internet connection.

While the authors discuss a range of game design challenges they faced in developing *The Drop* concept, two in particular stand out as indicators of the game's persuasive aspirations. First, the researchers were committed to creating a non-disruptive game. Here, we are reminded of the central problem identified by the *Smart Playing Card* project: the need to imagine potential ubicomp scenarios that would not violate social norms or laws. How do you produce a multiplayer game for an environment like a shopping mall without violating the implicit and explicit rules of the space? *The Drop* team made several design decisions expressly to meet this goal. They explain, for instance, their decision to use a virtual flag instead of, say, embedding tracking technologies in a real, physical suitcase: "The goal to find the virtual briefcase was designed to be challenging… while causing minimal or no disturbance to others in the physical space who are not involved in the game" (8). In other words, a *real* smart suitcase might prove to be too disruptive in its visibility to non-players, who would have no context for understanding its purpose. A real game prop might also pose a problem in its material tendency to take up space—that is to say, to take *away* space from the commercial operations of the mall.

Other key design choices were made to limit the visibility of, and potential interference caused by, the game. For example, while the speed limits create interesting gameplay—different players are working under different limits at any given time, requiring team captains to come up with inventive strategies for exploiting those differences—they are primarily intended to keep players from behaving in a way that might signal 'game' to bystanders. The authors write: "The speed statistic and the penalties for violating it are designed to ensure that players will move at an appropriate pace…. All physical interactions among people in the physical space should be normal for that space" (9). This respect for normal use of spaces is a common theme in ubicomp games research. The *Pirates!* project, for instance, also highlights the fact that "the game could be played in an environment where other activities were taking place without disturbing other activity" (Björk, et al 8).

That *The Drop* system works with extremely detailed maps of the local environment is another result of the designers' desire to minimize social friction caused by the ubicomp activity. The game server's context-aware maps not only enable teams to devise more specific and more strategic game maneuvers, thereby improving gameplay experience; they also serve as a guard against inappropriate player movement. "The location system needs to calculate and understand boundaries to ensure that players cannot do things like hide in places restricted by gender, such as dressing rooms, access closets or storage rooms, which might cause a problem for others in the space, or exploit permissions to go to places in the playing space that are usually *verboten*" (Smith, et al 11). Therefore, the fact that "*The Drop*'s application can be supplied with highly accurate, registered and up-to-date maps of the interior space to be utilized by the game" is not just a game feature; it is also a limitation that prevents the game from changing the rules of the space in which it is played (11). In other words, the ubicomp colonizers will keep local customs the same.

The second major challenge addressed by *The Drop*'s design is the problem of creating a persuasive organizational and business model for a ubicomp game. "The most basic question is this: Why would a space (like the Westlake Mall) *want* to allow a game like *The Drop* to be played on its premises? Put more negatively, wouldn't any sensible mall administrator simply ban all *The Drop* players, jam their wireless networks, and threaten players with trespass charges if they return?" (12) Here, the authors confront what they consider to be a serious obstacle to the proliferation of ubicomp systems in everyday environments: How do you create incentives for organizations and companies to allow the technology and associated games in any given space? "Unless the people who own and or operate the game's playing space at least tacitly agree to have the game played there, it cannot be played successfully on a large scale" (12). Assuaging concerns of technology gatekeepers—such as the property owners and government officials who might want to keep ubicomp technology out of spaces under their control—is an important step in the industry's ability to gain a foothold in already occupied territory. Accordingly, the authors write, "We have chosen to explore designs that make it *desirable* to host a game" (12). These desirable design strategies include "a number of ways the owner of the space could monetize a game like *The Drop*," such as a pay-per-game or pay-per-hour approach (12). The central game server could enforce payment, the Intel team suggests, and allow easy billing and payment to the owner of the space. They also propose more creative design solutions: "Perhaps a drink, for example, '*The Drop*'s Stealth Mochachino' could be offered at a café. By purchasing the product the buyer receives a receipt with a code that is entered in *The Drop*'s application and gives the player bonus points on the stealth statistic for the next 60 minutes" (12). What better way to dramatize the economic aspects of ubicomp game research than for a company in the very business of producing ubicomp technologies to conceive a potentially revenue-generating game for an already commerce-saturated site?

Of course, this particular game scenario is entirely hypothetical. In an article for *Computers in Entertainment*, the Intel research team notes: "*The Drop* is currently still in development; it is not fully implemented and has not, as described above, been played by anyone" (7-8). Indeed, they do not commit to carrying out the game in a full playtest. The authors are content, instead, to leave the game in the conceptual stage, where it can inspire further work by others. "We have contributed pragmatic design solutions to challenges that arise when creating games that are both compelling and workable, to—hopefully better—game designers" (13). *The Drop* concept is intended, then, to recruit more people to the ubicomp cause, to persuade them not only that desirable ubicomp applications are feasible, but also that they are feasible for places we don't necessarily associate with computing, like the shopping mall. The authors conclude: "We hope that our work encourages other designers to investigate compelling games using these popular, cheap and already deployed systems" (11). Here, the researchers' purpose in presenting solutions to various social and business design challenges in public gaming is revealed. It is not to make gaming more ubiquitous or to understand how play affects public spaces, but rather to establish a foundation for future, more widespread installation of ubicomp technologies in more diverse environments. *The Drop*, like so many other ubicomp games, is both *staking* a claim—we can put ubicomp technologies here—and *making* a claim—putting ubicomp here is good thing for all involved.

3.4 The Conspicuous Absence of Gameplay

The Drop is a particularly interesting example of a ubicomp game project because it does not intend to produce any instances of live play. It is, we might say, a prototype of ubicomp *game design* rather than a prototype of an actual ubicomp game. In this aspect, I want to suggest, *The Drop* is an extreme example of one of ubicomp gaming's most unusual traits: the tendency to under-produce play. That is to say, most ubicomp games neither effect nor aspire to live play on a massive scale, even as the games work to support the massive scalability of the ubicomp network.

It is quite common for a ubicomp research team to publish and present a total number of papers about a particular game that matches or exceeds the total number of occasions on which the game has actually been played. The *Pirates!* team, for example, published two peer-reviewed articles about the game after producing only one playtest for a total of four hours of gameplay and 31 players (Björk, Falk et al 5). The Seamful Games project published three peer-reviewed articles about *Treasure*, after producing the game for eighteen players in a single playtest (Barhkhuus and Chalmers, et al 7) Two playtests of an earlier version of the game for forty-six additional players brought the total *Treasure* implementation to three tests and sixty-four players (Chalmers, Barkhuus, et al 5). Meanwhile, as of May 2006, in the ACM digital library alone there are 273 citations of the two *Pirates!* papers and its lone playtest. There are 204 citations so far of the seamful game *Treasure*. As such, the number of researchers *citing* the games vastly outstrips the number of people playing them. *CatchBob!*, the most recently developed game discussed here, seems well on its way to achieving this same asymmetry. It has already spawned eight peer-review publications and poster sessions, all available on the project page, out of just one playtest that engaged a total of 60 players (Nova, Girardin et al 7).

This repetition of play citations in the absence of actually abundant game play is perhaps the most distinctive and non-intuitive quality of the genre. As game designer Eric Zimmerman observes, "the point of game design… is to have players experience *play*" (184). But ubicomp games clearly have a different agenda, as noted by several online forums attempting to play games such as *Pirates!* and *Treasure*. One would-be player at *Pocket PC* writes of *Treasure*: "I checked all through the site there, but there is no hint of a download that I could find, or mention of code status (stable, alpha) etc. Is this a real thing they are doing, or only a mockup for design purposes?" (foebea #38699) *GameSpy* interviewer James Hill makes a similar point about *Pirates!*: "When will consumers see a project like this turned into a real game that they can set up and play locally with a bunch of friends?" (2)

Note that for both of these ubicomp games, even as they represent a turn for digital gaming toward physical reality, the very "reality" of each project's gameness is questioned. 'Is this a real thing they are doing?' and 'When will it be turned into a real game?' perfectly capture the performative nature of ubicomp games research. After all, an emulation is not really the thing it emulates; it is a convincing, mimetic performance. So, too, are the games that emulate the future of ubiquitous computing. Once the playtests are over, the ubicomp games are real only as references, a series of citations that linger in the scientific literature long after the live performance of future ubiquitous play has concluded. To explore the work of this publications-based performance practice, I turn now to the phenomenon of playtesting in ubicomp research and its role in creating a citable and credible scientific network of games.

3.5 Ubicomp Hypotheses and the Experimental Game

In the field of experimental game design, and increasingly in the professional game development industry, playtesting is an important part of crafting the experience of a new game.[18] In "Play as Research", Zimmerman defines playtesting as "an iterative process [in which] design decisions are based on the experience of the prototype in process… You have as many people as possible play the game. In each case, you observe them, ask them questions, then adjust your design and playtest again"—until the game is ready to be released in a final form to the public (176-7). The goal of playtesting, according to Zimmerman, is simple: "It will help you design more successful play" (184).

Playtests in ubicomp games research, however, appear to serve a very different purpose. While Zimmerman describes playtests as a means to "a more robust and successful final product," ubicomp games are rarely delivered to the gaming public outside of the initial playtests (177). *Smart Playing Cards*, for example, does not exist outside of the conditions of a playtest; there are no decks of smart playing cards out in the real world. Computer-augmented *Whist* is played only when an entire room is temporarily modified with the ubicomp infrastructure necessary for the game program and game props to perform. Likewise, *Pirates!* was playable only during controlled

[18] For a thorough examination of the increasing role of playtesting in experimental and professional game design, see the 2004 text *Game Design Workshop: Designing, Prototyping and Playtesting Games* by Tracy Fullerton, Christopher Swain and Steven Hoffman.

demonstrations; it required significant environmental intervention to create a technological space and social context in which its vision of ubiquitous gameplay could be enacted. And while the project websites for both *CatchBob!* and *Treasure* invite the public to download photos or videos of gameplay as well as the academic publications in which their brief existence as "real games" is documented, neither page makes available a downloadable game program, preventing the documented play from being replicated in everyday life.[19] What is missing from the ubicomp playtesting cycle, then, is the game release that ordinarily represents the end goal of designing the game in the first place. These ubicomp games are gesturing to a future possibility of play, but they do not typically actualize the possibility for any broad spectrum of players.

If ubicomp playtests are not being employed as a means to actually better, and actually widespread play, what is their function? Here, it helps to consider Jon McKenzie's notion of *performance tests*, a process with many structural similarities to playtests, but a decidedly different objective. McKenzie observes:

> Technologies… are made to perform through a circular process of hypothesis and measurement, prediction and evaluation. Engineers and other applied scientists set out with a hypothesis concerning a discrete technological performance. They then design an application to meet particular performance specifications and criteria and conduct a series of experiments and tests whose results are measured and evaluated. Then, in

[19] The only game that I discuss in this chapter that has been released to the public is *Feeding Yoshi*, the single-player ubicomp game that requires the least ubicomp infrastructure. No sensing or networking infrastructure is required other than ordinary Wi-Fi signals and unmodified PDAs. Unlike the vast majority of ubicomp games research, *Feeding Yoshi* was not designed for ubicomp of the future, but rather ubicomp of the present. Therefore, it is able to exist as a "real game" downloadable from multiple PDA gaming sites. Because of its attachment to the presence and its lesser emphasis on imagining and emulating the future, of all the games discussed here, it performs the least work as a "smart" and "persuasive" game even as it creates the most real play.

> the vast majority of cases, the entire process starts again, as the test results are fed back to create new predictions, new designs, new tests, and new results (110).

The parallels to Zimmerman's notion of playtesting are clear. Both testing methods are described as an iterative process, and both investigate the ability of a prototype to meet the designers' expectations. However, whereas the purpose of traditional playtests is to optimize game design, performance tests seek to optimize a different value: technological effectiveness. As such, each focuses on a different object of analysis. In playtests, it is the players who are under scrutiny—"because the experience of a player can never be completely predicted" (Zimmerman 176). In performance tests, however, it is the technologies, rather than the users, that are said to have experiences. McKenzie writes: "The ongoing comparison of predictions and performance generates what engineers refer to as an *experience base* composed of data relating to a technology's performance history" (107).

The second iteration of the *Smart Playing Cards* infrastructure is an excellent example of a ubicomp playtest focused more on the technology experience base than the player experience base. In the initial 2002 paper, Römer and Domnitecheva identify the current stage of the project as "a first prototype" (2). Four years later, a second pair of computer scientists working in the same research group picks up where the original team left off. In a 2006 paper titled *Smart Playing Cards: Enhancing the Gaming Experience with RFID*, Christian Floerkemeier and Friedemann Mattern use the feedback from the first playtest to develop a new prototype. In their paper for International Conference on Pervasive Computing, Floerkemeier and Mattern do not, surprisingly, report on any changes to the project's game design. The interaction patterns and user experience is not altered in any way, while the software and network implementation undergo significant revision. Quite tellingly, Floerkemeier and Mattern never even mention the name of the computer-augmented card game (*Whist*), nor do they describe any gameplay elements in this full-length article. They refer only generically to "the card game", dedicating the entire piece to technical details. When they present the results of their second prototype's playtesting, they make no mention of the play produced. Instead, all attention is paid to the performance of the technological system. It is worth quoting at length to underscore the startling absence of play from their discussion of the playtests.

> The smart card game has been extensively tested on a number of occasions. This includes two days of testing at an open day at the university. The tests illustrated the reliable and fast operation of the entire system. The evaluation showed that it takes only a fraction of a second before a card placed in the current trick also appears on the display of the mobile phone. The system also worked reliably over long periods of time. There were very few missed reads and most resulted from cards that were placed far away from the centre of the table. The central antenna which monitors the cards placed in the current trick was then not able to detect these cards. The Bluetooth communication and the software on the mobile phones also worked reliably and the delay the players experienced was minimal (5-6).

The *Smart Playing Cards* playtest is at heart a technological test, as much about testing a technological hypothesis as a game design hypothesis, if not *entirely* about the technological performance and only marginally about the game design. Ubicomp games research, it would seem, has invented a hybrid of Zimmerman's playtest and McKenzie's performance test. In this new iterative process, play is the medium in which visions of ubiquitous computing's future are rehearsed and its technologies are challenged to perform. Games become the platform for discovering the weaknesses of a technological system so that it can be re-designed and re-engineered—not for better play, but for better computing.

Technologies, as McKenzie notes, are often tested in their intended real-world contexts. Therefore, "the spatial difference of lab and field may be blurred… The world has become a test site" (113). Indeed, in ubiquitous computing research, playtests are conducted *on site*; they are field tests as much as they are play tests, for they are evaluating hypotheses about a proposed environment or context for computing. In the case of ubiquitous computing, then, we might say that the spatial difference of lab and field must *by necessity* be blurred. McKenzie observes that "while we may be shocked at the notion that everything's become performative, that the whole world's been framed as a high performance test site, future researchers will merely be shocked at our shock. 'How could this have surprised them? They're the ones who took performance to the ends of the world—and beyond" (268). For McKenzie, those who take performance to the ends of the world and beyond are participating in an intentional scaling effort, charting new technological territory on an increasingly large scale until everything is claimed in the name of performance.

We discover a similar process at work in the playtesting of ubicomp games. Consider the *Pirates!* project in its broader context. Although the game was originally designed and tested in a game space the size of a single room, lead designer Björk has suggested a classification system for such games that could take ubicomp gaming to the ends of the world and beyond. Björk's proposed naming conventions for ubicomp gaming express their expansionist aspirations. *GameSpy* reporter James Hill comments: "To my knowledge, *Pirates!* is the first game in a new genre: 'Networked mobile gaming in a physical world setting.' Do you have a better official name for this new genre?" Björk, at first demonstrating the interchangeable approach to genre names that I observed in Chapter Two as so common in this design space, replies: "Local location based games? Pervasive games? Ubiquitous games?" (Hills 2). Björk suggests that among these options, the first may offer the most naming power. He demonstrates this power by expanding it to include sub-categories: "Local location based games is a classification I invented. Sub-categories are Room Area Game, Floor Area Game, Building Area Game, Campus Area Game and Metropolitan Area Game" (2). Here, Björk's proposed classification scheme offers a series of progressively scaled playing areas. A game that is originally tested in a room may be subsequently deployed over more ambitious terrain until it is ready to turn an entire floor, building, campus and ultimately the whole city into a game board. Such efforts become plausible, presumably, as ubiquitous computing technologies become capable of fully penetrating larger and larger spaces. Although Björk and his team do not attempt to scale *Pirates!* in actual playtests, they suggest a genre classification system that imagines a future in which such scaling possible. In doing so, they articulate a manifest destiny for ubiquitous computing that could be achieved through imagined playtests at increasing scale—to the ends of the city and beyond.

Latour has argued: "For the world to become knowable, it must become a laboratory" (45). Ubicomp playtests represent researchers' attempt to make the world knowable in a specific way: knowable as potential computing terrain. Each playtest seeks to make a specific site function as laboratory. The experimental game design of ubicomp gaming, then, is experimental in a *scientific* sense, rather than a *formal* sense. It is not about playing with the conventions and limits of mainstream design practice. Rather, it is about the investigation of an infinitely variable hypotheses: Ubicomp could go here, and here, and here, and here… and so on, until the cumulative 'here's comprise and define the ultimate 'there' to which ubicomp aspires.

3.6 Making Invisible Computing Visible

The role of ubicomp games as a platform for conducting scientific experiments brings us to another important function of the ubicomp playtest. Here, I want to suggest that the playtest addresses one of the fundamental problems of ubiquitous computing research: How can invisible computing be made visible?

But perhaps a better place to start is the question: *Why* does invisible computing need to be made, at least temporarily, visible? In 1996, Mark Weiser delivered a lecture on the theme of "Computer Science Challenges for the Next Ten Years", in which he addressed precisely this paradox. Of the five top challenges Weiser identifies for future computer science, the first is striving for a greater *visibility* of computer systems and the last is striving for greater *invisibility* of computer systems. Invisibility, of course, has been a central concern of Weiser's since he first coined the term 'ubiquitous computing'. In this particular lecture, he reiterates the need for calm technology that stays out of the way as its many nodes, applications and platforms proliferate. But creating computer systems that operate under cover, Weiser suggests, makes it more difficult for the science of ubiquitous computing to be received and advanced by the public and other researchers.

He argues that “the foundation of science is communal seeing”—the ability to collectively and cognitively visualize what others have discovered, devised or engineered ([7]). Scientific techniques for communal seeing include direct visual evidence that is shared, like observations made through microscopes and telescopes, as well as visual representations, such as charts, graphs, and diagrams. For this purpose, Weiser notes, contemporary science has conferences and journals—to create contexts and venues for the communal seeing of new scientific concepts, models and techniques. But for Weiser, even though computer science has created abundant conferences and journals, the need to communicate visually the underlying science and goals of the field poses a problem for systems that are designed to be engaged, but not seen. “Seeing the systems we build,” Weiser, suggests, will be a major challenge for ubiquitous computing ([7]).

Indeed, in *Smart Playing Cards*, the authors note that the mechanics of their ubicomp augmentation were largely inscrutable to players. Römer and Domnitecheva write of their first playtest: “During those demonstrations we just started to play the game, without explaining the technical setting at first. The first reaction was always a great surprise of the spectators, since it is not obvious how the actions on the display are technically linked to the physical game play” (5). The players were unable to *see* the computing in the playtest, both literally—the technology was hidden—and figuratively—the system was invisible, therefore the technological processes were not discernable. And Albrecht Schmidt notes in an essay for *Pervasive Computing* that it is not just the public who has difficulty visualizing ubicomp installations and insights. In a section titled “Understanding envisioned systems,” Schmidt argues that communal seeing is unusually difficult in the ubicomp space. “Developing complex systems isn’t a new problem.

However, when looking at ubicomp systems, understanding the full complexity is often different and more difficult than in areas of more bounded scope" (16). He attributes this difficulty to "our envisioned systems' high-level complexity, the implementation challenges of using many small and distributed devices, the multidisciplinary questions involved, and the need to understand and evaluate the full impact of the systems we build" (15).

If future users can't detect or discern the interaction patterns in demonstrations of ubiquitous computing, how will they be persuaded to embrace the field's vision for the future of technology? And if other computer scientists have trouble visualizing the construction and intent of the computing systems, how will the research community collectively become smarter about the design and deployment of ubiquitous computing? Ubicomp playtests help reconcile the paradox between Weiser's two seemingly incompatible challenges, that ubiquitous computing should be both visible and invisible. Playtests make *dramatically* manifest, first to user-witnesses and subsequently to readers, potential, viable paths toward computing opportunities everywhere.

In *Science on Stage*, an authoritative analysis of how scientists persuade the public of their findings, sociologist Stephen Hilgartner characterizes science communication as a fundamentally performance-based practice. "They even stage spectacular public demonstrations, displaying results dramatically and visually in a carefully arranged 'theater of proof'" (19). Here, Hilgartner refers to Latour's theory of how laboratory experiments strive to enable what Weiser calls the communal seeing of scientific theories and claims. In an essay titled "From Fabrication to Reality", Latour describes experimental practice in science as "the making of something visible" (139). What scientific experiments make visible, according to Latour, is a kind of protagonist—a force, a phenomenon, a molecule, a virus, a process—that, once brought to light, can be understood as having an independent life, work and mission outside of the artificial laboratory conditions. Latour writes: “In his laboratory [the scientist] is *designing* an *actor*…. Why is the actor defined through trials? Because there is no other way to define an actor but through its action” (122). For Latour, this act of definition is not a fabrication of the actor, but rather a fabrication of the conditions under which the actor can perform its true self. Indeed, Steve Benford, a collaborator on the Seamful Games project, describes his ubicomp playtests as revealing performances, arguing that such an “orchestrated trial” is the only way to discover the true nature of ubicomp culture (“Staging and Evaluating Public Performances” 85). He writes: “One only witnesses the true behavior of a technology (and its users) when it is used in a real situation. A public performance can provide a more realistic setting than a laboratory” (81).

In their HCI paper, the designers of *Pirates!* also describe their playtests in terms of a kind of real-world stagecraft. “*Pirates!* turns the physical world into a game board, a stage where players and the game can meet” (Björk, et al 6). But ultimately, it is neither the player nor the game that performs in the *Pirates!* or the Seamful Games theater of proof. Instead, it is a newly defined technological actor, the location-based game *system*, taking center stage. Latour describes the experiment as “staging an artificial world in which to try out a new actor” (122). This notion of an artificially staged world recalls, of course, what Ciarletta describes as the “fake it” environments and missions of so many ubicomp tests. Indeed, in ubicomp games, what Latour calls the staged, artificial world is what I have described as the imagined, and emulated, future of ubiquitous computing, staged in the present so that users and researchers can effectively visualize the techno-culture they are trying to create.

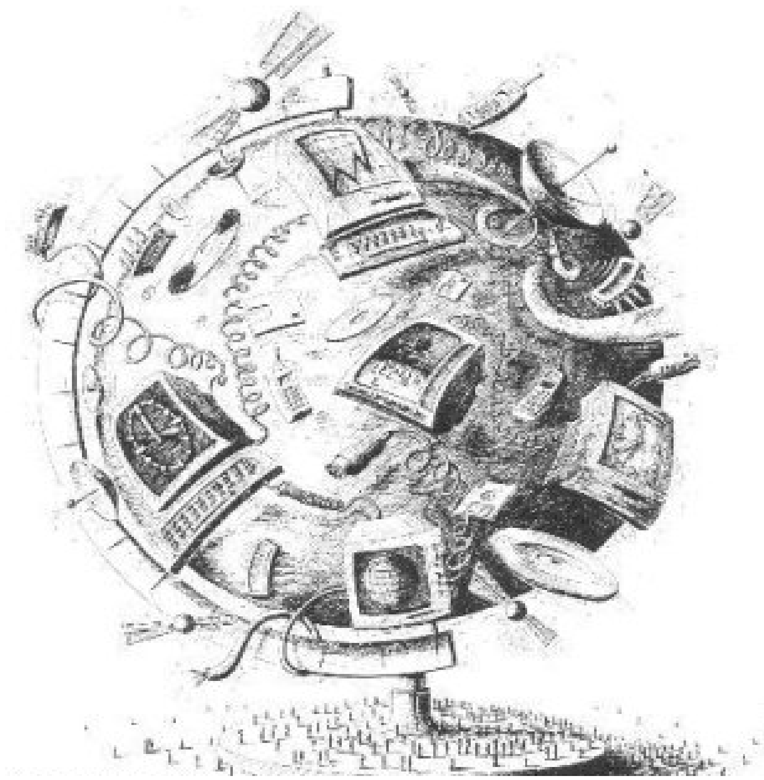
Performance, of course, is ephemeral. The playtest cannot continue indefinitely. When it ends, what traces are left behind? What enables the theories and claims produced through an experiment to continue being recognized as valid outside what Latour calls "the artificial stagecraft of the experiment"? (122) To solve this problem, Latour introduces the notion of the "circulating reference" (122). According to Latour, the goal of all scientific experiments is to create a sufficiently vivid moment of action and a sufficiently interesting actor that both are likely to be referenced repeatedly in the literature. "Through the artifice of the laboratory, the [defined actor] becomes articulable. Instead of being mute, unknown, undefined, it becomes something that is being made up of many more items, many more articles—including papers presented at the Academy!" (143) The identity of the new scientific actor increases its visibility as the references circulate. "There are, quite simply, more and more things to say about it, and what is said by more and more people gains credibility" (144). Latour concludes, "The more articulation there is, the better," and ubicomp games research certainly seems to have adopted this mantra (143).

The need to customize spaces and hardware has prevented most ubicomp games from being deployed on more than a handful of occasions. But with at least 273 known citations of *Pirates!* in the scientific literature, I cannot help but wonder: What would we know if *Pirates!* had been *played 273 times*, instead of just once before publication and twice thereafter? What would we discover if *Pirates!* were tested in *273 locations*, instead of just three? But emulating the future—staging the artificial worlds of scientific demonstration—requires significant resources. And because ubicomp games research is primarily a scientific practice, rather than an art or game design practice, it is ultimately the number of circulating references, rather than the number of players, that serves as the metric of the project's success.

The scarcity of play in the ubicomp games culture has not interfered, however, with its primary objective: to articulate the possibility space of ubiquitous computing. Earlier in this chapter, I discussed ubicomp research as a mapping endeavor, and prototypes as a kind of silicon flag planting. I want to return to these related ideas now, by way of understanding the *communal seeing* function of playtests as they are reproduced within a larger network of citations. The expanding network of citations, I will suggest, *is* the master map for the future colonizing efforts of ubiquitous computing.

But first, a quick detour to consider one specific, and particularly evocative, visual sign of ubicomp gaming. One of the ways computing research communities communicate their distinct visions for the future is through the proprietary logos of different research groups. Consider the densely packed graphical logo of the Infrastructures for Smart Cooperative Objects Research Group, which produced the quintessential ubicomp game *Smart Playing Cards* (see figure 3.7). The group's home page prominently features an image of a ubicomp-enshrouded globe. This logo most obviously suggests the grand scale and high density of ubicomp infrastructure that the researchers have in mind as their goal—in the image, satellites, mobile devices, digital displays and network hubs literally cover the entire world. More subtly, the use of a globe in the image, rather than a figure of the Earth itself, speaks to the importance of the mapping trope in ubicomp research.

The potential terrain for computing must be charted site by site and bit by bit, before it can be actually inhabited. In this way, the map *precedes* the territory.



3.7 Logo for the Infrastructures for Smart Cooperative Objects Research Initiative. A graphical icon represents the ubiquitous computing aims of the research group, which produced the *Smart Playing Cards* project. (Distributed Systems Group, 2005)

In the case of the *Smart Playing Cards* project, for example, the first step is not to populate the globe with smart card rooms. Rather, the first step is to locate card rooms as tractable terrain on the map of ubiquitous computing. The published research paper provides the coordinates for this one specific ubicomp site, instructing other researchers and developers precisely how to locate and reconstruct the territory, which is now *known* and officially claimed as viable ubicomp grounds. Here, it is important to note, the silicon flag-planting of ubicomp games is a *provisional* conquering, intended to be more instructive than effective. It is not the actual world-at-large that the research group is exploring and staking out, but rather a representational space of the world. Full-fledged development and population of that territory is left for the future. The network of original, published playtests serves, then, as a provisional conqueror's map, an authoritative record of the technologies' success in achieving, incrementally, more and more credible evidence of its manifest (through play) destiny. Researchers only have to plant the flag once, the proliferating citations ensure that the map forever reflects the fact that it was conquered.

Performance theorist Richard Schechner has argued that all maps perform. "Maps are not neutral. They perform a particular version of how the world ought to be" (32). The map created through playtests performs a vision of the how the computing world of the future ought to be. Schechner points to the seminal 16th-century Mercator projection maps as an example: "Mercator's map enacts the world as the colonial powers wished to view it" (33). The charted terrain of ubiquitous computing, we might say, enacts the technological world as the colonizing ubicomp objects wish to view it. Alford Korzybski, the founder of general semantics, has famously stated, "A map is not the territory it represents, but if correct, it has a similar structure to the territory, which accounts for its usefulness" (58). Ubicomp games, by charting the future of computing, has reverse-engineered the relationship Korzybski describes here. The structural map created by the connections created across scientific articles shapes the structure of the imagined ubicomp territory.

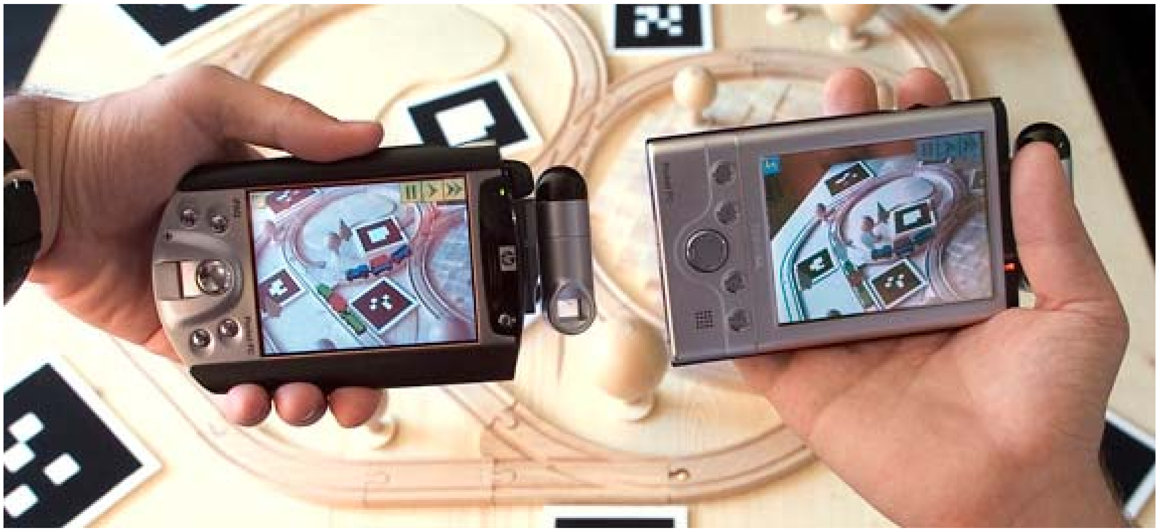
3.7 The Play Values of Ubicomp Games

So far, I have explored the intersection of ubicomp research and game design from a particular perspective: How do experimental games help make ubiquitous computing more actually and effectively ubiquitous? Now, I turn to examine the intersection from an adjacent angle. What does it mean to make computer gaming more ubiquitous? While play itself may not be the primary aim or object of study of these experimental ubicomp games, play nevertheless arises as the prototypes are put to the test. What are the particular qualities of play that ubicomp games produce? And what kinds of players do they shape? Here, I will consider how games produced as part of the ubicomp research program have been influenced by the intrinsic qualities and agenda of ubiquitous computing.

In game studies, the concept of “play values” has two distinct, but related, meanings. In “Play as Research”, Zimmerman defines *play values* as “the abstract principles of play that the game design would embody” (177) Here, he refers to the specific kinds of social interaction and playful experience that a game designer chooses to create—a competitive spirit versus a collaborative effort, the satisfaction of a frustrating challenge or the simple delight of a highly responsive entertainment system, the explosive energy of a noisy and rambunctious game or the focused energy of a quiet and contemplative one. Another way of understanding this kind of play value, then, is to ask the question: What particular qualities of play does this game designer value most? In *Rules of Play*, however, Zimmerman and his co-author Katie Salen observe a different relationship between play and values. They write: “Games reflect cultural values… the internal structures of a game—rules, forms of interaction, material forms—mirror external ideological contexts” (516). In other words, a game is often in dialogue with the larger cultural values of the community for which the game is designed. “The structures of a game are reflections of the culture in which it is played” (516). Another way to understand this definition of play value is to ask the question: What real-world social norms and ideals are players required to perform during the game?

With these two definitions of *play values*, we can consider the following: What kinds of play do ubicomp game designers seem to value, and how do ubicomp games reflect the values of ubicomp culture at large? In “Open House”, a 1996 essay for New York University’s Interactive Telecommunications Program Review, Weiser claims: “The defining words of ubiquitous computing will not be ‘intelligent’ or ‘agent’, but rather ‘invisible’ and ‘calm’ and ‘connection’” (1). How do these three computing values manifest as play values in the ubicomp games? Do we find games and gamers that are more invisible, calm, and connected? Here, I want to examine two particularly evocative ubicomp games, both of which take up these three ubicomp values in explicit but complicated ways.

The first of these games is *The Invisible Train*, which poses a playful philosophical conundrum: What happens when a *virtual* toy model train crashes on *real* model railroad track? A simple multi-player game, *The Invisible Train* allows players to discover the secret virtual life of a seemingly barren model landscape. To everyone else in the room, the railroad track is perfectly still—there are no trains, no activity on the tracks whatsoever. However, players equipped with wirelessly connected PDAs share an alternate perspective on the space. By pointing their PDA’s built-in camera at the real track, they create an “augmented” reality, in which their PDA screen displays multiple virtual trains running across the real-time streaming images of the track (see figure 3.8). The screen also reveals a series of virtual track switches that they can use to change the course of the trains. Players are challenged to use their PDA stylus pen to steer these virtual trains over the real terrain of the wooden miniature railroad track, changing the trains' speed and the tracks' switches. Whenever a collision occurs, the game ends.



3.8 Gameplay demonstration of *The Invisible Train*. Individual player's PDAs show live video capture of the real, empty toy train platform overlaid with virtual trains and track switches. (The Handheld Augmented Reality Project, 2004)

The Invisible Train, created by Daniel Wagner, Thomas Pintaric, Florian Ledermann and Dieter Schmalstieg, was developed as part of the Handheld Augmented Reality (AR) research initiative at the Vienna University of Technology. Augmented reality systems overlay virtual computer graphics and text on real-world environments. They are not necessarily considered a part of ubiquitous and pervasive computing because of the often unwieldy hardware involved in constructed an AR system. Handheld AR represents the first significant research effort to make augmented reality technologies more mobile, more discreet, more pervasive and more massively networked—in other words, more like ubiquitous computing. The stated goal of the initiative makes explicit these ubicomp aspirations: "AR anytime, anywhere" (Wagner et al 11).

The play designed as the means to this technological end offers interesting insights about the values of ubicomp games. Is the gameplay produced by *The Invisible Train*,

3.9 *The Invisible Train* Playtest. PDA-equipped players enjoy the game (right), while those without the devices seem significantly less engaged (left). (The Handheld Augmented Reality Project, 2004)

connected, invisible, and calm? The popular technology blog *Gizmodo* describes the project: "It's like your PDA is a 'magic mirror' into fantastic world where trains really do exist" ("Invisible Train" [3]). The specific language of this review recalls Rich Gold's notion of ubicomp as an enchanted village where toys "really do sing and dance when I turn out the lights" (27). In *The Invisible Train*, the platform secretly comes to life, through a live digital rendering that allows only four players at a time to interact with the invisible toys. Here, we discover the first play value of *The Invisible Train*: connectivity, through secrets. The four simultaneous players are *connected* to each other socially through the sharing of a vision and an interactive experience that is denied to others nearby. In a room that could be full of bystanders, only the four players are privy to the hidden game (see figure 3.9). Only they are empowered to act in the fantastic world.

John Seely Brown, one of the original ubicomp researchers at Xerox PARC, and Paul Duguid argue in *The Social Life of Information* that digital flows of information form social networks. Relationships arise among those who share the same data flows. *The Invisible Train* creates a temporary version of such an information-based social network by connecting players through special access to an otherwise protected worldview. If anyone and everyone could see the trains, these powerful knowledge relationships would not be created. The game props must be invisible to everyone else in order for the players to be meaningfully connected.

Invisibility of live play, and not just invisibility of the game props, is another value of *The Invisible Train*. Bystanders are unable to see not only the virtual trains, but also the player manipulations of the virtual switches, the game state changes (have they won or lost?) and the interaction occurring between the players and the game system (who switched which track, when?). The ubicomp interface shrinks the visible physical play to a matter of PDA-stylus twitching, an action that looks no different than ordinary PDA use. What are the social and experiential consequences of making play invisible? Here, it helps to consider what the gameplay would be like *without* ubicomp infrastructure. What if the train were *visible*?

Imagine the same game design, without the augmented reality technology. Up to four simultaneous players would be charged with keeping *real* trains on a track from crashing. Instead of pointing a PDA at the platform, the players would run around the platform, leaning over to turn actual (not virtual) switches, racing through physical space to beat the trains to critical junctions. In this rush to keep the game going, players might crash into each other. And since real-physical space takes longer to traverse than a PDA screen, making it impossible for a single player to be everywhere at once, they might shout instructions across the platform at each other. Such play would be loud, physical, tactile, cooperative, and legible to onlookers. The players would make noise. Their bodies would move playfully and rambunctiously through real space, and there would be material contact both between players and game props and among the players. Players would have to coordinate their actions; and perhaps most importantly, all of this action would not only be visible to onlookers, but it would *make sense*. Watchers would be able to correctly read the relationship between players' actions and the state of the game.

In contrast to these qualities, a game with invisible trains values and produces play that is quiet, still, lacks a tactile component, encourages conspiring rather than cooperating, and is fundamentally illegible to those not playing. To begin, compared to game that would involve running around, bumping into other players, shouting instructions across a platform, *The Invisible Train* is a significantly calmer experience. It requires less energy to play and causes no real disruption to the space in which it is played. Clearly this calmness is reminiscent of Weiser's warning that ubicomp technologies will have to stay out of the way; this ubicomp game certainly stays out of the way of non-players.

The gameplay's invisibility also has a strong effect on the tactility of the experience. For Gold, the objectness of the ubicomp toys was paramount; ubicomp is about interfacing with things of hidden computational potential. But here, the things have literally disappeared. The toy trains have no objectness; they have only *dataness*. In *The Invisible Train*, players touch only their data processors, that is to say their handheld ubicomp devices. Tactile experience is thereby reduced to a technological interface—and so we discover that in its attempt to make gameplay as invisible as the ubicomp infrastructure, the project has actually inverted a core ubiquitous computing value. Rather than embedding secret computing opportunities in ordinary objects so that they seem to playfully come to life, *The Invisible Train* embeds secret gaming opportunities in ordinary computing objects. The technologies are made more playful, but the objects themselves have disappeared.

By transforming the toy trains into data flows, the game also encourages players to share knowledge, that is to say to *conspire*, without requiring them to coordinate their gameplay strategies, that is to say to *collaborate*. Because the real platform is shrunk in its digital rendering to the size of a handheld PDA screen, a single player is quite capable of managing the entire game space single-handedly. It does not require superhuman speed or stamina to move a stylus from virtual switch to virtual switch. As such, and as documented in archived video of the gameplay, players rarely talk to one another during the game ("Invisible Train Promotional Video" October 2004). They do not attempt to maximize their collective ability to save the trains. Each individual players seems focused, instead, on maximizing his or her individual performance. In this respect, the subjective qualities of the connections established by the game are revealed to be more about collectively witnessing than collectively acting. In all of these ways, we see that making a train *invisible* has a profound range of effects on other sensory and social aspects of gameplay.

I have argued that ubicomp technologies tend to map their social organization back onto their users. How is this shaping of the player community apparent in *The Invisible*

Train? Next, I will consider the second kind of ubicomp *play values*—the ways in which players are made to embody the desired cultural values of a longed-for ubicomp society.

3.10 Close-up of *The Invisible Train* playtest. Multiple users share a single PDA to see the invisible train game display. (The Handheld Augmented Reality Project, 2004)

In images of gameplay documented by the Handheld AR researchers, we can observe an interesting social network architecture forming among those gathered around the train platform. In figure 3.10, for example, we see seven people leaning over a single ubicomp device, attentively plugged in to the play depicted on the PDA screen. As the game designers note: "Others would learn the gameplay by looking over another player's shoulder while awaiting their turns" (11). In this sense, the non-players seem to spontaneously form connections—not to each other, but to a single game player. These connections resemble a *client-server* network architecture, in which all data is routed through a central connection point. By plugging into the secret world of the game, the non-players are able to partially subvert the special dark-play connections made by the four players. However, only the four players can interact with the secret world; the onlookers are relegated to spectatorship. Here, then, the foundation of the special relationship shared by players shifts subtly, from knowledge to power. The temporary social network is defined by their ability to impact the game state, while others can only passively witness the players' exercise of this power.

The designers also note, however, that "visitors would pass around the PDAs while explaining the game to each other. Most participants would play at least a single game (averaging roughly 60 seconds) before handing their PDA to the next visitor" (11) Across multiple instances of play, then, we see a different kind of spontaneous connection being made between player and non-player. This network resembles a *peer-to-peer* (P2P) architecture, in which *ad-hoc* connections are possible between any two system nodes. Here, ubicomp devices become props that enables the transfer of social currency and techniques. It is not digital data that is being transferred as one person hands *The Invisible Train* PDA to another. Instead, the connecting device provides a platform for face-to-face verbal exchange. While a single instance of the game connects only four players at a time, in repetition within a single space, infinitely many connections are possible. This is a much more scalable (social) network model, one that reflects the increasing popularity of using P2P architectures as the basis for ubicomp infrastructure.[20] Arguably, it is also the social network best suited for achieving the goals of the ubicomp games genre. The P2P architecture enables a learning culture around the game installation that literally, in the case of *The Invisible Train*, gets ubicomp devices into the hands of more people, a feat that is one of the most frequently iterated objectives of ubicomp games research. In this way, and to this end, *The Invisible Train* does indeed configure its users after its technological platform.

[20] See, for example, Jussi Kangasharju's 2005 *Lecture Notes in Computer Science* article "Peer to Peer and Ubiquitous Computing".

Of course, ubicomp connectivity is not just about connecting embedded computers to one another. It is also about connecting the computers with the physical environment. To what extent is this value represented in *The Invisible Train*? The aesthetic of invisibility, I would argue, surprisingly works against this desired ubicomp attribute, as evidenced by the emergent perceptual techniques of players documented in gameplay video. Although the researchers do not discuss the players' gazing practices in their article, videos of the playtests show that players repeatedly toggled between looking at the PDA display and the real-world train platform ("Invisible Train Promotional Video" October 2004). Clearly, the players are attempting with this visual technique to reconcile the cognitive dissonance of seeing two different realities represented simultaneously. Unlike traditional augmented reality systems, where large head-mounted displays preclude easy toggling, ubicomp AR promotes a rapid back-and-forth comparison. What I want to suggest is that there is a problematic *friction* created between the computer-enhanced version of reality and the ordinary reality of the empty train platform. Rather than creating a meaningful connection between the two, they are disconnected through their disparate energies and attractions. To the extent that most players, judging from gameplay video, give up on looking at the unmediated platform and eventually focus exclusively on the digital rendering (not to mention the apparent total lack of physical interaction with the train platform), I question the game design's effectiveness at connecting the computer-enhanced players with their physical environment. They are *in* the environment, to be sure, but they are not interacting with it. And ubicomp, it must be emphasized, is not just about getting computers into things. The computing systems must be integrated with the material life of the environment. It is worth noting that in *The Invisible Train*, the train is in fact only invisible in the real-world. It is perfectly visible in the virtual environment! This distinction creates a clear incentive for virtual participation rather than material engagement.

The *Treasure* playtest produced a similar perceptual technique that underscores this common failure of ubicomp games to meaningfully connect computer gamers with their material reality. In "Gaming on the Edge", the seamful game designers identify a standout aspect of gameplay they characterize as "the spy look" (11).

> Since players' eyes were locked to their PDAs for most of the game, and with limited visibility beyond the open lawn, players mostly judged others' position via the map on the PDA. They would stand still for a couple of seconds, look up and then around as if to see who (if anyone) was nearby, then look down and continue walking. The movement was a scanning of the environment, trying to match the information on the screen to the actual positions of the other players (11).

This so-called 'spy look' is the same gazing practice observed in *The Invisible Train* as a toggling between two often disparate visual realities. I want to make two points about this perceptual toggling in *Treasure*. First, note that the researchers acknowledge that players eyes' were "locked to their PDAs for most of the game" (see image 3.4). The digital rendering of the environment thus takes priority over the actual environment. To the extent that ubicomp values an "escape from the screen", ubicomp games do not seem to have been very successful to date at making that escape (Wellner et al 24). Instead, the experimental games have simply put more screens into more environments and contexts. Second, the researchers describe the players' relationship to the real environment as a kind of “scanning”, a visual practice only. Meanwhile, the virtual environment is the recipient of all interactive efforts, as virtual coins are dropped and picked up, and regions on the map are tagged and labeled with their degree of network connectivity. The players’ in-game interactions with the physical lawn is no different than ordinary non-game interactions with it—they are simply traversing the space. All unusual, or ludic, activity takes places in the virtual environment only. If ubicomp values material engagement, then the loss of tactile play and the designed relegation of interactivity to the screen together suggest that the colonizing goals of ubicomp research have precluded its games from effectively embodying the technological values of the field.

I want to turn now to a project that further interrogates the invisibility of ubicomp systems and ubicomp play. *Can You See Me Now?* (*CYSMN*) is a joint effort of the Equator research initiative (which also produced the Seamful Games project), the Mixed Reality Laboratory at the University of Nottingham, and interactive arts group Blast Theory. First tested in Sheffield, the UK in 2001 and played subsequently in six different cities, most recently Tokyo in 2005, *CYSMN* pits online players (members of the public) against real-world players (performers affiliated with the project) in a game of mixed-reality tag. The project website describes gameplay as follows:

> Can You See Me Now? is a game that happens simultaneously online and on the streets. Players from anywhere in the world can play online in a virtual city against members of Blast Theory. Tracked by satellites, Blast Theory's runners appear online next to your player on a map of the city. On the streets, handheld computers showing the positions of online

players guide the runners in tracking you down ("Blast Theory – Can You See Me Now?")

While there has been much discussion of *CYSMN*'s technological implementation in other ubicomp papers and of the mixed-reality formula in the game studies literature, little has been said anywhere about the aesthetic framing of the experience. Here, I want to perform a close reading of the title question, "Can you see me now?", and the original tagline of the project, "Is there someone you haven't seen in awhile?" in relation to the project's game mechanics and play values.

To begin: Who is asking the title question? Who wants to know if they can be seen, and what are the stakes of being so seen? At a pure gameplay level, "Can you see me now?" is a taunt the online players are encouraged to direct at the street performers. To be "seen" is to be tagged in the game. Project director Steve Benford explains: "Online players, members of the public logged on over the Internet, are chased through a virtual model of a city by runners (professional performers equipped with PDAs with GPS receivers and wireless networking) who had to run through the actual city streets in order to catch them" ("Can You See Me Now?" 31). The runners, in other words, are attempting to situate themselves in the real-world location that corresponds exactly with the online player avatar's location on the virtual map (see figures 3.11 and 3.12). However, the language of the game describes this searching as a kind of seeing, rather than a locating practice. The designers explain in a series of frequently asked questions on the project website: "Q**:** What happens when the runner sees me? A: If the runner gets within 5m of your location then you are 'seen' and your game is over. The runner

3.11 ***Can You See Me Now?*** **Playtest.** A performer with Blast Theory plays the part of a street runner in the Rotterdam playtest. (Blast Theory, 2003)

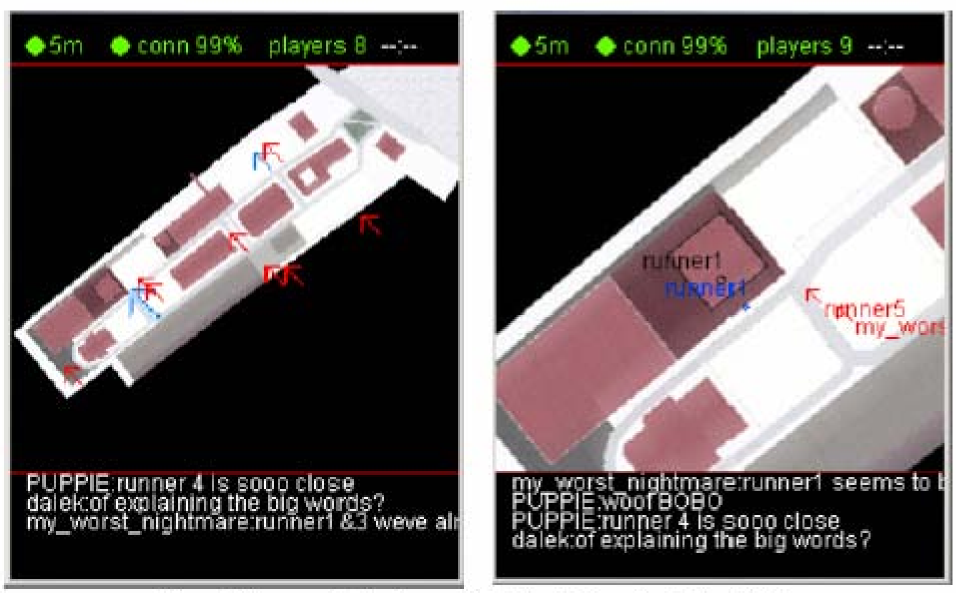


Figure 5: The runner's interface – global view (left) and local view (right)

3.12 Screenshot from ***Can You See Me Now?*** Online players can toggle between local and global views of the game space. (Blast Theory, 2003) announces the sighting and takes a photo of the exact spot where they saw you" ("CYSMN - FAQ" [6]). The term "seen" here stands in for the more traditional "tagged" or "caught" of an ordinary tag game, while the ritual of taking a photograph emphasizes the visual metaphor.

As a catchphrase, however, the title is clearly a play on the popular Verizon Wireless advertising slogan, "Can you *hear* me now?", a question that calls attention to the failure of other wireless networks to provide the more seamless and extensive coverage of Verizon's own mobile phone infrastructure. (Hence, the need to constantly check if the listener can still hear the mobile phone user.) Indeed, like many ubicomp games, *CYSMN* is investigating the failure of current ubicomp technology to be effectively ubiquitous—or effectively invisible, as the ruptures in the network are often what make us notice the otherwise tacit technologies. In this respect, the title functions as a question asked by ubiquitous computing. "Can you see me now, or am I performing as I am supposed to?" But to whom do the technologies address this question? Not to players; the *CYSMN* team reports taking great measures to orchestrate a seamless experience of the game. Therefore, the question must be directed at the researchers themselves, who tracked the moments of visible rupture throughout multiple playtests. They since have published a number of technical articles about the moments in the game when the infrastructure became visible to them. Research lessons from those moments in which the game failed to live up to the ubicomp ideal is documented, for example, in the 2003 article "Coping with Uncertainty in a Location-Based Game" and the 2005 paper "The Error of Our Ways: The Experience of Self-Reported Position in a Location-Based Game". "Can you see me now?", then, can be read as an expression of ubiquitous computing's value for structural invisibility.

If a game design tends to reflect culture values, then we may fairly ask: In what sense is the gameplay structured for player invisibility, that is to say, structured so that players embody the central value of the ubicomp infrastructure? Technically, the gameplay mechanics asked players to remain *virtually* invisible only. It was their *digital avatars* that needed to stay unseen in order to win the game. However, this explicit instruction to keep online avatars unseen was accompanied by an implicit instruction to keep the players' real bodies unseen, as well. Consider the inherent inequality of the mixed-reality design of *CYSMN*. Only the performers engaged directly with the real-world environment; only the performers were outside, on display, seen by the local community. According to Benford, the Blast Theory performers were highly visible. "Due to their unusual appearance and actions, for example zig-zag running patterns and ritualized taking of photographs of empty spaces (the locations where they caught online players), performers attracted considerable attention from passers by" ("Pushing the Boundaries of Interaction in Public" 57). In media and popular reception of *CYSMN*, the street runners are also highly visible. Press photos on the project website consist only of images of the real-world performance; there are no images of online players.

The *CYSMN* project website archives the photos taken by runners during the seven playtests. The photos are captioned "seen on behalf of [the player's name]". These captions acknowledge that the runners are serving as the experiential proxies for the players. There are photos of sidewalks, crosswalks, parking spaces, entryways—and these spaces are almost always eerily empty. There are essentially no people in the photos—only empty urban landscapes (see figure 3.13). This catalogue of thousands of photos of nothing begs the question, “Where is the user in the ubicomp landscape?” The *CYSMN* players are made as invisible as ubicomp infrastructure aspires to become.

3.13 Player “Sighting” photo from a Sheffield playtest of *Can You See Me Now?* (Blast Theory, 2001)

Even in the cities where the game was tested, the public was not invited to play visibly. Instead, the project team created local public gameplay centers with up to twenty PCs simultaneously running the game. From these centers, the players vicariously experience the real-world environment through the performers’ audio commentary. As the designers explain:

> The audio channel, the real-time walkie-talkie stream from the runners, was an essential part of the experience…. [It] provided a way for players to tune into the runners’ actual experience of the city streets, for example hearing them discuss crossing a road through busy traffic or sounding out of breath when talking about running up a hill…. The audio stream encourages online players to imagine the runners’ experience through their verbal description of the physical world in relation to the virtual model (9).

Denied access to the city as game-space, the online player are dependent on an audio stream to visualize an experience of the urban environment transformed into a playground. But occasional ruptures of this strict separation between virtual and real-world players suggests a longing of the players to be more visually connected to the real-world experience.

> There was one point at which the online and physical game spaces were visually connected, albeit by accident. In both the Sheffield and Rotterdam experiences the areas in which the public-play consoles were located contained small windows that looked out onto the physical game space. In both cases, some players reported enjoying deliberately positioning or moving their avatars in such a way as to cause runners to move into view. These rare moments of actually seeing a runner chasing their invisible avatar caused great excitement ("Can You See Me Now" 9).

The players' efforts to bring the game into their actual view, as opposed to watching the gameplay unfold entirely via the digital display, speaks volumes about the players' desire, I believe, to have a more direct perceptual encounter, and to move from virtual play to actual play.

Like *The Invisible Train* and *Treasure*, this ubicomp game does not seem particularly interested in giving users a direct experience of computing well-integrated with the physical environment. The *CYSMN* players, in fact, experience only traditional desktop technologies, playing the game entirely on an ordinary, Internet-connected PC. It is the performers who have a true ubicomp experience. On the other hand, the players are configured as a network of twenty invisible, surveillance-capable, chatting co-

conspirators, working together to track the runners, anticipate their movements and share collected intelligence. Perhaps, then, the players have the true ubicomp experience by being given the opportunity to embody the techno-social architecture of ubicomp design.

The social network created among the players is not the only kind of connectivity explored through the sight-based *CYSMN* aesthetic. The project also uses the visibility motif to promise social *re*-connectivity. The "Conceptual Background" presented on the project website explains: "As soon as a player registers they must answer the question: 'Is there someone you haven't seen for a long time that you still think of?' From that moment issues of presence and absence run through *Can You See Me Now?*" ([5]). The implied promise, of course, is that ubicomp technologies can bring you closer to those with whom you have lost touch. The network can reconnect you and make visible again those who disappeared from your life. (Note that loss of interaction is configured here as a *not seeing*.) Indeed, failure in the tag game seems to produce a positive reconnection result: "This person - absent in place and time - seems irrelevant to the subsequent game play; only at the point that the player is caught or 'seen' by a runner do they hear the name mentioned again as part of the live audio feed from the streets. The last words they hear are 'Runner 1 has seen ______ _______'" ([5]). The semantic architecture of this "game over" message is complicated. The FAQ tell us that the game ends when *you*, the player, are seen. However, the runners announce that they have, in fact, seen not you, but your missing friend or lost acquaintance. Therefore, it would seem, that in the moment of being seen, the old connection is renewed—both player and named loved one are co-located, metaphorically. Except, who has really *seen* the player's missing loved one? It is not, in fact, the player—it is the players' real-world antagonists, who now serve as their perceptual proxies. This confusing of identity and the suggested emotional consequences of being replaced in such a potentially meaningful encounter evoke serious questions about the degree to which social relations may not only be mapped onto our technologies, but relegated to, colonized by and ultimately co-opted by them as well.

3.8 The Critical Function of Ubicomp Games

I want to close this chapter by examining two examples somewhat outside the domain of the ubicomp gaming mainstream. The first is a futuristic ubicomp game concept called *The SpyGame*; the second, a satirical ubicomp game project called *You're In Control*. Taken together, they demonstrate how ubicomp games potentially open up a more critical conversation about the nature and value of ubiquitous computing—perhaps inadvertently in the case of *The SpyGame*, while more intentionally in the case of *You're In Contol*. Specifically, these two games allow us to explore how ubiquitous computing's ideal of a perfect balance between user-control and computers' autonomy is complicated by the tendency of technologies to map their designed qualities back onto their human counterparts.

*

In February 2002, thirteen researchers from six countries gathered at the IT University at Gothenburg to imagine the future of gaming as it might look in a more fully realized ubicomp world. Over the course of five days, small teams formed to design and to prototype a series of ubicomp games specifically for the year 2010. Their first task was to articulate a detailed vision of the social and technological shape of things to come; their second task, to create a game concept that suited the dominant cultural values and mainstream interactive platforms of that imagined future.

The most provocative concept of the workshop was a relay game dubbed *The SpyGame*, developed by a group that included three members of the original *Can You See Me Now?* design team.[21] In presenting and discussing their gameplay concept, I want to quote at length from the original research paper, to make sure that the explicit prominence of control as a design factor is not lost through paraphrase and to prevent the somewhat outrageous concept from being misread as satire. In the report from the workshop, *The Spygame*'s creators describe the coming ubicomp society for which they created their game:

> Our 2010 scenario suggested that there was a wide socio-political gap in a futuristic society that had evolved into two distinct groups. The first group were effectively the ruling class – they were affluent, well educated, had a large amount of money to spend on leisure time, but also not a huge amount of time for leisure, as they were too busy working. This distinguished them from the second group, who were said to be quite the opposite of the first group, in that they were poorly educated, had poor health and housing, and very little money, however as most of them were unemployed, lots of free time (448).

Their vision of 2010 is, frankly, somewhat dystopian. However, rather than address the dark inequalities of the scenario, the team takes them as a serious design constraint. The researchers therefore set out to create a game that maximizes play opportunities for each

[21] *The SpyGame* team consisted of *Can You See Me Now?* developers Rob Anastasi, Steve Benford, and Martin Flintham from the University of Nottingham's Mixed Reality Laboratory, as well as Dimitris Riggas of the Computer Technology Institute of Greece and Tobias Rydenhag of the IT University, Gothenburg, Sweden.

of the disparate classes by creating a game network that connects and encompasses both. “It would be good to provide some way of allowing the two groups to interact,” they observe, “while at the same time providing the desired segregation between the two groups – the ruling class would not want, we decided, to mix with the other class, and would still want to exercise a certain degree of control over them” (448). To provide this kind of controlled interaction, the designers propose a game model in which the underclass plays in the real-world via mobile ubicomp technologies, while the ruling class plays virtually via more traditional desktop technologies. The virtual, or “remote players”, direct and coordinate the actions of the real-world, or “physical” payers.

The final designed gameplay is described as follows:

> One group of people interact on a physical level, but are remotely ‘controlled’ in some way by a second group of people, to achieve a common objective. The common objective would be the ‘delivery’ of a parcel, with the remote users receiving more information as to the contents of it, and why it needed delivering…. The physical players only receive limited information, via their controlling equivalents in the first group. The aim is to deliver the package from one physical player to another in a chain, in such a way that the package travels from one side of the game area to another – the game area could be a city, for example. One team is trying to make the package travel in one direction, while the other team is trying to make it travel back in the opposite direction” (448).

Consider the tremendous power imbalance created by this game scenario. The physical players not only are required to follow the commands of the online controllers, but also are kept completely in the dark as to the motivation for these commands. What is in the package? Where is it going, and why? The physical players are not privy to this information. The virtual players, on the other hand, have both authority and access to all the data. The game designers summarize this dynamic: “The virtual players make the high level decisions, and control the physical players and the overall flow of the game. The physical players are highly dependent on their virtual minder, while being the mechanism through which the game progresses” (450).

One could argue that as the mechanism through which the game progresses, the physical players arguably exert more ultimate influence on the game result. The virtual players can make any decisions they want, but without the physical players executing those decisions, the game comes to a complete standstill. As such, it is certainly possible to imagine the physical players attempting to exert more influence on the game outcome. What if they stopped following commands and simply started moving the package wherever and whenever they wanted? Could they effectively wrest control of the game away from their controllers? But in fact, *The SpyGame*’s design cleverly (or perhaps perversely) limits the opportunity for physical players to conspire against their controllers. There is both an implicit and an explicit barrier to such counter-play. First, it very much matters that the physical players and the virtual players are not actually competing with each other. Every physical player shares a particular win-condition goal with his or her controller. A physical player invested in the game, therefore, needs to cooperate even under the conditions of power imbalance. Note also that the physical players are not given the means to connect with each other. The game does not provide them any information about who else is playing in the real world, nor does it establish communication channels among the physical players for coordinating action. On the other hand, “the virtual players can coordinate their use of their own physical players with other virtual players in a virtual chat environment” (448). In this sense, the real-world players are kept less powerful as a group in the game because their ability to collaborate with each other is inhibited.

This power imbalance is intentionally constructed by the game designers to achieve a particular, desirable dynamic between the two groups. Direct interaction is minimized, and control is precariously balanced in favor of the ruling class while still affording a functional autonomy to the underclass. Here, I want to suggest that a similar set of desires and dynamics is at work in the field of ubiquitous computing itself. For in the researchers’ description of the complicated ludic interactions between two future classes, I am reminded of one of the most difficult design problems of ubiquitous computing: managing the perceived balance of power between users and the network of invisible, *somewhat* autonomous technologies.

As a team of University of Queensland computer scientists observe in their paper “Balancing Autonomy and User Control”, ubiquitous computing inherently threatens to usurp human control of their objects and environments. As the research team of Bob Hardien, et al, observes: “The proliferation of mobile and embedded computing devices requires a change in the nature of interactions between users and computers. One of the goals of pervasive computing is to reduce user interactions with computing applications: i.e., to make applications more autonomous and proactive”(1). The main benefits of granting technologies increased autonomy—the ability to initiate technological operations without explicit instructions or consent of users—are twofold. It frees up users from having to attend to everything, and it allows networked technologies to make decisions based on more data than a human user is likely to have or be able to process effectively. However, there is a potential downside to these changes, as well. According to the researchers, the drawbacks include that "users may feel loss of control" and that "autonomous applications may not always behave in the way desired by the user" (1). Indeed, this fear of loss of control is what Rich Gold evokes in his classic ubicomp presentation: "How Smart Does Your Bed Have to Be Before You're Afraid to Go to Sleep at Night?" But while researchers have long been aware of the anxiety produced by ubiquitous computing, Hardien et al note that "the challenge of designing applications to provide appropriate control to users has traditionally taken a back seat to more fundamental problems in context-aware systems, like sensing and interpreting context" (1). In other words, designers have focused on making the systems smart, rather than easing future ubicomp users' concerns about the newly bestowed intelligence.

The SpyGame, it seems to me, represents an eruption of an unease that has been long observed but inadequately addressed by ubicomp designers. By constructing a precariously balanced relationship between two classes of futuristic ubicomp users, the game design effectively performs the anxieties ubiquitous computing has about the balance of power between users and their technologies, displacing these anxieties onto the relationship between the virtual and the physical game players. Here, *The SpyGame* serves an important critical function, whether it intends to or not. The complicated dynamic between virtual and physical players in the imagined game helps draw out some of the potentially more complex aspects of future ubicomp relations.

Consider, for example, how the designers of *The SpyGame* characterize the relationship between the remote and the real-world players as a highly intimate one, even in its dramatic power imbalance. They describe the connection as a kind of *twinning*. “Each virtual player is twinned with a physical player, who they can talk to via mobile phones. The physical player receives instructions on where to go, and what to do, by the virtual player” (448). The language of twinness between the two classes suggests both a *closeness* and a *sameness*, calling to mind two particular complications of ubiquitous computing: the emergence of “intimate computing” and what Latour describes as the inevitable techno-social exchange.

Intel researcher Genevieve Bell, a leading proponent of intimate computing, has persuasively argued with colleagues Eric Paulos, Tim Brooke and Elizabeth Churchill that granting ubicomp technologies a degree of autonomy does not make the technologies more independent or distanced from their users. Rather, it actually intertwines the systems more tightly with human users. In a paper titled “Intimate (Ubiquitous) Computing”, they write:

> This next era is predicated on a sense that the appliances and algorithms of the future will respond better to our needs, delivering ‘smarter’ more context-appropriate, computing power. Underlying such a vision is the notion that computers in their many forms will be pervasive and anticipatory. Arguably, to achieve this, computing appliances will have to become more intimate, more knowing of who we are and what we desire, (1).

Here, the technologies' abilities to anticipate users' desires and make decisions on their behalf is seen less as threatening, and more as endearing. It creates a closeness precipitated on an intimacy we normally associate with close friends, family and lovers.

Latour, who also configures the relationship between users and their technologies as increasingly intimate, has noted the tendency of distinguishing qualities to slip from one category to the other. That is, technologies develop a social life while their users frequently organize themselves after technological infrastructure. Such a slippage can be observed in the design of *The SpyGame*. In the initial concept description, the physical players are treated almost as ubicomp objects themselves—they receive input, execute commands, and represent the material component of the game, much as ubicomp represents a return to physical reality. For the remote players, there is an instrumentality about the physical players that evokes the typical view of technologies as instruments for our needs and wants. But ubicomp objects are also supposed to be smart and connected, whereas the real-world players are denied intelligence about game objectives and refused the ability to connect with each other. Here, it begins to seem that it is in fact the remote players who are modeled after the ubicomp technologies, as the chattering jungle animals Rich Gold describes as constantly discussing and monitoring their users. It is the remote players who possess the surveillance and communications capabilities of ubicomp technologies. It is the remote players who process the data and make executive decisions, functions that our ubicomp technologies are increasingly designed to carry out.

Even as the two classes are differentiated in power and function, they seem to alternate position as the embodiment of ubiquitous computing. This slippage powerfully demonstrates the back-and-forth mapping of techno-social qualities that Latour describes as the inevitable result of the increasingly intimate relationship between humans subjects and technological objects. Moreover, the fact that a ubicomp game can so clearly structure human relationships after the technologies for which it has been designed provides a vivid glimpse into how that slippage might occur in the future.

The game also provides a glimpse at what it might *feel like* to be entwined in such an intimate technological relationship. Two kinds of uneasiness are likely to arise in a game like *The SpyGame* in reflection of our concerns about ubiquitous computing power dynamics. First, there is the uneasiness likely to be experienced by the real-world players. Bell, et al note: “We already worry about issues of privacy, surveillance, security, risk and trust – the first accountings of what it might mean for individual users to exist within a world of seamless computing” (2) If we understand the remote players to be playing the role of the ubicomp technologies, collectively creating a surveillance and decision-making network akin to the future seamless computing infrastructure, then we can expect the physical players to grapple with a concern for invasion of privacy, the discomfort of being under surveillance, and the security risks of following the commands of players out of the direct line of fire. What does it mean to trust your remote handler enough to go to a physical location at a certain time, and how might remote players abuse that trust? *The SpyGame* provides a concrete scenario to understand the overall anxiety that may arise when digital technologies have an increasingly material impact. The potential physical risk to the real-world players metaphorically represents the power embedded and integrated technologies may come to have over the physical environment. The potential danger *The SpyGame* poses to the technological underclass is the same danger we may face if the ubicomp technologies effectively become, in certain situations or environments, the ruling class over their human subjects.

The unease potentially felt by remote players, on the other hand, can best be described as the problem of unrequited intimacy. Bell, et al describe the relationships created through ubiquitous computing as “cognitive and emotional closeness *with* technology, where the technology (typically uni-directionally) may be aware of, and responsive to, our intentions, actions and feelings. Here our technologies know *us* intimately; we may or may not know them intimately” (2). In *The SpyGame*, is the cognitive and emotional intimacy between the “twinned” players mutual, or uni-directional? The real-world players know exactly what the online players want and need. What do the online players know of the desires of their physical counterparts? While remote players may have objective data about the physical players (such as real-world location), I would suggest that the physical players remain somewhat of an emotional mystery to the remote players. The trust required on the part of the remote players is the trust that the physical players *care*, that when informed of their twin counterparts’ wishes, the real-world players will carry them out. Moreover, remote players must trust that their twin counterparts truly understand them well enough to interpret and execute the commands effectively. This required trust is at least as profound and potentially unsettling as the remote players’ trust of their handlers’ commands. While the real-world players face potential physical danger, the online players risk rejection and the consequences of being misunderstood.

It is also worth noting that *The SpyGame* design borrows from *Can You See Me Now?* the dynamic of splitting participants into two groups: real-world players and strictly online players. In this way, the uneasy power relations depicted in this futuristic vision of segregated ubicomp gaming seem less outlandish and more directly connected to current, experimental practices. Although *The SpyGame* is only a concept, it reveals much about where ubicomp researchers think technology is going, and the challenges users will face when the technology gets there.

*

Finally, it is worth exploring one more research project that is at once the perfect embodiment of the manifest destiny of digital games and a satire of the entire ubicomp gaming category. The MIT Media Lab project, *You're In Control (Urine Control)*, takes the genre to its natural if absurd extreme, embedding ubicomp technologies in the environment of a public restroom in order to turn urination into a ludic activity. As described by designers Dan Maynes-Aminzade and Hayes Solos Raffle on the project website, "The *You're In Control* system uses computation to enhance the act of urination. Sensors in the back of a urinal detect the position of impact of a stream of urine, enabling the user to play interactive games on a screen mounted above the urinal."

In regards to its technological implementation and modification of a classic game mechanic, *You're In Control* is a quintessential ubicomp project (see image 3.14). For a public playtest, Maynes-Aminzade and Raffle attached a grid of sixteen sensors to the concave "sweet spot" of a urinal. They routed sensor wires from the grid through the urinal's plumbing fixtures to a circuit board embedded in the wall, where a PC processor reads the state of the sensors from the circuit board. An LCD flat-panel monitor mounted above the urinal displays the game, which is a variant of the classic carnival attraction *Whack-A-Mole*. Cartoon hamsters leap randomly out holes in an animated landscape, taunting the player (see image 3.15). The sixteen sensors embedded in the urinal correspond with sixteen possible hamster locations on the screen. When a player urinates on the right sensor at the right time, the targeted hamster turns yellow, screams and spins out of control, rewarding the player with ten points.

3.14 *You're In Control* (*Urine Control*) *Game Installation*. The complete game installation includes the game display, sensor-enhanced urinal, and harness-styled game controller that the designers describe as a combination of a Nintendo-style controller and a strap-on dildo. (MIT Media Lab, 2003)

3.15 Screenshot from *You're In Control* (*Urine Control*). The on-screen hamster position corresponds with the position of sensors embedded in the bottom of a urinal. (MIT Media Lab, 2003)

Maynes-Aminzade and Raffle presented a short paper on the project at the "Computers Everywhere" session of the 2003 CHI Conference on Human Factors in Computing Systems. While the designers present their work following the standard format of a technical research paper, it is almost impossible not to read their paper as a tongue-in-cheek critique of the colonizing rhetoric of ubiquitous computing and digital games. When the authors write, for instance, that "the parabolic trajectories of the hamsters conceal the grid-like arrangement of sensors, resulting in a fluid transition between input and output," it is hard not to admire the conceptually witty word play prompted by their design (2). Here, the player's *input*, the computer-human interaction term for data submitted by the user, is literally the player's *output*, the medical term for urine produced. And, of course, the transition between the two is *fluid* not only in the sense of being well-integrated, but also in the sense of being a liquid substance (the urine input/output). Such wordplay suggests immediately that the authors are using engaged in a kind of send-up of ubicomp research, one that makes its humorous critique by adopting the research and rhetorical hallmarks of the field.

The paper mimics the conventions of ubicomp game publications perfectly, beginning with its discussion of the social aspects of urination. Many ubicomp games profess an interest in the how computing can enhance social experience; accordingly, the authors attempt to establish the importance of social interaction to public urination. They write:

> While urination fulfills a basic bodily function, it is also an activity rich with social significance. Along with the refreshing release it provides, the act of micturition satisfies a primal urge to mark our territory. For women who visit the bathroom in groups and chat in neighboring stalls, urination can be a bonding ritual. For men who write their names in the snow, extinguish cigarettes, or congregate around lampposts to urinate, urination can be a test of skill and way of asserting their masculinity (1).

These examples are surprisingly persuasive of the social aspects of urination. But in their convincingness, they effectively distract us from the question: Why is public urination something we want to make *more* social? In the enthusiasm to get ubicomp into more objects and spaces, the larger social consequences are not necessarily examined.

This failure to ask *why* in the rush to ask *where next* has been common in the genre since the very first game for a ubicomp platform. The original *Pirates!* paper argued: “Computers have turned game play into individual and isolated activities. In a typical computer game, the game and its mechanics are inside a stationary computer, and if we interact with fellow game players, we do so through a computer screen, rather than in a face-to-face, co-located situation” (1). *Pirates!*, by co-locating players through the platform of mobile and embedded technologies sought to reverse this trend, to reconnect players physically with each other. *You’re In Control* is clearly spoofing the unexamined impulse to create more real-world social connectivity by proposing to make one of the arguably most deservedly individual and isolated activities mores social. Björk describes a playtest of *Pirates!*: “The game was very social in that it made people walk around and talk to other players even if they were total strangers. While you might get this in any other [online] multiplayer game, in *Pirates!* you actually have people *meeting in the flesh*” (Hills 2, emphasis mine). Here, we see an attempt to transform computer gaming in the same way that ubiquitous computing has attempted to transform traditional computing. Weiser has famously stated: “Ubiquitous computing forces the computer to live out here in the world with people” (“Ubiquitous Computing” [4]). In *Pirates!*, just as the ubicomp technology is forced to live out in the world with people, so is the game—and for that matter, so are its players. But why is this particular future desirable? Why is direct interaction such as walking around and talking to strangers an improvement over what the authors describe as more mediated computer gaming? Why is forcing gamers to play out in the world with other people a worthwhile shift in game design practice?

The co-authors of the *Pirates!* paper do not, in fact, delineate a specific rationale for moving toward same-space, social gaming. Instead, they seem to identify it as the intuitively obvious next-step; as gaming platforms change, so should the games, in precisely the same direction as their technologies. The *Pirates!* team observes that "the notion of ubiquitous computing acknowledges, and supports, the fact that people interact socially"; therefore, presumably, a game for ubicomp platforms ought to support a more social computer-gaming experience. But is it really so intuitive a leap to suggest this kind of mobile-social gameplay? *You're In Control* draws attention to the lack of an actual ubicomp games manifesto that articulates why games should take up the same goals as ubiquitous computing, and vice versa. Whereas the *Pirates!* game accepts as self-evident the benefits of more "meeting in the flesh", *You're In Control* forces ubicomp researchers to consider the fleshiest of possible ubicomp encounters, in which genitalia are enlisted in computationally-enhanced play.

In "Intimate Computing", Paulos, et al consider a second kind of ubicomp intimacy—"intimacy as *physical closeness* with technology, both on the body and/or within the body" (2). *You're In Control* takes up this sense of bodily intimacy and asks: What might be the true motivations of such physically intimate applications, and why is a ludic framework necessary for their success? In their CHI paper, Maynes-Aminzade and Raffle mimic the persuasive rhetoric of ubicomp gaming research, articulating a series of serious reasons why an organization or company would want a game embedded in its public restrooms. "We believe that adding interactivity to urination has valuable applications to recreation, hydration, sanitation, and education" (1) Elaborating, for example, on the issue of hydration, the designers note: "By making urination more fun, the *You're In*

*Contro*l system encourages proper hydration, and could result in increased beverage sales at restaurants and sporting events" (2). Here, we are reminded of projects like *The Drop*, which used ubicomp gaming to create economic incentives for more ubiquitous computing. And on the issue of sanitation, the designers write: "Since our system motivates users to aim properly, it reduces splashing and spillage" (2). They observe that "bathroom sanitation requires a serious focus and conformity. *You're In Control* encourages cleanliness," by motivating users to aim more strategically into the urinal (2). Here, in the emphasis on conformity, the authors' discussion of how the game modifies its players' urination techniques lays bare the underlying irony of the project's title. It is a common ubicomp tenet that users will be empowered by everywhere technology. A recent ubicomp manifesto circulated by developer Ezra Jeoung at the 2004 International Conference on Ubiquitous Computing captures this belief: "The ubiquitous environment will not influence humans, but rather will *adjust* to humans" [2]. However, *You're In Control* provides a rather effective example of a ubicomp system very much designed influence humans, rather than the other way around. The stated motivations for *You're In Control* give lie to the power fantasy of its own title. The *technology* is in control, not the user. Instead, the users' most intimate daily practices are monitored, evaluated, scored, and ultimately modified by the novel ubicomp infrastructure.

Bell, et al propose that viewing ubicomp as an intimate computing practice could prevent such an emphasis on conformity. "Intimate computing implies a sense of detail; it is about supporting a diversity of people, bodies, desires, ecologies and niches" (2). However, *You're In Control* provides an effective critique of this belief in the inherent heterogeneity of the intimate computing impulse. The most vivid element of this critique is made online outside the constraints of a formal academic paper, where the designers hint more openly at the subversive nature of their project. Raffle, on his MIT student webpage, writes playfully abut the customized game-controller that allowed both men and women to participate in a public playtest (see figure 3.14). He first describes its construction: "The controller consists of a nylon belt, a formed acrylic pelvic plate, water bottles, tubing, and a flexible garden hose nozzle. It is worn around the waist and the bottles are gripped and squeezed to pressurize a stream of water" ([10]). He then describes its aesthetics: "It is a play on Nintendo-style game controllers, plumbing equipment, and strap-on dildo harnesses. The oversized phallic nozzle is powered by two water reservoirs located to suggest oversized ovaries, making it oddly hermaphroditic" ([10]). Photos and videos from the *You're In Control* playtests show men gleefully squeezing their stand-in ovaries and women confidently aiming their make-believe phallus.

These joyful hermaphroditic game performances make it impossible to ignore ubiquitous computing's potential subjective effects, especially in the context of a ludic framework. Paulos, et al argue that "when at play, humans are more exploratory and more willing to entertain ambiguity in their expectations about people, artifacts, interfaces, and tools. Such conditions may more easily give rise to intimacy" (3). I have no doubt that the game aspects of *You're In Control* did enable playtesters to engage in this socially risky gender play. I also believe it is likely only through play that users would so willingly offer up such a personal practice as urination to so much public scrutiny. *You're In Control* therefore draws critical attention to the power of game design and the power of ubicomp infrastructure to encroach upon the most intimate personal habits.

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I want to make one final observation about the *You're In Control* project. While it presents a rather extreme example of computing anywhere and everywhere, there is nothing about the project other than the authors' tongue-in-cheek writing to distinguish it from any other ubicomp game. In satirizing the genre so effectively that it becomes impossible to differentiate it from actual ubicomp research, *You're In Control* demonstrates that there is no ridiculous extreme built into the ubiquitous computing model. There are no out-of-bounds in a technological worldview that takes all places as its proper terrain.

The ability of a satire of ubiquitous computer gaming to circulate in the same network of scientific literature as serious ubicomp games is a result, no doubt, of the entire genre's tendency to underproduce play. Ubicomp games do not have to pass effectively or extensively as a good idea in real-world contexts for real-world players; they must simply be persuasive in their conceptual documentation, which requires only limited or even simply imagined deployment. The ability of ubicomp gaming to circulate such extreme, dystopic or satirical ideas alongside more ordinary ones, I would argue, is one of ubicomp gaming's greatest strengths as an experimental design practice. Ubicomp gaming may not be particularly productive of play through ubiquitous computing. However, as a flexible platform for rapidly, radically or even ridiculously emulating the future through its temporary contexts and provisional prototypes, ubicomp gaming produces an extraordinarily diverse and instructive range of visions for the future of play both for and through ubiquitous computing.

CHAPTER FOUR

Disruptive Play: Spectacle Everywhere, or, The Pervasive Games

> *Play, radically broken from a confined ludic time and space, must invade the whole of life.*
>
> -Guy Debord, "Contribution to a Situationist Definition of Play" ([3])

4.1 Urban Computing and Situationist Play

In theory, the field of ubiquitous computing aims toward computer functionality everywhere. But in practice, certain kinds of locations have generated more research interest than others. In particular, the public and shared spaces of *cities* have emerged as highly attractive sites for experimental ubicomp design. For researchers investigating the effects of increasingly mobile and pervasive networks on everyday human relations, urban social life has become a focal point for prototypes, interventions and ethnographic study.[22]

Since 2004, every International Conference on Ubiquitous Computing has featured a workshop specifically on the space of *urban computing*: "UbiComp in the Urban Frontier" (2004), "Metropolis and Urban Life" (2005), and most recently "Ex-Urban Noir" (2006). From the mission statement for the seminal 2004 workshop:

> The timing of the Urban Frontiers workshop is aimed at capturing a unique, synergistic moment – expanding urban populations, rapid adoption of Bluetooth mobile devices, and widespread influence of wireless

[22] Significant and seminal research in the urban computing field includes Anne Galloway's "Intimations of Everyday Life: Ubiquitous Computing and the City" (2004) and "Postcard From The Urban Frontier" (2004); Anthony Townsend's "Digitally Mediated Urban Space: New Lessons for Design" (2004); Giles Lane Lane's "Urban Tapestries" (2004); and William Mitchell's *Me++: The Cyborg Self and the Networked City* (2003). Intel Research, particularly through the work of Ken Anderson and Eric Paulos, has played a major role in developing urban computing as a special field of study and experimental design.

> technologies across our urban landscapes. The United Nations has recently reported that 48 percent of the world's population currently live in urban areas and that this number is expected to exceed the 50 percent mark by 2007, thus marking the first time in history that the world will have more urban residents than rural residents. Current studies project Bluetooth-enabled devices to reach 1.4 billion units in 2005. Nearly 400 million new mobile phones are scheduled to be sold worldwide this year alone. WiFi hardware is being deployed at the astonishing rate of one every 4 seconds globally. We are gathering for an event to expose, deconstruct, and understand the challenges of this newly emerging moment in urban history and its dramatic influence on technology usage and adoption (Paulos, Anderson and Townsend 2).

Here, the authors situate their work at a critical historical nexus, in which both social and technological infrastructures are growing increasingly and simultaneously dense. But what topics and modes of research will best mark and explore this confluence of massively-scaled human and digital networks?

The organizers of the first workshop on urban computing take as their primary subject a range of socio-technological topics addressing the intersection of the *personal* with the *collective*. How are these two kinds of identity reticulated through public encounters with city architecture, neighbors and strangers, pedestrian choreography, traffic flows, crowds and abandoned spaces? The organizers argue that "urban landscapes contribute to our own formulation of identity, community, and self," and therefore, "the introduction of mobile computing tools upon our urban landscape affords new methods of viewing our city, community, and neighborhood. They can empower us to better understand our social relationship to community, place, and self" (5). Typically, ubicomp research has focused on the social life of the technologies themselves, or on the intimate relationships that grow between users and their technologies. But as articulated here and reiterated in subsequent workshops and colloquia, *urban* ubicomp research concerns itself first and foremost with *human* social networks. Ubiquitous computing becomes a tool for understanding and experimentally re-organizing these human networks. Perception is also a key concept here: note how technologies are said to afford new methods of "viewing" urban experience. Urban computing is interested not only in social experience, but also and in particular with *sensory* experiences of the city as they contribute to social formulations—especially the *visual* aspects of urban encounters.

If the goal of urban computing research is to better understand the perception, construction and social experience of self and community through technological infrastructure, then what strategies of design and deployment will best interrogate these subjects? The "Ubicomp in the Urban Frontier" mission statement famously suggests two tactics borrowed from the twentieth century Situationist movement, tactics which have become integral to the playful interventions that characterize the space of urban computing research and art practice. The authors explain:

> Guy Debord and the Situationists sought to reinvent everyday life in urban spaces by constructing situations which disrupted the ordinary and normal in order to jolt people out of their customary ways of thinking and acting. Using *dérive* (the urban flow of acts and encounters) and *détournement* (rerouting of events and images), the Situationists developed a number of

> experimental techniques that stressed the relationship between events, the environment, and its participants – our urban community (6).

Explicitly borrowing from the political and art-historical work of the Situationists, urban computing stages and studies exploratory movement through city spaces (the *dérive*) and resituates and recontexualizes various urban images, objects and social practices (the *détournement*).

What does this highly mobile, locative and *relocative* framework look like in practice? Here, it helps to quote from the description of the research activities of the 2006 urban computing workshop, Ex-Urban Noir.

> The workshop is planned to run over two days, with a significant amount of time involving actively engaging the environment through "deep exploration" and urban actions…. On the afternoon of the first day we will venture out in groups with people native to Orange County who might have alternative views on the city and richer than a tourist view. On the morning of the second day, we will adventure into our own groups of 4 into and across "The O.C." to collect, discover, uncover, map, spy, follow, trace, etc. in an effort to construct a discourse through doing. Participants will get dirty and hands-on with the urban environment. On the afternoon of the second day participants will discuss their findings through a series of "visual speculations" assembled from their experience of Orange County. The tangible outcome of the workshop will be a series of designs, scenarios, and/or artifacts (Anderson, et al 3).

This workshop agenda perfectly reflects the techniques of the Situationists. In *dérive* fashion, the participants will allow the built environment of the city guide them in a mobile exploration of urban conditions and communities. And in typical *détournement* style, the participants will take urban iconography and found objects out of their original situated contexts, recombining them in a visual layout designed to produce insight and provoke fresh perspectives about computing and the city.

While the recent urban computing research movement represents the most explicit and formally developed use of Situationist technique in the field of computer science, ubiquitous computing has in fact embraced Situationist ideas from the start. A decade before the first urban computing workshop, seminal ubicomp researcher Rich Gold opened a major lecture for the *Ars Electronica* by citing Situationist leader Guy Debord's critique of the spectacle. Gold's first slide reads: "*In societies where modern conditions of production prevail, all of life presents itself as an immense accumulation of 'spectacles'. Everything that was directly lived has moved away into representation.* - Guy Debord, The Society of the Spectacle" ([1]). In citing Debord, Gold adopts a rhetorical position similar to his earlier citation of Magritte's painting in the *Communications of the ACM* essay "This is Not a Pipe". There, Gold used Magritte's representation of a pipe to lament the loss of the physical affordances and material interactivity offered by real pipes. Here, Gold uses Debord's critique of spectacle to address the chief failure of contemporary computing culture: the inability of digital semblances to replicate the diversity of direct experiences afforded by physical objects. Debord's writing, in general, resonates strongly with Gold's call to replace mass-reproduced imagery with mass-reproduced functionality. In *Society of the Spectacle*, Debord defines spectacle as “a *separate pseudoworld* that can only be looked at” (2). By psuedoworld, Debord means a social structure that cannot be directly engaged by the masses. Like Gold, Debord contrasts direct engagement with visual perception. “Since the spectacle’s job is to use various specialized mediations in order to *show* us a world that can no longer be directly grasped, it naturally elevates the sense of sight to the special preeminence once occupied by touch” (18). For Gold, the phenomenological differences between ubiquitous imaging and ubiquitous computing are perfectly captured by Debord’s contrast between sight-only spectacles and sensory-rich situations. Therefore, we can understand Gold’s ubiquitous computing to be a situation-based computing practice, one which constructs opportunities for embodied, social participation.

The Situationists’ primary objective, of course, was to create situations, or encounters in which such material participation could take place. From Debord’s 1957 “Report on the Construction of Situations and on the International Situationist Tendency's Conditions of Organization and Action”:

> Our central idea is the construction of situations, that is to say, the concrete construction of momentary ambiances of life and their transformation into a superior passional quality. We must develop a systematic intervention based on the complex factors of two components in perpetual interaction: the material environment of life and the behaviors which it gives rise to and which radically transform it ([47]).

Here, the turn toward designed, collective encounters with the material environment parallels Gold’s vision of an engineered, social experience of physically embedded computing. Indeed, judging from Gold's prominent citation of the Situationists, the notion of a "situation" to a non-trivial degree inspires and informs his ubicomp agenda.

The Situationists were particularly interested in urbanism—hence, urban computing's interest in the Situationists. Gold was not so invested in cities above other potential computing sites. But Gold, as I have argued, *was* deeply invested in the idea of a more playful computing culture. And likewise, the Situationists viewed organized play as an essential design tool for moving culture away from mass-produced spectacle and toward more meaningful participation. In "Contribution to a Situationist Definition of Play", Debord argues: "Play, radically broken from a confined ludic time and space, must invade the whole of life" ([3]) Here, we realize that the Situationists want to accomplish with play precisely what ubiquitous computing wants to do with technology: to achieve a seamless integration into everyday life. And just as ubiquitous computing dedicates itself to imagining and constructing a technological infrastructure for the future, so too do the Situationists aim toward a future eventuality of more ubiquitous play, what they term "the coming reign of leisure" ([3]). Debord writes: "The work of the Situationists is precisely the preparation of ludic possibilities to come" ([5])

Debord wrote "Contribution to a Situationist Definition of Play" in 1958. Is it too early—or too late, for that matter, considering that the Situationist movement officially dissolved in the late 1970s—to ask precisely which ludic possibilities have already come in the wake and in the spirit of the Situationist movement? Where might we find examples of play radically breaking free of the magic circle and pervading the whole of everyday life? In the 1960 "Situationist Manifesto", Debord et al write: "So what really is the situation? It's the realization of a better game" ([5]). Here, the Situationists use the term game metaphorically as a way to understand the potential for a more participatory culture and a more fully engaging quality of life. By a better game, they mean a better social structure. But I want to suggest that examining contemporary projects designed and deployed as real, experimental games offers an excellent opportunity to explore the Situationist philosophy in action as well as to understand urban computing's application of Situationist techniques. Therefore in this chapter, I will explore the emerging category of *pervasive games*, a genre of city-based, ubicomp-inspired games that invade public spaces with highly mobile and visible play.

The Integrated Project on Pervasive Games (IPerG), a leading pervasive games design research group, defines their category of work: "Pervasive games are a radically new game form that extends gaming experiences out into the physical world" ("iPerG Welcome"). I want to make several points about this proffered definition. First, the integration of gameplay with the material environment can be understood not only as an interest in a more embodied gaming practice, but also and more importantly as a desire for more *integrated* gaming. IPerG writes: "Our vision: to produce entirely new game experiences, that are tightly interwoven with our everyday lives" ("IPerG Vision"). This vision statement strongly echoes the Situationist play strategy as well as quintessential ubicomp claims, such as Mark Weiser's statement that "the most profound technologies are those that… weave themselves into the fabric of everyday life until they are indistinguishable from it" (94). The physical world is appealing to pervasive game designers, then, primarily for the opportunity it provides them to create digital gaming that is not as easily *compartmentalized* as screen-based play. Material affordances, I will demonstrate, are not necessarily explored or exploited by pervasive game design.

Materiality is significant, instead, for the new sites and contexts it provides, as a platform for suggesting new arenas and occasions for gameplay. Pervasive games embrace the friction and fusion that occurs as a result of this relocation: this is the gaming *détournement.*

Second, the verb used by IPerG to describe pervasive gaming's work is *to extend*. This genre is about active exploration of how far boundaries can be pushed. As such, it uses what urban computing researchers Tom Jenkins and Eric Paulos call "urban probes" to break the magic circle. Urban probes are "rapid, nimble, often intentional encroachments on urban places"—in the case of urban computing, designed to provoke awareness and discussion, and to collect data, about the role of technology in city life (1). In the case of pervasive games, urban probes provoke awareness and discussion about when, where and how it is appropriate to play. But because these are gaming probes, rather than gaming installations, we will see in each pervasive game's design a sense of mobility, of *designed routes* for channeling the flow of gameplay through different parts of the urban environment. This is the gaming *dérive.*

Third, it is important to note how the IPerG definition adopts a rhetoric of design revolution. Just as the Situationists saw breaking the magic circle as a *radical* intervention, so do pervasive game developers. In the tradition of urban computing, pervasive games explore urban identity, critique habitual behaviors, and seek to construct experimental social structures. Such construction often requires highly disruptive design. As such, a sense of breaking the rules and defying social norms is fundamental to all of the pervasive games I will discuss in this chapter. They aim to shock the public into new ways of seeing and socializing; as a result, the aesthetic of these projects tends to be *big* and *visually arresting*.

Finally, in my examination of the goals, design practices and social impact of pervasive games, I will suggest that the category ultimately finds itself in a strange holding pattern between the stages of ubiquitous imaging and ubiquitous computing. To critique and disrupt the traditional assumptions and goals of the latter, the games must indulge in the former, even at the expense of achieving a truly radical break either from traditional gaming norms or through conventional gaming boundaries. Through a close reading of the design and implementation of four major pervasive games, I will demonstrate that all such games operate on two different, and often conflicting, levels: as both *situation* and *spectacle*. The former affords actual game play opportunities, while the latter offers only the perception of someone else's game. Measuring the degree and the ends to which a pervasive game operates as a spectacle versus the extent to which it creates a public situation is ultimately, I will argue, the most important evaluative tool for analyzing the socio-technological work of projects in the genre.

Can the aesthetics of spectacle when combined with iconic game structures and imagery in fact be used to organize and to inspire direct participation, rather than to create alienation? If so, what kinds of urban communities and technological relations will emerge in and around the spectacle? To begin to answer these questions, I turn now to the *Big Urban Game,* which many consider to be the originary pervasive game.

4.2 'A Surreal Spectacle': *The Big Urban Game*

In September 2003, the University of Minnesota's Design Institute invited residents of Minneapolis and Saint Paul to participate in a giant, urban board game. Three thousand, three hundred and six members of the public registered to play the *Big Urban Game* online and were divided into three teams: red, yellow, and blue.[23] Each massively-multiplayer online team partnered with a dozen real-world runners, who would be responsible for moving their team's 26-foot-tall inflatable game piece around a 108-square-mile game board. Every morning for five consecutive days, the online players studied a digital map of the Twin Cities and voted for one of two potential racing paths. Every evening, after the votes were counted, the real-world runners raced through the city streets following the route chosen by their online counterparts (see figure 4.1).

In between the races, the giant game pieces were installed at high-visibility outdoor sites: in front of a fire station, at the lakeside band shell, in popular public parks, at the downtown sculpture garden. Casual social activities, conducted at each installation site directly before and after the running of the game pieces, encouraged city residents to interact with the game pieces and to spend face-to-face time with team members in a diverse range of urban locations. The centerpiece of activity at these checkpoints was a community rolling of inflatable, giant-sized dice (see figure 4.2). On-scene game officials tallied the dice rolls and awarded bonus "time boosts" to teams with the highest totals. Meanwhile, online players logged onto the central game website to get the daily race times and roll results.

This *Big Urban Game*, or the *B.U.G.* for short, is one of the best-known and most frequently cited projects in the area of real-world, computer-enabled gaming. Commissioned by the Design Institute and created by the New York City-based design

[23] Unless otherwise noted, all gameplay statistics, including the size of the game board, the height of the game pieces, and the number of registered online players, are quoted from the Design Institute's official web site dedicated to documenting the September 2003 performance of the *Big Urban Game*: http://design.umn.edu/go/project/ TCDC03.2.BUG .

4.1 A Race in the *Big Urban Game*. Street runners move a 26-foot-tall inflatable game piece through the streets of Minneapolis. (The Design Institute, 2003)

4.2 Dice Rolling in *Big Urban Game*. At the conclusion of evening races, local residents meet the runners at the temporary board-game "square". They participate by rolling oversized, inflatable dice. (The Design Institute, 2003) team of Nick Fortugno, Frank Lantz and Katie Salen, the *B.U.G.* is typically presented as an early and quintessential pervasive game—so quintessential, in fact, that "big urban games" has been adopted by many game designers and researchers as a generic name for the whole genre.[24] But while the basic facts of the project circulate extensively in game studies and ubicomp literature, the design strategies and play values of the *B.U.G.* are rarely discussed in depth or subjected to critical analysis.

I believe this lack of critical discussion is due in large part to the immediate accessibility and strong minimalism of the game concept. The image of giant game board pieces being raced by players through real city streets has such a delightful visual clarity to it, and the "this-or-that?" voting mechanism is so straightforward a mode of participation, that the project may not seem to require closer scrutiny or deeper consideration. But here I want to suggest that the elegant simplicity of the project's design belies what is in fact a more complicated set of interactive strategies and socio-technological critiques. Because the *B.U.G.* is such a seminal project, it deserves a much closer reading than it traditionally has received. Therefore I propose to use the designers' statements, the official game instructions, player blogs, and other archived *Big Urban Game* media to explore both the *intended* and the *actualized* attributes of the game, particularly as signified by the project's three title words: big, urban, and game. How *big* was the experience, and according to which dimensions? In what ways was the gameplay specifically *urban*, and for whom? And finally, how much actual *game* play occurred, as opposed to other kinds of designed and emergent interaction?

[24] See, for example, "Pervasive Electronic Gaming" (Julian Bleecker, 2006); "Sustainable Play: Towards a New Games Movement for the Digital Age" (Celia Pearce, et al 2005); and "Locative Media" (Steve Dietz, 2003), all of which use "big urban games" as a generic term for the genre.

By closely analyzing the degree and the ends to which these three claimed attributes are successfully enacted, I will articulate a set of *disruptive* aesthetics and a *spectacle-based* design philosophy that can be applied as a critical framework across the entire category of pervasive gaming. To strengthen and complicate this framework, I will follow my analysis of the *B.U.G.* with a critique of selected design strategies and play values from three other significant, and more recent, pervasive gaming projects: Improv Everywhere's *The Mp3 Experiment 2.0* (2005); New York University Interactive Telecommunications Program's *PacManhattan* (2004); and street artist Poster Child's grassroots project *Super Mario Blocks* (2004-2006).

How Big?

At the heart of the *B.U.G.*'s massively-scaled concept and design is the desire to play with a particular dimension of bigness: *visual scale*. Created as part of an urban design festival and intended to provoke public discussion about how the design of city spaces could be improved, the Design Institute's *Big Urban Game* website invites residents of Minneapolis and St. Paul to "See the Twin Cities from new angles, with a dramatic shift in scale" ("Background" [6]). Here, the project's call to action encourages the public to approach the game first and foremost as a novel *perceptual* opportunity. It explicitly invites seeing, rather than doing.

Indeed, visual language dominates the original game materials. The official project statement defines the *B.U.G.* goals as follows: "to promote visual awareness of the Twin Cities' urban environment, frame new perspectives, provoke fresh perceptions" ([4]). The archived *B.U.G.* website proudly proclaimed success in achieving these goals, announcing at the conclusion of the game: "It's changed how we *see* the Twin

Cities!" ("Archived Project" [1], emphasis mine). Here, *insight* emerges both through and as *sight*. To better understand and to reconceive the urban environment, residents must, literally, come to see it in new ways. In *Philosophy in the Flesh*, linguist George Lakoff and philosopher Mark Johnson address the Western cultural tradition of using visual metaphors to describe learning, insight, and revelation. They write:

> That this conceptual metaphor should be so pervasive makes perfectly good sense, given that vision plays such a crucial role in so much of our knowledge of our world. Our language about our mental activity is thus pervaded with expressions based on this underlying vision metaphor…. It is the commonality and experiential grounding of this ubiquitous metaphor that makes it an ideal candidate for sophisticated philosophical elaboration in a wide variety of theories of mind and knowledge (394).

The ubiquity of what Lakoff and Johnson call "the Knowledge is Seeing metaphor" explains to a large degree, I think, the intense visual orientation of the *B.U.G.* Given its objectives, the project must make a bold visual statement to excite the public and to incite a novel way of seeing, and hence thinking about, urban space.

In a retrospective essay on the project, co-designer Lantz calls the game "a surreal spectacle that shifted players' perspectives on their urban environment" ([7]). This characterization perfectly captures the visual bigness to which the *B.U.G.* aspires. "Surreal" is a term that evokes an often distinctly visual aesthetic, in this case the surprising juxtaposition of iconic, oversized game pieces against an ordinary city backdrop. (Think here of the *détournement*.) Meanwhile, "spectacle", with its origins in the Latin *spectare* (to look), underscores that this game was designed above all to be looked at. And Lantz is clearly using “perspectives” here in the visual sense of the term, that is to say, the viewing position that determines the way in which objects appear to the eye.

The explicit visual orientation of the project clearly influenced the project’s reception. During the five days the *B.U.G.* was played, for instance, each team of real-world runners posted daily commentary on the project website. These official “daily *B.U.G.* log” blog posts demonstrate a very clear focus on the massively visual aspects of the game. The first post from the red team notes: “Day 1 Red, launched by University of Minnesota President Robert H. Bruininks in the shadow of the Witch's Hat water tower in Prospect Park, soon cruised the Transitway in remarkable time, tracked from above all the way by the Fox News helicopter” (“Red” [1]). Here, the apparent suitability of the massively-scaled gameplay for sweeping aerial photography asserts the visual impressiveness of the *B.U.G.*—it is a newsworthy sight. Subsequent red team blog posts center around the reactions of city residents to this visual impressiveness: “Day 2 proceeded along route B to cheers and clinked glasses from diners at the bars on Main Street by the river's edge, then received gasps from bus riders as it was flawlessly tipped horizontal to duck traffic lights at the Hennepin Avenue Bridge” ([2]). On Day 3, “Smart folk took the high ground, watching from Siah Armajani's bridge”, while on Day 4, “clever drivers dodged into side-streets and caught glimpses of Red as it crossed street junctions en route to Nicollet Avenue” ([3-4]) The visual tracking, gawking, watching and glimpsing documented by the real-world runners emphasizes the impact of the game on those who *saw* it rather than the impact of the game on those who actively played it. The sights offered by *B.U.G.*, the runners note, were sufficiently arresting to disrupt their conversations, their daydreaming, and their normal traffic patterns. The red teams' *B.U.G.* log is primarily a record of gameplay sights seen, and efforts made to obtain those sights, rather than of the gameplay itself.

On the other teams' blogs, the most passionately recounted details are also those which describe the visual pageantry of the game. Consider the following excerpt from the blue team's Day 4 blog post: "We witnessed the most intense moment of the B.U.G. game so far—a moment of Matthew Barney-esque choreography: the passing of the Blue and Yellow pieces at the very center of the Ford Parkway bridge, one heading east into St. Paul, the other west into Minneapolis" ("Blue" [4]). I want to comment on two aspects of this report. First, the blue team blogger describes the two teams' interplay as a visual performance, rather than as a competitive ludic encounter. The use of the term 'choreography' evokes a moment that is intentionally designed as a performance, intended to be seen by an audience and appreciated aesthetically. The player also cites visual artist Matthew Barney, whose digital videos often depict a sense of "inner, antagonistic forces at play" within urban architectural landscapes (Spector 1). By referencing Barney's work, the blog post emphasizes the *imagistic expression* of competition against the striking backdrop of the bridge, rather than the *personal experience* of those antagonist forces. The player does not address the question: What did it *feel* like to be apart of the most intense moment of the game so far? Here, and secondly, I want to linger on the fact that an active player describes the moment as a rather passive experience: "We *witnessed* the most intense moment of the B.U.G. game so far" (emphasis mine). Why does this player use the term 'witnessed' instead of a more active verb, such as 'experienced', 'created' or even 'orchestrated'? Why should a member of the blue team directly responsible for bringing such a moment to life, an active performer of the "Matthew Barney-esque choreography", speak of *observing* it rather than *enacting* it? This slippage between performer and witness provides compelling evidence, I believe, of the primacy of visual experience even for the street runners, those participants who were most directly and completely engaged with the gameplay action. Even the real-world players were transformed into spectators of the game, even in the very moment of active participation.

As Debord argues, "the spectacle is not merely a matter of images…. It is whatever escapes people's activity" (*The Society of the Spectacle* 18). Here, I want to suggest that the massively-scaled imagery of the *B.U.G.* is so intense that even the most active portion of the game—the street running—oddly seems to escape a phenomenological sense of activity. From inside the game spectacle, as much as from outside the game spectacle, all is seen, rather than directly lived. By massively scaling up the size of the game imagery, the *B.U.G.* seems to have reduced for some participants the opportunity to experience game play.

I want to examine in depth the social qualities and consequences of this reduction of play; but first, in addition to visual scale, there are three other major scaling dimensions to the project to consider when analyzing its strategic bigness. First, there is the spatial dimension: The 108-square miles of city landscape marked off as the *B.U.G.* board is a considerable scaling up from a traditional table-top playing area. Second, there is the temporal dimension: The duration of the game from start to finish is 105 hours, which represents a considerably longer timeframe than we normally associate with a single instance of a board game. Third, there is the participatory dimension: the number of players associated with each game identity averages out to be 1000, a significant shift in the scale of people attached to a single game piece. (Imagine more than 3000 people seated around a table arguing where on a game board to move three individual playing pieces next, and you get a good idea of the inventiveness of this particular scaling effort.) What I want to suggest here is that these diverse scaling efforts all worked toward the same single effect: making the dramatic game imagery visible to the largest audience possible, so that the most perspectives could be changed.

Consider the expanded game space. A promotional map from the game depicts all thirty possible routes available to the game pieces during the five-day event. One peculiar feature of the game pieces' potential urban paths is that there is almost no overlapping terrain among them. By overlaying the map on graphing paper, I calculate that only 3% of the total board game space consists of potential shared territory. But such exclusivity was by no means a necessary design decision. Teams could have shared the same paths at different times, or some of the same paths at some of the same times, or even all of the same paths all of the time. Each of these alternative design choices would significantly affect important aspects of the *B.U.G.* experience.

Take, for example, the perceived level of head-to-head competition during the races. Although the three teams of runners knew they were competing against each other, the game board was laid out so that they could not actually see their opponents. Would it have been a more lively and competitive race if the teams could have seen each other, or perhaps even attempted to interfere with each other's progress? Consider also the legibility of the game to onlookers. For observers, seeing the spatial relationship of the three giant inflatable game pieces would make it possible to read the current state of the game. Which piece is closer to the finish line? Are they neck-and-neck, or does one group have a substantial lead? The huge spatial separation of the pawns results in a suspension of game information; there is no way to read the relationship of one team to the next. Finally, separating the game paths significantly diminishes the density of players and supporters in any given space. What if, instead, all three teams' supporters were congregating along the same paths? And what if they were able to show up at a single shared checkpoint for the community activities, thereby creating a more massively-social opportunity?

The design of exclusive urban paths comes at the cost of any of these gameplay-heightening possibilities. However, I believe this cost was acceptable to designers as a necessary trade-off for making the game imagery, as a whole, more pervasive. By more pervasive, I mean replicated across more real-world territory, occupying more discrete physical spaces. Pervasive games, I have argued, are designed as urban probes. In the *B.U.G.*, each team served as a separate probe, exploring and disrupting nearly three times as much urban space as a completely shared-path map would be able to cover. Of course, the designers could have increased the distances traveled by the real-world players so that they could share territory while still covering 108-square-miles. However, real-world gaming is constrained by some physical factors that strictly digital gaming is not—such as the fact that the average human body can only comfortably travel so far on a hot, late summer day while hauling an oversized game piece. Rather than stretch the physical limits of the runners' bodies, then, the designers separated the running routes to stretch the game across a wider space. In short, the prospect for a greater intensity, legibility and density of gameplay was deemed less important than extending as far as possible the geographic reach of the game imagery. More probing took priority over more play.

The scaled up temporal dimensions of the game arguably serves the same purpose, and at similar experiential costs. The actual real-world gameplay, that is to say the movement of the pieces, comprises a very brief part of the overall event—about 45 minutes an evening for a total of three and a half hours in the full 105-hour period.[25] That is roughly 4% of the total duration of the event. The other 96% of the time, the pieces sat still, installed at their various checkpoints. This ratio of movement to rest creates a temporal *intensity* that is quite low. We could easily imagine a more challenging and arguably more exciting race, for instance, in which the five legs were run back-to-back, without time gaps. Not only would this be more physically demanding for the runners, it would also require online players to make their strategic voting decisions under a significantly greater time pressure. The periodic nature of the chosen design also limited the potential temporal *diversity* of the game. The five legs could have been spaced out over a single 24-hour period, for instance, allowing for races to be run at dawn, in the middle of the night, and other unexpected hours. Such a smaller scale would enable *B.U.G.* to investigate *urban time* as well as *urban space*. Or, the legs could have been run unpredictably, instead of at the same appointed hour each evening. Such unpredictability would require would-be spectators and supporters to be alert throughout the day, more on guard for eruptions of play.

But the actual design precludes these other intriguing possibilities in order to focus on creating a visual impact on the greatest number of players. A five-day duration with so

[25] The total running times for each team, according to the archived project page, were 3 hours and 11 minutes for the blue team; 3 hours and 24 minutes for the red team; and 3 hours and 42 minutes for the yellow team.

much gameplay down time significantly increases the likelihood of any given Twin Cities resident accidentally stumbling upon the game piece. Meanwhile, for those spectators and supporters inclined to actively seek out the races, the stability of the brief running window, at the same convenient after-school, after-work, but before-dark hour, also improves the chances for maximum public exposure. Given the duration of down time, it is highly probable that most Twin Cities residents encountered a still game piece rather than witnessed a moment of live game play. But if playing with visual scale is the main goal of the project, then an immobile, oversized pawn installed in an unexpected urban environment arguably frames the environment and shifts perspective as well as, if not better than, a moving pawn. In a sense, then, the brief eruptions of play that take place around the pawns are secondary to their visual function. With their utterly iconic form, they signify play as much when they are still as when they are moving.

Finally, recall that the *B.U.G.*'s designers chose to modify traditional board game participation by dramatically shifting the number of players associated with each game piece. This design choice can be contrasted with an alternate approach to participatory scale: the option to simultaneously scale up the number of *game pieces* on the urban game board as the number of participants increase. This design strategy would entail maintaining a traditional player/avatar game ratio of 1:1, while increasing the number of avatars. A total of 3306 registered online players would mean 3306 individual game pieces occupying urban real estate, with 3306 runners (perhaps the registered online players themselves, instead of real-world proxies) racing through the streets. In comparison with this hypothetical scenario, the actual design of 3 game pieces and 36 runners in a 108-square-mile space seems a relatively sparse distribution of play.

Of course, as with any real-world installation, material resources and local regulations restrict the possibilities for just how big an urban game can be. Producing thousands of 26-foot-tall game pieces would be cost-prohibitive. And gaining formal permission from the city to take up that much city space—no doubt disrupting more foot and automotive traffic, possibly preventing normal use of important public spaces, or even worse, causing accidents—seems an extraordinarily difficult prospect. (As it was, co-designer Nick Fortugno explained to me in a personal interview, the *B.U.G.* team worked very closely with city officials to ensure minimal traffic interruption and the participants' safety.) But these seemingly insurmountable obstacles to scaling up the number of game pieces and street players stem largely from the first and overriding design decision: to make the game pieces surreally oversized. The desire to create a specifically larger-than-life visual impact is precisely what precludes real-world participation on a massive scale. A different big, urban game might have employed handheld game pawns—cheaper to produce, and easier to navigate through everyday space. Such a design strategy would trade the spectacle for a truly public situation. Rather than creating massively-scaled, pervasive game iconography, it would create massively-scaled, pervasive participation. But for the *Big Urban Game*, big urban visuals trump big urban participation. And why not? The project background statement does not put forth the goal of changing the way residents *interact* with their city or the ways in which they *use* urban space. Instead, the *B.U.G.* is about disrupting habitual urban *perception*, and the particular qualities of bigness of the game are chosen with that goal in mind.

And so we encounter one of the paradoxes of pervasive gaming. Through spectacle, Debord writes, "the real world is transformed into mere images" (*The Society of the*

Spectacle 18). While pervasive games seek to take play out of the virtual realm and put it back into the real world, its reliance on spectacle to achieve the goals of urban critique and investigation may, in fact, temporarily transform that real world into a less actionable environment. Is big urban gaming a genuinely effective tool for generating public engagement, or does it only provide the façade of massively ludic participation as it makes its techno-social critiques? Here, I turn to examine a second primary attribute claimed in the project's title.

How Much Game?

The aesthetic and participatory dimensions of the *Big Urban Game* can be specified, verified and evaluated according to concrete design and gameplay metrics: 26-foot pawns, 108-square-mile playing board, 5 days of play, 3306 registered players, and so on. But it is a trickier thing to assess the qualitative attributes of the various ludic interactions that occurred during the project. What kinds of play did the *B.U.G.* generate, and for whom?

In the case of the *Big Urban Game*, such an analysis is complicated by the project's own emphasis on game imagery over game play. Project statements tend to reveal less about the designed play than we might hope. The day before *B.U.G.* launched, for instance, University of Minnesota Design Institute director Janet Abrams, who is credited as the Editor/Producer for the *B.U.G.* project, gave an interview with *Metropolis* magazine. Asked specifically about the choices made by the game design team of Fortugno, Lantz, and Salen, Abrams said:

> They know what it takes to make a game, the elements of game design: Establishing a set of rules, units of activity, game pieces, and a space of play. In this case, the game board is the readymade surface of the city. The

> game pieces are much enlarged to suggest the proportions of a traditional game board to its playing pieces. The pieces look like pawns from a chess game. There are also mats that they sit on that say, 'The B.U.G. stops here,' which represent the squares on a traditional game board" (Cameron [6]).

As we might expect from the director of a project whose primary goal is "to promote visual awareness of the Twin Cities' urban environment", Abrams seems more interested in talking about the visual aspects of the project than the interactive elements. Despite first identifying general essential gameplay elements like "rules" and "units of activity", she speaks specifically of *B.U.G.'*s "surfaces", its "proportions", what its game props "look like", what its game props "say", and what their design "represents"—all features of the visual design. Even as the interviewer seeks to draw her out on the gameplay design, Abrams turns to appearance and expression, and away from action and function.

Despite this lack of critical discussion of the game's proffered modes of interaction, in this section, I will try to explore not what players were invited to *see*, but rather what they were invited to *do*. For this analysis, I will rely largely on the official rule sets presented online to the public as a guide to interacting with the pervasive game system.

The *B.U.G.*'s online interface featured a simple splash page with three information options—"How to Play", "Who Can Play", and "*B.U.G.* Rules"—as well as two interaction options—"Join Game" and "Make a Move" (Design Institute "B.U.G."). Each of these five website elements offers significant details about which kinds of gaming opportunities *B.U.G.* offered, where, and to whom. What I want to suggest through a close reading of this original game content is that while the project often employed a rhetoric of open participation and abundant gameplay, it in fact offered a rather limited and carefully proscribed set of gameplay opportunities.

To begin: Who can play the *Big Urban Game*? According to the “Who can play” section of the splash page, this question can be answered in one word: “Everyone!” But in fine print at the bottom of the splash page, players are encouraged: “Find out more”. Aspiring players who click on this link discover that there are restrictions on who can play which portions of the game:

> *PLEASE NOTE: the game pieces themselves will each be carried by a team of designated "MOVERS" established in advance of the game. If you are interested in becoming a "MOVER," contact [us] but please be aware that places are extremely limited and you will be required to meet several conditions established by the Design Institute before the B.U.G. begins, in order to participate in such a role* (“How to Play” [1]).

In other words, everyone can play online, but few can play in the streets. In addition to being limited by a hard-and-fast cap on the number of runners, the timing of player selection also made it much less likely for a Twin Cities resident not affiliated with the Design Institute or Playground to be chosen to participate in the pervasive element of the game.[26] If you found out about the game by observing the spectacle on, say, the first day of play, it would be too late to apply to participate as a real-world player. Only those who knew about the game before the media coverage and before high-visibility game pieces started showing up in the streets were able to request a spot on a real-world team.

[26] Indeed, a March 2006 conversation with co-designer Nick Fortugno confirmed that the great majority of street runners were members of the Design Institute or members of the *B.U.G.* project team itself. That is to say, the group that *made* the game was largely the group that played the pervasive elements.

I have proposed that pervasive games arise from the trend toward urban computing research, which I have described as a highly mobile, locative and *relocative* practice. But what I am calling attention to here is that there are important limitations on who is afforded mobile interaction by the *B.U.G.* and who physically executes the game's relocative acts of *détournement*. This mobility and relocativity is limited to only 1% (36 out of 3306) of the overall registered participants. The language used to describe the online gameplay therefore seems to promises a more abundant pervasive play than the game actually affords. Consider, for example, how the splash page of the game interface invites registered online players to "Make a move!" Clicking on this link during the live game allowed players to vote for one of two daily potential routes. But the phrase "make a move" evokes a sense of mobility that only a tiny subset of game players are, in fact, offered. The online players are making a *decision*, not a move.

If the widely circulated images of players running through the streets and the rhetoric of abundant mobility belie the restricted nature of the pervasive gameplay, then it is in the official rules where the true interactive nature of the experience is truly laid bare. Clicking on "Rules of the Game" opens a pop-up window that describes the *B.U.G.* to be, for most players, an online game, not a pervasive game. Note how the five stated rules say nothing of real-world activity:

> RULES OF THE GAME
>
> 1. You can only sign up for one team.
> 2. You can only vote once a day.
> 3. You get five different chances to vote, once per day for each leg of the race.

4. You can vote from 12:01 am to 4:00PM CDT on Weds/Thurs/Fri/Sat September 3-6, and from 12:01 am to 11:00 am on Sunday September 7.
5. You can join in the game at any point in the five days.

While the limits on virtual voting are clearly proscribed, there are absolutely no limitations presented in the official rules regarding the physical races. What restrictions does the game place on the movement of the inflatable game pieces? Can the movers run, or must they walk? Are they allowed to wear inline skates to go faster? Can they take a short cut if they know one? Must they carry the playing piece above ground, or can they drag it along the surface? Do all real-world team members need to be touching the piece at all times, or can they take turns? Can they split up and physically interference with the other teams' pieces? Not a single restriction on the mobility or interaction of the pervasive players is addressed—although surely there must have been some internal decisions and communication to runners about precisely such issues, no doubt part of the pre-game training Fortugno mentioned.

So why are the rules for the races not addressed publicly? I want to suggest that this absence of discussion of the pervasive element of play reveals the street races to be more of a public *performance* than public gameplay. In the official communications of the *Big Urban Game*, the game designers do not present rules regarding the physical race because it is not the public's responsibility to play the races. It is instead the public responsibility's to watch them. To use a videogame metaphor, we might say that the street races serve the same functions as cut-scenes, the non-interactive, pre-filmed narrative updates that interrupts traditional videogames.[27] Cut-scenes are not player-

[27] An excellent discussion of the role of cut-scenes in traditional videogames can be found in Rune Klevjer's 2002 *Computer Games and Digital Cultures* paper "In Defense of the Cut-Scene."

controlled; however, players produce and provoke the playing of the cut-scene by taking actions and making decisions leading up to the filmic moment. Likewise, the street races, for the public players, are not executed as gameplay, even as the players' decisions influence which race will be run. The races are, instead, dramatic enactments rendered by performing artists rather than a live moment of gameplay directly experienced by the public players. This is not to say that for the official Movers, the races were not experienced as a game. (Though the blog posts, as analyzed above, suggest that the runners were highly aware of their role as performers.) But for the vast majority of *B.U.G.* players—3306 online voters, as compared to 36 real-world players—the races were observed, rather than played. They were designed as spectacles, not as situations.

There was, however, one aspect of real-world gaming in which the public was allowed full participation: the nightly post-race dice rolling. By all accounts, the dice rolling was a hugely popular feature of the game. According to the yellow team's Day 2 blog post, "The dice-rolling was a real community event. People parked their bikes and interrupted their evening jogs to come over and support 'Seabiscuit' Yellow, and the rolling went on till 8.00 pm — though we've been getting reports of pets being lured in to up the numbers, aided and abetted by their owners!" ([2]) And participation in the post-race activity increased each day, presumably as more people saw and heard about the *B.U.G.* The red team blog notes on Day 2 that "dozens of kids joined the dice roll," while blue team blog records a significantly larger Day 3 turnout: "By the time we reached Hiawatha Park, a crowd of about 100 had gathered, and the dice rolling began in earnest, with plenty of babies and toddlers on hand to boost the score" ([2], [3]). The yellow team met an even larger crowd on Day 4: "Yellow made a mad, catty-corner dash towards the Minnehaha

Falls, where the crowd of over 200 people earned the highest dice roll score of the day!" ([4])

The community dice rolling represents a somewhat counter-intuitive design choice. In game design, adding an element that undercuts the meaningfulness of other elements is typically considered a design flaw. Yet, this is precisely the problem posed by the addition of the dice roll. It works to minimize the overall impact of the other two elements of the game: the public decision making, in which a particular urban path is selected, and the street race, in which the public's choice is executed. To see how this is so, we must first consider what defines 'good gameplay' in the two main elements.

What is required for a team to succeed in the first phase of gameplay, the voting? In an invited lecture on designing games for real-world spaces, *B.U.G.* co-designer Salen explained to an audience at Georgia Tech University: "Each day, two paths were published, and neighbors had to argue which of the two routes was actually faster, given traffic patterns and other natural urban obstacles" ("Every Little Thing She Does Is Magic"). In other words, local knowledge of the urban environment would allow a team to choose the faster of two routes. As co-designer Fortugno explained to me, each pair of paths offered one significantly faster route. However, Fortugno said, it could be difficult to detect which path was the faster route without considering the design of the local landscape. Fortugno recalled: "On Day 5 of the game, the yellow team ran a very slow race because the public voted for the wrong route. On the map, it looked like a shorter running distance. But it actually included a very steep hill at the end of the route that made it really difficult for the yellow team to go as fast as the other two teams." Here, we see how the public's decision-making could meaningfully impact the outcome of the game: Not factoring in the incline of the landscape, the public supporting the yellow team hurt its own chances for a faster time. In other words, the online yellow team played that particular vote poorly. Indeed, the yellow team’s daily blog post notes: “Just before take-off a loyal fan could be heard saying, ‘People picked the wrong route. Those hills are gonna be trouble.’ It was an ominous start…. It seemed uphill the whole way, as the team headed towards the water towers at Highland Park — a telltale sign of a city's highpoint” ([5]). The presence of the water towers on the route, then, was a clue that better gameplay on the part of the voting members of the yellow team might have detected and used to their strategic advantage.

Meanwhile, the movers had their own opportunity to meaningfully impact the outcome of the game. Navigating the urban environment with such an unwieldy prop required considerable stamina, dexterity and group coordination. The yellow team describes the problem of over-exhausting their movers in the middle of the second day’s race: “They needed a break after all their sprinting, which took them back across the I-94 freeway, through the Thomas-Dale and Summit-University neighborhoods” ([2]). The Blue team describes a coordination challenge they faced during the fourth race: “Proceeding down 46th Street, Blue headed toward the Ford Parkway bridge, constantly in need of lowering to avoid foliage and power lines that festoon 46th Street” ([4]). The Red team describes a different strategy for dealing with a similar obstacle: “Red saved time on horizontal maneuvers by simply moving into the opposite lane of traffic in order to avoid overhanging traffic lights” ([4]). Clearly, then, it was possible for the street players to significantly affect their team’s overall chances of winning or losing through their own racing strategies.

The final dice rolling, I want to suggest, mitigates both of these prior elements of gameplay. The complete “Rules” project page explains how the community dice totals potentially reverses the effects of the map-based decision making and the racing strategies. “Roll a pair of giant dice to give your piece a time advantage. Your dice score will be recorded, all scores are added together, and the team with the highest total receives a ‘speed boost.’ Highest total rolls = T-10 minute speed credit. Second highest score = T-5 minute speed credit” ([4]). Here, we see that the voting members of a team could pick the worse of the two urban paths, making it more difficult for the movers to get to the checkpoint in the fastest time, and yet have that time difference erased by the top speed boost. Likewise, a given team of movers could be less clever in navigating urban obstacles or run more slowly than other teams, and yet come out on top simply by virtue of recruiting the highest total of dice rolls.

Typically, this degree of mitigation would be considered poor game design. A final, somewhat randomizing element (which the random roll of the dice represents) takes away the power of either the voting public or the racing teams to determine, through ingenuity and effort, the outcome of the game. In *Rules of Play: Game Design Fundamentals*, Katie Salen and Eric Zimmerman argue that “the goal of successful game design is the creation of meaningful play” (33). They define meaningful play as follows: “Playing a game means making choices and taking actions. All of this activity occurs within a game-system designed to support meaningful kinds of choice-making. Every action taken results in a change affecting the overall system of the game” (33). According to Salen and Zimmerman, the outcome of choices made and actions taken should be well integrated into the overall game context. If at any point a choice or action is rendered irrelevant by a subsequent stage of the game, then the play becomes less meaningful.

As an example of poor design for meaningful play, the authors propose "a multi-event athletic game, such as the Decathlon. At the start of the game, the players run a footrace. What if the rules of the game dictated that winning the footrace had nothing to do with the larger game?" (35) A decathlon in which the foot race has zero ultimate significance is an extreme scenario, but we can see shades of this design dilemma in the way the *B.U.G.* dice rolling potentially renders irrelevant the results of the street race. The daily scores posted on the live gameplay site reveal nightly race times that clocked in at an average of 40 minutes each, and an average time differential each race of 3.1 minutes between first and second place, and another 3.1 minutes between second and third place. Therefore the 10 minute and 5 minute time bonuses awarded based on dice totals absolutely have the power to undo completely the outcomes of both the decision making and the race strategies. That is to say, a team could come in last place due to poor voting and poor racing, and yet rank first as a result of a 10-minute time boost. In this way, the preceding vote and race *by design* may be rendered meaningless.[28]

Rules of Play's discussion of meaningful play is particularly interesting, of course, because co-author Salen was one of the lead designers for the *Big Urban Game*. Why would she ignore her own stated design principles? The fact that Salen and the rest of the *B.U.G.* design team were willing to weaken the meaning of the online voting and street racing is hugely important: it represents, I believe, a design fracture caused by the larger tension between the main goal of the project, to create a surreal spectacle, and the visual

[28] As it turned out in the September 2003 event, according to Fortugno's assessment of the game results, Blue team edged out the Red team for first place on the basis of the awarded time boosts, while the Yellow team's last place performance was a result of both poor decision making and low dice totals.

content of that spectacle—semblances of gameplay. Unable to create *both* the large-scale, iconic impression of gaming in the streets and massively-scaled game participation in the streets, the *B.U.G.* team decided to implement a more manageable participatory activity using a game prop with easier to replicate affordances. Rolling dice is a situated activity that does not require the problematic mobility that limited participation in the signature race. Note here that the dice, approximately 2' x 2' x 2', are scaled up in size quite a bit less than the playing pieces; similarly scaled dice at 20-feet-tall dice would no doubt pose many of the same participation limitations as the iconic game pieces.

Did the public perceive the dice rolling to be a sufficient degree of pervasive gameplay? Or did the public want to play a greater role in the event's signature urban races? While at the 2006 Game Developers Conference, I had the opportunity to speak with co-designer Fortugno about a kind of *emergent* pervasive participation by the public. By emergent, I mean interaction that was not intended or anticipated by game designers, but which is logically if unpredictably prompted by their game design. As Salen and Zimmerman explain, emergence is a special property of game systems.

> What make a system emergent is that there is a special disconnect between the rules of the system and the way those rules play out. Although the rules might be concise and knowable, the behavior of those rules set into motion in the system creates patterns and results not contained within the rules themselves, results that contain variety, novelty and surprise (160).

In our interview, Fortugno recalled being surprised by the significant number of spectators who chose to join the official players during the races, trailing them along the route, cheering and forming a kind of mini-convoy. The daily team blogs reflect evidence of this emergent participation. The Yellow team blog notes on Day 2: "Yellow departed the Scheffer Recreation Center at 6 pm, eagerly trailed Pied-Piper style by many of the kids who'd dice-rolled there the previous evening" ([2]) And the Blue team blog notes on Day 3: "Bicyclists, roller bladers, and tots towed in bike-trailers soon formed a convoy" ([3]). While these individuals were not allowed to participate formally in the street portion of the gameplay, they nevertheless inserted themselves into the moment of play and arguably were able aid their team—perhaps by clearing traffic out of the way or simply through moral support. These spontaneous runners numbered as many as twenty to thirty for each team over the course of the five-day event, Fortugno said.

The convoy effect was, I want to suggest, a direct result of the game's decision not to design formal interactive opportunities for the public during the most spectacular portions of the events. The public was denied the ability to engage the traditional, primary physical affordance of pawn-shaped game pieces—the affordances of moving the pieces to a new position. So the public sought alternative affordances. Instead of focusing on the interactive possibilities of the game *objects*, which they were not allowed to grasp, the spontaneous runners investigated the affordances of the overall spectacle. For indeed, as it turns out, well-designed spectacles have interactive affordances beyond optic engagement. What action is suggested by a small crowd of people (the dozen official movers) moving very quickly and determinedly toward an unknown goal? A group of people running in one direction, I would suggest, naturally invites either following or chasing. And a burgeoning crowd, by its very nature, invites participation; it solicits attention and structurally is capable of absorbing more and more people (until, presumably, it saturates the space in which it is forming). And in the case of the *B.U.G.*, the use of game imagery may have significantly aided the public in feeling hailed by the spectacle. The activity was clearly, iconically legible as play, perhaps making those members of the spontaneous convoy feel it was safe and appropriate to engage in behavior that in everyday life would be considered too disruptive. Ultimately, the *B.U.G.* embraced this unofficial play as an added level of public participation. Two days into the game, the text on the *B.U.G.* website changed to reflect and to explicitly encourage this emergent behavior: "Meet at 6 pm at your team's daily starting checkpoint for the beginning of each leg of the race, *then follow your piece along its chosen daily route*" (updated text shown in italics [3]).

The public wanted to have a more meaningful role in the events, and so it seized one before being granted this formal permission and explicit encouragement. In this sense, the spectacular game iconography of the *B.U.G.* ultimately succeeded in overcoming its own aesthetic, provoking the kind of participation we would more likely associate with the anti-spectacle, the situation. Even in its potentially hypnotic visuals, the *B.U.G.* managed to provoke spectators to become movers. Indeed, we might say that the disruptive aesthetics of the *B.U.G.*—in which it breaks the location-based boundaries of the magic circle—inspired the public to become disruptive of that aspect of the magic circle the *B.U.G.* tried to protect, its participatory boundaries.

Debord writes: "The situation is thus designed to be lived by its constructors. The role played by a passive or merely bit-part playing 'public' must constantly diminish, while that played by those who cannot be called actors, but rather, in a new sense of the term, 'livers,' must steadily increase" ("Report on the Construction of Situations and on the International Situationist Tendency's Conditions of Organization and Action" [59]). Here, Debord suggests that those who construct the situation are those who are empowered to live it. In the *B.U.G.*, the public constructed their own participation in the pervasive element of the game; as such, they designed their own situation in the midst of the spectacle. Inspired by the spectacle of others gaming and the project's rhetoric of abundant pervasive participation, at least some percentage of the spectating public decided to *live* the experience instead of merely observing it. The strategic use of game imagery and legible game structures, then, may begin to empower the public to escape the traditionally alienating effects of the experimental genre's expressive medium of choice, the spectacle.

How Urban?

So far, I have discussed the conflict between the Design Institute's desire to create a pespective-shifting spectacle (the project's bigness) and a massively participatory experience (the project's gameness). Now, I will examine the third claimed attribute: the *urban* aspect of its design.

A year after the *Big Urban Game* played across the Twin Cities' urban landscape, Janet Abrams delivered the opening keynote lecture at the 2004 International Conference on Ubiquitous Computing. In her talk, titled "Ubiquity/Urbiquity: the *B.U.G.* and other Ludic(rous) Pursuits", Abrams explored the urban computing work of the *B.U.G.* and other pervasive games through two plays on words: "ubiquity/urbiquity" and "ludic/ludicrous". Taken together, these terms reveal both the *critical underside* and the *critical oversight* of pervasive games. In this section, I will argue that the latter intentionally identifies *B.U.G.* as a serious critique of ubiquitous computing, while the former inadvertantly reveals the blind spots of a socio-technological critique made through the medium of a big, urban game.

In published notes from the lecture, Abrams situates *B.U.G.* as part of a larger media design effort characterized by ludic interventions in urban spaces. Identifying the city as a newly emerged “vibrant locus of experiment in social computing”, Abrams notes: “Projects by artists, game designers, and new media researchers have attempted to re-imagine urban space—and to illustrate the potential for individual and collective experience therein—by threading various types of digital communication into the physical environment” (1). By what is the point of this pervasive play? At first, Abrams seems to identify these interventions and re-imaginings as a critique of traditional desktop computing. She asks: “Are these projects reactions to the numbing anomie of desktop, deskbound computing, a rediscovery of 'meat space' by a generation wearying of the smoothnesses of the virtual realm?” (1) In other words: Are projects like the *B.U.G.* an attempt to disconnect the tethers of wired life, to reject virtual reality in favor of actual reality?

If so, the *B.U.G.* could be seen as a direct inheritor of ubicomp founder Mark Weiser’s distaste for the virtual reality of desktop computing. As Weiser noted in an early definition of the field: “Ubiquitous computing is roughly the opposite of virtual reality. Where virtual reality puts people inside a computer-generated world, ubiquitous computing forces the computer to live out here in the world with people” (“Ubiquitous Computing” [4]). But is the *B.U.G.* forcing computing to be more social? Or is it simply asking *people* to be more social? The *technological* interactions afforded by *B.U.G.*—viewing potential game routes online, registering and voting from a standard personal computer—are strictly desktop-based. To say (as Abrams does) that *B.U.G.* “threads digital communication into the physical environment”, then, seems a rather unsupportable claim. Digital communication itself remains deskbound throughout *B.U.G.*; there is no real-time text messaging, cell phone calling, Radio Frequency Identifying or other digital communication taking place among the oversized game pieces, the runners and the online players. In sharp contrast with the projects discussed in Chapter Three, the computing aspects of the *B.U.G.* are, in fact, in no way ubiquitous.

However, the *B.U.G.* project does implore *users*, if not the computing systems, to step away from their desks and into the urban environment. On the “Rules” page, users are directed to show up at the physical locations they have virtually voted for: “Meet at 6 pm at your team's daily starting checkpoint for the beginning of each leg of the race…. Be at your team's ending checkpoint by 7 pm to join the SHAKERS and roll a pair of giant dice” ([4]) And the culmination of the game is a purely social event in real-space: “PARTY WITH THE PLAYERS. Toast the winning team, join the Movers and Shakers from all three teams and bring your friends and family to a party on the Lake Street/Marshall Street Bridge” ([7]). None of these real-world, social activities involve computing of any kind. Digital technology is instrumental only in getting the players away from their desktop computers. In the *B.U.G.*, then, there is no actual transition *from* desktop computing *to* ubiquitous computing. It is simply a movement away from computers.

This respite from computing is encouraged explicitly by one of the original game documents, the promotional map. During the *B.U.G.*, a printed game map featuring all thirty of the potential urban paths was distributed at the checkpoints and other venues throughout the Twin Cities. The flip side of the map presented information about the game, including a statement of the "*B.U.G.* Mission." This document, which I obtained directly from Lantz and which is not preserved on the *B.U.G.* website, asserts a slightly different set of design goals than those articulated by the project online. In addition to the visual-centric aims repeated in various game materials and design statements—"to frame new perspectives", "to take a fresh look", and "to see the familiar sights in a whole new way"—the map's mission statement makes an explicit critique of contemporary digital gaming culture.

> At a time when 'game' has become synonymous with 'computer' and more and more people gather online to inhabit virtual cities of fantasy role-playing universes, the *B.U.G.* invites players to gather offline to explore the surprisingly interesting terrain of our own streets, parks, and neighborhoods, and to play a massively multiplayer game in the real world.

Two things about this mission statement are worth noting. First, it is hard not to take the map's invitation to play a massively multiplayer game in the real world as a bit of hyperbole considering the overwhelming degree to which formal real-world play was limited to 1% of the gamers. As such, this map is another example of the project's unfulfilled rhetoric of abundant pervasive gameplay. More importantly, however, this mission statement aligns the *B.U.G.* with the gaming genre most clearly associated with desktop PCs: massively multiplayer games. Here, the project does not call itself a "citywide board game", as it does in most other promotional material ("Project" [1]). Instead, it is a citywide MMOG, or massively multiplayer online game. While the iconography of the *B.U.G.* belongs primarily to the non-computing genre of *board* games, the gaming metaphor applied here is pure desktop.

This slippage between genres in the promotional materials of the game points to an important aspect of *B.U.G.*'s design: desktop computing served not only as the primary platform for experiencing the game, but also as the primary metaphor for even the pervasive elements of the project. Consider, for example, how the *B.U.G.* website describes the physical props in explicitly desktop terms: "As the three oversized inflatable game pieces are carried (by a team of volunteer MOVERS) through a series of checkpoints, they will act like giant beacons or 'cursors' pointing out features of the diverse neighborhoods they pass through, and attracting attention" ("Background" [4]). Here, the *B.U.G.* describes its real-world gameplay pieces as physical manifestations of the desktop PC cursor.

In the *Big Urban Game*, then, we have a game that does not employ ubiquitous computing in either its technological implementation or its metaphorical construction. Rather, it employs traditional computing technologies and metaphors to make *users* more ubiquitous. Rather than trying to create an urban ubicomp experience by embedding and deploying technologies in city spaces, the *B.U.G.* allows the technologies to stay at home. It insists only that the technologies' *users* reconnect with their urban environments. In short, the *B.U.G.* has no part in Weiser's critique of the virtuality of computing itself. Computing can stay on the desktop—the *B.U.G.* simply wants the users' social relations to be less virtual.

If the *B.U.G.* is not a critique of desktop computing, then what aspect of computing is it critiquing? Abrams offers a second, and more convincing, basis for the *B.U.G.*'s socio-technological work: It is a critique not of *in the tradition of* Weiser and ubiquitous computing, but rather *of* Weiser and ubiquitous computing itself. She asks of the new class of urban gaming projects: “Are they ripostes, in fact, to the cherished fantasy of 'ubiquitous' computing which, in its strivings for technology 'everywhere, all the time', tends instead towards a kind of 'no-where'?” In other words, are big urban games specifically designed to reveal ubiquitous computing’s potential to transform all sites into perfect, functional replicas of each other? The *B.U.G.*, it would seem, is not a playful experiment in ubiquitous computing. Rather, it is direct critique of ubiquitous computing’s effects on our ability to experience the specificity of our local environments. To return to Abrams’ provocative word plays: If the *B.U.G.* is a *ludic* venture, then perhaps the grand ambitions of ubiquitous computing form a *ludicrous* one.

Indeed, a review of Abrams’ UbiComp keynote describes the talk “deliberately controversial”, noting: “She challenged the concept of ‘ubiquitous computing’… specifically asking why we need more technology, everywhere, why every encounter has to be mediated by a digital device… what adding an extra layer to everyday encounters actually delivers” (Moriwaki). The design of the *B.U.G.*, of course, argues that social encounters *in* and *of* urban environments do not need to be computer-mediated. The digital devices are left at home. However, urban dwellers may require computer-mediation to compel them toward a more pervasive urban experience—that is to say, a more adventurously mobile, social, and interactive approach to experiencing the multitude and diversity of sites within the daily reach of urban dwellers. This attitude is what I take to be the meaning of Abrams’ neologism ‘urbiquitous’. Urban users are asked to take on the properties of ubicomp technologies—becoming more mobile and more social—without actually using the technologies. Abrams is not, then, critiquing the goals of ubiquitous computing, but rather the idea that they should be manifest first in our far-flung technologies, rather than in our local communities. The *Big Urban Game* proposes moving and connecting users more ubiquitously through urban environments as a positive step toward collectively embodying the social values we have been preoccupied with projecting onto ubiquitous computer systems.

In this way, the *B.U.G.* performs an active *détournement* of urban computing's efforts to understand how human social networks are transformed by new technological infrastructures. The game reroutes urban computing's desire to observe social reconfiguration that occurs through technological development. It resituates this desire in a more critical context, where novel technological concepts are deployed as *metaphors* rather than *mediating platforms* for social engagement. The result is a new urban gaming agenda: to enact social reconfiguration through technological critique.

In her keynote description, Abrams asks what in the big picture this new urbiquity, "what this 'return to the city', represents" (1). In response to her own question, she identifies the pursuit of greater urbiquity as a conscious decision "to celebrate the particularities of place, and the richness of difference - between individual lives, between city blocks and neighborhoods, between urban cultures" (1). Abrams privileges the specificity of an interactive experience designed for single urban location over the scalability of massively replicable interactivity, across multiple spaces. Here, we can consider the one element of scale that the *B.U.G.* is not the least bit interested in achieving: scale of iterability. The *B.U.G.* was produced just a single time in a single city.

As such, the game has a particularity of experience that Abrams prefers to a more ubiquitous kind of play or performance.

But is the site-specificity of *urbiquitous* design a viable substitute for the replicability of *ubiquitous* design? It is precisely the urban-ness of these “big urban games”, I want to suggest, that makes it so difficult to reconcile their design and implementation with the notion of truly ubiquitous play and performance. There are simply too many places that are not cities. Earlier, I cited the UN statistic that currently just slightly less than half of the world’s residents will live in cities. What about the other half? Why is it only urban spaces that deserve to have, as Abrams suggests, “the potential for individual and collective experience” re-imagined? According to Abrams, the ultimate goal of the *B.U.G.* and similar urbiquitous projects is “to enable more realistic engagement with the world we actually live in.” Why is this a goal of which only urban dwellers are worthy? Should not a pervasive network of play pervade non-urban environments, as well?

Here, it helps to consider another pervasive game project which claims ubiquity in its name but practices Abrams’ model of urbiquity in its deployment.

4.3 ‘What the ****?’: *The Mp3 Experiment 2.0*

In October 2005, the a group of urban pranksters known as Improv Everywhere invited the public to participate in *The Mp3 Experiment 2.0.*, an experimental performance structured in the form of a game. Participation was open to any member of the public who found out about the experiment through the group’s website, email newsletter, or word-of-mouth. The instructions for the game, distributed weeks in advance of the Sunday, October 16 event, were as follows:

Instructions:

1. Download the Mp3 using the link below.

2. Load it onto your Mp3 player (iPod, etc)

3. Do not listen to the track.

4. Bring it with you to the event.

5. When you arrive at the event, SIT on the grass, anywhere in the meadow.

6. A man in the center of the meadow will make a siren noise with his megaphone. When this happens turn your player on and prepare to press play.

On the day of the game, roughly 200 people, according to Improv Everywhere's report on the mission, arrived at Central Park's Sheep Meadow with their Mp3 players and headphones, ready for further instructions.[29] At the sound of a megaphone, they simultaneously pressed play on their devices. With the Mp3 track playing privately for each player, the participants spent nearly half an hour carrying out performance and gameplay commands to a pop soundtrack. In follow-the-leader format, they were instructed to "walk from the meadow to the Rock like zombies" as Michael Jackson's "Thriller" played in their ears, and then to "circle arms forward", "circle arms backward", and "do leg circles" in a calisthenics routine to Young MC's "Bust a Move". A cartoon bumble bee voice encouraged them to fly and buzz around nearby trees, while a grouchy sea captain ordered them to row, row, row their boat across the meadow. The event concluded with a massively multiplayer *Rock, Paper, Scissors* tournament, silently

[29] My description of the game activities are take from agent reports, video footage and the original Mp3 soundtrack, all of which are posted on the project web page at http://improveverywhere.com/mission_view.php?mission_id=52.

played out as players took their cues on when to throw from the Mp3 track (see image 4.4). The entire project takes the form of a audio-guided *dérive* through Central Park.

4.4 Playing *The Mp3 Experiment 2.0*. Agents engage in massively-multiplayer Rock, Paper, Scissors. Note that headphones and earbuds wires can be seen on all of the players. (Improv Everywhere, 2005)

Like the *B.U.G.*, *The Mp3 Experiment 2.0* aspires to big, urban, gameness and shares many of the *B.U.G.*'s central design attributes. First and foremost, it is designed to be visually disruptive and thereby to propose new social configurations. On a page of frequently asked questions, Improv Everywhere founder Charlie Todd describes the work of the group: "We bring excitement to otherwise unexciting locales" ("FAQ" [1]). Like the *B.U.G.*, *The Mp3 Experiment 2.0* is interested in intervening in specific sites. However, rather than revealing new aspects of the environment (the work of the *dérive*), Improv Everywhere intervenes by changing the social content of the site (the work of the *détournement*). Todd notes: “Oftentimes people misread our URL as ‘Improve Everywhere.’ We think that's probably a better name for what we try to do” ([4]).

What is the nature of these claimed improvements? The motto of the Improv Everywhere group is “We cause scenes” (“Improv Everywhere Home Page”). This slogan can be read as a description of the performance-based nature of its projects (*scenes* as in dramatic episodes) as well as a boast of its ability to disturb the ordinary operations of public spaces by generating this drama (*cause scenes* as in actively creates a disruption).

4.5 Saluting *The Mp3 Experiment 2.0*. Players salute in response to a command given by the game. The participants, called “agents”, each wear a set of earbuds or headphones to hear the instructions. Here, wires snake down the agents’ chests to Mp3 players carried in pockets or hands. (Improv Everywhere, 2005)

In a summary of the event, Todd reports on the success of *The Mp3 Experiment 2.0* disruption of an ordinary Sunday afternoon in the park. The choreographed game apparently stunned bystanders: “Families and Frisbee enthusiasts in the park stood in shock” (“The Mp3 Experiment 2.0 [14]). Todd describes the impact of the event as “leaving everyone else in the park scratching their head at the 25 minutes of insanity they had just witnessed” ([25]). The spectacular force of their collective performance was not lost on the participants. In the days following the experiment, players left comments on the project webpage reporting on the commotion they created. One player wrote: “Seeing the looks on people's faces was awesome, as they thought to themselves, ‘what the ****?’” (Agent Sanchez 10/17/05) Another observed one of the more memorable moments of social disruption: “I did feel sorry for the wedding party occupying the fountain area that we congregated by after the event” (Agent Racingsloth 10/16/05). Combining Todd’s “shock” with Agent Sanchez’s “awesome”, we might describe this high-impact aesthetic as a *shock and awe* style of pervasive gameplay. It is visually arresting, hypnotic and confounding at the same time. And “shock and awe”, with its infamous origins as a military strategy, is a phrase that seems particularly apt to describe the experiment given its militaristic undertones: the event is described as a “mission”, the players its “agents”, and its core mechanic is to carry out the order of a superior commander. In image 4.5, for example, agents enact this power relationship by carrying out an order to salute their invisible commander.

Like the *B.U.G.*, the game’s spectacular *visibility* was central to its aesthetic. The participants’ comments on the project webpage reveal a striking awareness of the specifically visual impression they created through their play. Early player reports expressed an immediate desire to see what they had already experienced directly: “so excited to see the pictures and footage of the thing!” (Agent Laurie 10/16/05) “Amazing

amazing amazing. I can't wait to see a video" (Agent C 10/16/05). "I'm interested to see the pictures/video. seemed there were a lot of folks manning some serious photographic machinery." (Agent Racingsloth 10/16/05) Indeed, many players expressed frustration that in participating, they were unable to be share the spectator's experience. "this would've been fantastic to see if I had no clue what was going on" (Agent Blitz 10/16/05) "i almost wanted to be on the other side of it, too, because the looks we got from Those Without Headphones were absolutely priceless" (Agent Ediss 10/16/05). "it was awesome! I only wish I could be in the minds of those seeing 200-ish zombies walking towards them" (Agent Yellen 10/16/05). "I almost wish I could have both participated *and* watched everyone around us who didn't know what the heck was going on stare in bemusement simultaneously" (Agent Kit 10/16/05). Here, as in the *B.U.G.*, those directly living the experience seem to derive the most pleasure from being a part of the image-generating machine. They express a desire to *witness* the event that seems to exceed their desire to *participate* in it.

What made the experimental game so spectacular to behold? While the synchronized, unusual actions of the large crowd was no doubt a visually arresting image, the extreme impact of *The Mp3 Experiment 2.0* was created in large part, I would argue, through the project's strategic use of ubicomp technology. In a personal interview, Charlie Todd described to me the design motivation for using Mp3 players as the delivery medium for the game's instructions. "It's a more intimate experience. I thought people would feel more comfortable performing the actions with their earphones on. It feels more private, like you're in your own little world." In other words, Todd predicted that the Mp3 format would lower the threshold for participation, allowing more introverted or socially cautious players to follow the highly extroverted commands in such a public setting. So the use of the private audio tracks aimed to increase the likelihood that those *already in the know* would carry out the game performance as directed. But an equally important, if unintended, consequence of this particular design strategy was the creation of a truly *dark spectacle* for those not already in the know—dark in the sense of Schechner's theory of dark play. By secreting the interactive content of the experience away on Mp3 players, the event was essentially a silent one. There simply was no audio context for the spectacle. This dramatically heightened the visual effect of the unexpected sight. The movement of the players was exuberant and yet clearly organized, but no originating source of direction or legible cause of the group's delight could be detected.

The flipside of making a more stunning visual impression, as in the *B.U.G.*, is the foreclosure of full public participation. The audio players kept the structure and game mechanics of the experience secret from bystanders, who might otherwise have inserted themselves into the situation. As it was designed, the private instructions accomplished a complete separation of the *semblance* of play from the functional opportunity to play. Instructions or context are required for interactive legibility; without them, there is nothing to spur or guide play among onlookers. Here then, as in the *B.U.G.*, the pervasive players take on the role of performer, embedding the silent *imagery* of play in an everyday environment for a much larger audience. And like the *B.U.G.*, the audience for *The Mp3 Experiment 2.0* does not play and cannot play because the central interactive properties of the experience are denied to the spectators. Todd's design choice in favor of headphones, made to promote participation among those in the know, perversely prevents participation among those not in the know. According to Todd, there were at least as many bystanders in the playing area *not* in the know as there were performers. This means that while the space was occupied by the performance, at least as many people were rendered spectators as were afforded full participation.

The Mp3 Experiment 2.0 no doubt created a sense of collective experience for those participating, a kind of instant community built through risky play. However, the participants were not the only subjects in this social experiment. The other strangers-turned-spectators, I would suggest, were organized and reconfigured as dramatically as the players. Debord writes: “The spectacle is not a collection of images; rather it is a social relation between people that is mediated by images” (*Society of the Spectacle* 4). Those estranged from the game were connected to each other in their estrangement. Debord explains: “Spectators are linked solely by their one-way relationship to the very center that keeps them isolated from each other. The spectacle thus reunites the separated, but it reunites them only *in their separateness*” (29). The social configuration described here precludes spontaneous peer connections across the spectators. While they are made similar to one another by being put equally in the dark, this relationship is one of likeness, rather than interactivity. The spectators form a *category*, rather than a *network*.

As such, *The Mp3 Experiment 2.0* split the Central Park goers into two social classes in the moment of dark pervasive play: those in the network and those excluded from it. Participants seemed cognizant of their role in creating this effect. Note how on the forums a player names the entire class of the bystanders as “Those Without Headphones”, grouping them according to their inability to participate (Agent Ediss 10/16/05). And on an Improv Everywhere forum, a small debate arose around the question of whether the pleasure of the game was focused on play or performance. One prospective participant asked: “Is the point to completely baffle everyone around, or is it just to have fun with the people participating?” (Xitanto 1/29/06) Another responded, reflecting the consensus of the boards: “I reckon the main point is to baffle everyone around us” (Flatty 1/29/06). In other words, the players understood it was their job to enact and to enforce the new social structure in which certain strangers were connected through play, and certain other strangers were categorized through alienation from that play. Here, it seems significant that the name of the group is Improv Everywhere, and not Improv *Everyone*. Just at the *B.U.G.* tightly controlled those who could participate in its disruption, the pleasure of the *Mp3 Experiment 2.0* clearly relies on recreating the *social* boundaries of the magic circle of play to exclude a significant subset of city residents, even as the game breaks its *contextual* boundaries.

The first iteration of *The Mp3 Experiment*, a lesser-known performance that preceded the more widely publicized version 2.0, broke neither of these boundaries. The *2.0* performance was a follow up to a December 2004 event, in which a similar performance was organized inside a theater—that is to say, in a traditional magic circle of play. At the original experiment, there was no public audience or spectators—only participants, the theatergoers who paid eight dollars each to attend, and thereby to create, the theatrical event. Participants in the first experiment likewise wore headphones and carried out commands given over Mp3 players. Only in the final moments of the experience were the spatial boundaries of the magic circle blurred, as players removed their headphones and were ushered out into the streets for a parade down 8th Avenue. The primary difference between the first event and version 2.0, then, is that the latter moves the work toward a more pervasive and disruptive aesthetic. In the official mission report, Todd explains his decision to redesign *The Mp3 Experiment* as a big, urban game:

> For version 2.0, Agent Walker and I wanted to considerably heighten the insanity. We knew that we wanted 2.0 to take place completely outdoors. The final moments of the first show, where the crowd walked together out of the theatre and on to 26th street, were really exciting. By holding the experiment outside of a theatre, we would have the added benefit of mixing with unaware members of the public ([2]).

Version 2.0, then, takes as its inspiration the adrenaline rush of probing the real-world with invasive acts of play. I want to call attention here to how essential the "unaware members of the public" are to the players' pleasurable experience. While Improv Everywhere may seek to intervene in unexciting locations by staging performances for those already and ordinarily occupying the space, it seems to me from Todd's description of the design strategy that those prior occupants are in fact more directly exciting the participants, rather than the other way around. While carrying out commands in a theater is fun, doing it inexplicably in front of in-the-dark strangers is thrilling. The necessity of this unaware and non-participating class makes clear one of the major differences between pervasive and ubiquitous game design. Pervasive gameplay can never truly be ubiquitously available; if it were, there would be no bystanders to shock and to awe, and thus the central fun of the experience is denied.

In contrasting the original *Mp3 Experiment* with version *2.0*, I also want to ask: is Central Park's Sheep Meadow necessarily less of a magic circle than a theater? Does situating a game in public and outdoors necessarily mean a rupture of traditional boundaries for play? It is not unusual, I would suggest, to see play erupt on a playing field on a Sunday afternoon, nor is it such an unlikely scenario to embed recreation in a site managed by the city's Department of Parks and Recreation. As an urban location, then, Sheep Meadow does not seem in fact an all-together pervasive choice in the sense of pushing the limits of *where* and *when* it is appropriate to play. I would argue instead that what is actually pervasive and disruptive about the project is not its public location, but rather its designed attitude toward *how* the players treat the public space and its other occupants.

By embedding a cryptic spectacle in a space already marked for recreation, *The Mp3 Experiment 2.0* is disruptive by creating a private event in a public venue, a spectacle that seeks attention but thwarts full understanding. Indeed, in urban culture at large, the prevalence of Mp3 players among pedestrians and public transportation riders has been widely critiqued as making public spaces more private and less social. A recent trend piece by *CNET News* called **"**iPod Means Tuning Out of the World around You**"** perfectly captures this common critique:

> When Josh Adams sees other students at Manhattan's School of Visual Arts each plugged into an iPod, he figures they're being antisocial. "I feel like they're trying to shut people out, maybe even unintentionally," says the 18-year-old Manhattan resident. For New York University student Dante Lima, it's entirely intentional. With his ear buds in place, he's never bothered by sidewalk hucksters. "If you want to get away from them, just start listening to your iPod," says Lima, 20. "They don't approach people with headphones on." Wearing headphones has become the modern

> equivalent of wearing a Do Not Disturb sign around one's neck (Leichman [1]).

So are the Mp3 players in Todd’s experimental game tools for tuning out? At one level, the answer clearly is no. The performance is designed to intervene into the habit of using this specific technology to create what is commonly referred to as a *personal technobubble*. The game structure transforms an ordinarily private technology into a platform for massively-social play. Clearly, those wearing the devices are having a more social experience of the technology than they would normally. This is the urban computing work of the project. However, at the same time, the Mp3-fueled game spectacle also seems to make the public space of Central Park a more private space. The technology allows players to shut out those who are not participating. In this way, the personal technobubble is simply made larger—or more pervasive. Ubiquity, by design, does not have an *outside*, whereas pervasive is expansive, but not all-inclusive. Is the technobubble the new magic circle?

The organization of the Improv Everywhere community online further suggests the desire to reconstruct the magic circle by creating a social outside. In the wake of the tremendous amount of publicity that Improv Everywhere received for successfully pulling off *The Mp3 Experiment 2.0* and other pranks, Todd established a message forum to allow an online community to assemble. The forum was created, Todd told me, in the spirit of making Improv Everywhere more actually ubiquitous. He named the forum “Global Agents HQ,” and described it as “a place for Improv Everywhere fans outside of NYC to meet and organize.” It would appear, at first glance, to be a major success. In the six months since its launch, the forum has received declarations of intent from would-be organizers in 148 different regions, including expected cities such as Boston, San Francisco, and Los Angeles, as well as more unexpected sites: “Western Michigan”, “North Dakota”, “Northern Alabama”, “Southeastern Pennsylvania”, “D.C. suburbs”. In this tremendous volume of response, we see the desire of the public at large to join the situation, rather than to remain online, secondhand spectators of the experience. And this desire is clearly not limited to urban centers. Improv Everywhere, it would seem, has the potential to be more ubiquitous—as its name seems to aspire to—than urbiquitous.

Or does it? In my own research, I have been unable to locate any forum accounts, news reports or other evidence of actual performances of *The Mp3 Experiment 2.0* in the past six months since the forum was founded. So in a personal interview, I asked Todd if he had received mission reports from agents conducting *The Mp3 Experiment 2.0* in other locations, or if he was otherwise aware of any successful performances of the piece. Todd responded, “No, I don’t think there have been any.” I asked if he thought there would be any, and he responded, “No, I don’t think so, probably not. There aren’t that many people who can organize this kind of thing and take on all of the details and responsibility of doing something of this scale in public.”

To what extent, then, does the message board serve as an actual forum for constructing situations, versus just another venue for watching others play? Consider the ratio of replies to page views for each region’s individual topic. The topic for discussing New Haven experiments to date has received 2 replies and 421 page views; Sacramento 1 reply and 287 page views; London 4 replies and 574 page views; “Southeastern PA” 7 posts and 1148 page views; and so on. The forum has become its own spectacle, I want to suggest, with far more people watching than constructing. And I believe, in fact, this is a kind of point of pride for the New York City based designers. There seems to be significant satisfaction in controlling the spread of *The Mp3 Experiment 2.0* and other similarly pervasive performances, to limit the field of participation.

Consider a recent event on the Global Agents HQ forum. In an official announcement topic called “Please don't use ‘Improv Everywhere’ in your name”, Todd requested that other would-be organizers not use his group’s name. “Several people have asked me if they can use the name ‘Improv Everywhere’ in their local group name. The short answer is no.” (Agent Todd 5/16/06). Todd refuses to allow others’ disruptive games and performances to be formally connected, through naming, to his own NYC-based group. “Using names like ‘Improv Everywhere Chicago’ or ‘Improv Everywhere Los Angeles’ implies that you are an official chapter. As I've stated before, these forums are not about starting official chapters.” Here, we see a rejection of any formal network for supporting and expanding these pervasive experiments. There can be no other official nodes. Todd states: “My reasoning behind this is that I don't personally know the people on this board who are starting local groups. I can't trust the name sake I've built up for five years with strangers. If someone went out and murdered someone and called it a prank by ‘Improv Everywhere Salt Lake City’ that would be bad news” (Agent Todd 5/17/06). While this last hypothetical situation is no doubt mostly facetious, the truth about which it jokes is that even a disruptive group like Improv Everywhere seeks to control and centralize the flow of disruptive activity.

I want to close my discussion of *The Mp3 Experiment 2.0* by asking, then: to what extent is this kind of pervasive gaming making play and performance *more* ubiquitous than it might otherwise have been? “Improv Everywhere” is a name that certainly suggests an aspiration to ubiquitous play and performance. Moreover, *The Mp3 Experiment 2.0* relies on ubiquitous computing as its primary technological platform. But what is its connection to ubicomp philosophy? Ubiquitous computing aspires to create massively-scaled networks, but here we see Improv Everywhere refusing to allow such an infrastructure to be built. And ubiquitous computing, as described by Rich Gold, should be capable of surprising us and delighting us as unlikely objects come to life in the most unexpected places. But how actually surprising is it to see a crowd of New Yorkers assemble together in a public park? As one participant commented on *The Mp3 Experiment 2.0* forum: "This is the reason I live in New York!" (Lippy 10/16/05). This is not to say that New York City (or in the case of the *B.U.G.*, Minneapolis or St. Paul) is not a worthwhile platform for real-world gaming. Rather, it is to ask why such high-performance play should start and stop in cities that, arguably, represent the more likely suspects for such interactive-enhancements. Why big *urban* gaming instead of simply big *public* gaming?

Ultimately, "big urban gaming" suffers from a failure of imagination in its selection of specific sites. This is both a failure to see that such projects could thrive or have value outside of specific urban environments, and a failure to recognize that by conducting projects which "celebrate the particularities of place," as Abrams puts it, it may be limiting their ultimate deployment to places that share these urban particularities. The pervasive gaming genre has at present excluded a huge range of sites simply by nature of their not being urban. I would argue that this oversight reveals a tacit belief that massively-scaled ludic interaction is either not possible or not desirable (or perhaps both) truly everywhere. This disinterest in *actually* ubiquitous play and performance significantly dampens the otherwise provocative effects of the genre.

More importantly, we can see from the Improv Everywhere message boards how the *urbiquitous* nature of the larger pervasive game network reconfigures the macro-relations between city residents and everyone living elsewhere in precisely the same way that individual game projects divide the local population into a performing and a spectating class. City residents have a direct experience of the ludic interventions, while others can only watch via mediated images and reports of the urban gameplay. While the *particularities* of urban spaces are celebrated, all other locations are construed as *similar* in their inability to afford the same quality of public interaction. This massively-scaled social reconfiguration through spectacular play draws our attention to how society at large may be reconfigured into multiple tiers of disparate socio-technological engagement if the ubiquitous computing infrastructure penetrates urban environments more deeply than others. Will ubicomp culture ultimately become a technological spectacle, in which many are denied direct engagement with a pervasive, rather than truly ubiquitous, network?

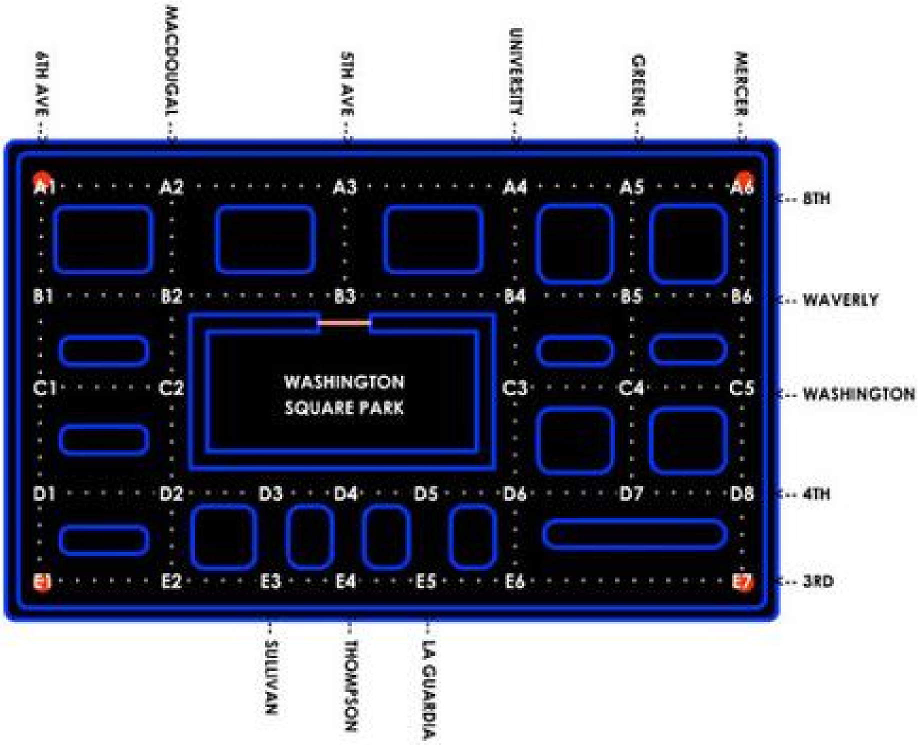
*

The two pervasive games discussed so far have created massive public spectacles, without affording the public full participation. To the extent that they created open situations, these situations were either a minor part of the overall experience (the dice rolling in the *B.U.G.*) or were limited to the performing class of those in the know (the participants who downloaded the *Mp3* track in advance). The next pervasive game project I want to discuss, *PacManhattan,* takes this pairing of limited play and mass spectacle to its extreme. As I will argue through a close reading of its original game texts and public reception, *PacManhattan* prioritizes game imagery over game participation to such an extent that it creates a new paradigm of experimental pervasive game practice: the game that cannot be played.

4.4 'Can I Play Too?': *PacManhattan*

In the spring of 2004, a group of graduate students at New York University's Interactive Telecommunications Program developed a live-action version of the classic videogame *Pac-Man* for the real-world environment of lower Manhattan. The goal of the project, according to the project website: "to explore what happens when games are removed from their 'little world' of tabletops, televisions and computers and placed in the larger 'real world' of street corners, and cities" ("About [1]). To move the game from the screen to the streets, the students discovered and articulated structural similarities between the gridlike structure of a 6 x 4 block area of Greenwich Village and the opening level maze of the original *PacMan* (see image 4.6). They dubbed their project *PacManhattan* to connote its striking site-specific juxtaposition of classic game iconography within an über-urban setting (see image 4.7). Indeed, the *PacManhattan* project is perhaps best known for its unprecedented success in circulating visual evidence of the game. Photographs and video of the project's costumed players racing through lower Manhattan appeared in *The New York Times*, on CNN national news, and on over a remarkable 30,000 blogs—among many other press and online citations, archived on the project press page.

Over the course of three two-hour playtests, the design team ran a total of six *PacManhattan* games. The gameplay unfolded as follows:

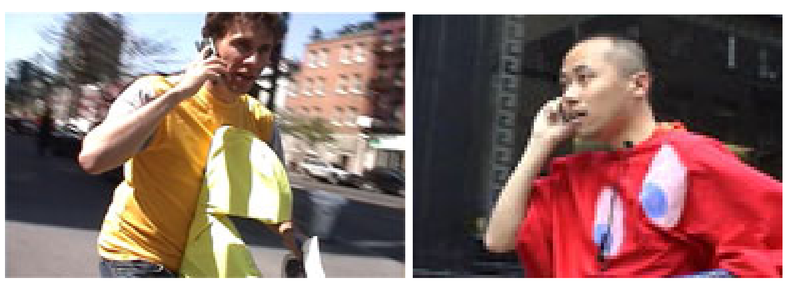


4.6 The *PacManhattan* Map. The iconic game grid has been modified to reflect the urban grid of the Greenwich Village in lower Manhattan. (Interactive Telecommunications Program, 2004)

4.7 Video Game Iconography in Urban Environments. Here, four real-world players are depicted against the lower Manhattan and mid-Manhattan skyline. (Interactive Telecommunications Program, 2004)

> A player dressed as Pac-Man will run around the Washington Square Park area of Manhattan while attempting to collect all of the virtual "dots" that run the length of the streets. Four players dressed as the ghosts Inky, Blinky, Pinky and Clyde will attempt to catch Pac-Man before all of the dots are collected. Using cell-phone contact, Wi-Fi internet connections, and custom software designed by the *PacManhattan* team, Pac-Man and the ghosts will be tracked from a central location ("About" [2-3]).

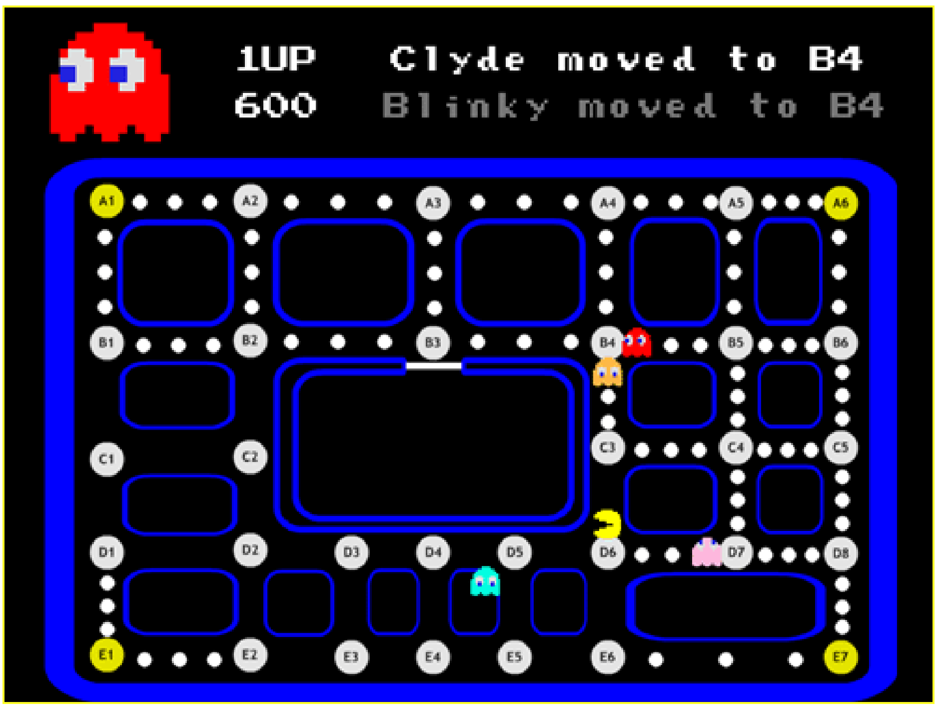
As the project's list of Frequently Asked Questions explains, the game does not embed visible, physical pellets, or "dots", in the street for the Pac-Man character to collect. Instead, as the Pac-Man player runs through the streets, he uses a cell phone to call a "controller" whenever he arrives at an intersection on the grid (see image 4.8). The controller, who is seated at a desktop computer, moves Pac-Man icon across a virtual map of the Washington Square Park game board to update Pac-Man's position. The digital game software automatically removes all existing pellets between the original and the updated position (see image 4.10).



4.8 and 4.9 *PacManhattan* Street Players, Pac-Man and the Ghost. Shown here, Pac-Man (left) and the red ghost (right) phone in their real-world location to controllers, who enter the locations manually into the digital game system. Iconic costumes signify video gameplay to onlookers. (Interactive Telecommunications Program, 2004)

Each ghost player has a controller, as well, and the ghosts report their locations in a similar manner (see image 4.9). However, while Pac-Man may ask his controller for the most recent known position of each ghost, the ghosts may *not* ask their controllers for

Pac-Man's most recent reported location. Instead, the ghosts wander the 6 x 4 block grid hoping to stumble onto Pac-Man. If they are lucky enough to locate Pac-Man, they must then stay within close enough physical proximity to maintain visual contact. As in the classic videogame, the ghosts "eat", or kill, Pac-Man by tagging him; likewise, when Pac-Man eats a Power Pellet he can tag an eat and temporarily disable the ghosts. The game ends when Pac-Man clears the board and wins, or is tagged and loses.



4.10 Screenshot of the *PacManhattan* Custom Game Application. As the real-world players phone in their new intersection location, the digital players drag-and-drop their icons on the game board map to reflect the change in position. As Pac Man's position is updated, any existing dots between the two locations disappear. (Interactive Telecommunications Program, 2004)

The students who created *PacManhattan* did so as a final project for the ITP design seminar "Big Games", taught by former *B.U.G.* designer Frank Lantz. So it is not surprising that numerous elements of *B.U.G.*'s design appear in both the technological implementation and interactive patterns of the *PacManhattan* game. To begin, there is a separation of players into real-world and online classes. In *PacManhattan,* each costumed character is paired and connected via cell phone with an online player, who remains at a stationary, desktop computer. Pac-Man and his or her controller represent one team; all four ghosts and their controllers represent the opposing team. As in *B.U.G.*, these separated classes are not competing against each other. Rather, some real-world players are teamed with certain online players; as a group, these pairs work against the other paired players.

In both projects, this connection between classes is typically discussed as evidence of the increasing enmeshment of the digital world and the physical environment as ubicomp technologies advance. To have the two classes compete with one another would be to imagine a future in which a user must choose between mobility and networkability. To bridge the classes is to imagine a future in which such a choice is not necessary. In the 2005 paper for the Digital Games Research Association "Tangible Interfaces for Pervasive Gaming", a team of researchers from the International School of New Media at the University of Lübeck perform a typical reading of *PacManhatta*n's mixed reality design:

> With pervasive gaming, a new era of games has been recently evolving. By integrating computer functionality into real-world objects (smart objects), new forms of games can be developed that are weaved into the real world through the use of physical objects as human-computer interfaces, thus freeing the players from the restrictions of stationary computer monitors. A well-known recent example is *PacManhattan* [Schrader, et al 10].

The mistake in this reading of *PacManhattan*, of course, is that the authors fail to recognize that by design only *half* of the players are freed from the restrictions of stationary computer monitors. To facilitate the newfound mobility of the street runners, equally as many people must agree to stay desktop-bound. However, because this desktop play is not visually remarkable—no photographs have been circulated of the gameplay that took place in the command center, as opposed to the thousands of websites and newspapers that featured images of the street play—it has remained essentially invisible to those writing about the game. As a result, much of the public and critical perception of *PacManhattan* ignores the traditional computing required to create the pervasive experience.

Indeed, in its actual technological infrastructure, like the *B.U.G.*, *PacManhattan* does not rely on pervasive or ubiquitous computing to any significant degree. Lantz acknowledges: "The game is actually pretty low-tech" ("Big Games" [5]). The designers apparently anticipate some curiosity and feedback on this low-tech approach. On their FAQ page, they address the project's lack of actually ubiquitous computing:

> Q: Why didn't you use GPS?
>
> A: We tried track the players using GPS, but ran into two problems: (1) GPS does not work well in "urban canyons", where the signal is reflected off large buildings and (2) we could not find an easy (read: cheap) way to send the geo-coordinate data from the GPS receiver back to the network.
>
> Q: Why didn't you use WiFi?
>
> A: We are using WiFi in the control room, but not on the streets where the players are interacting. We were going to try to use WiFi networks as an uplink for the GPS data, but we could not find an area of the city with consistent WiFi coverage over a large area ("About" [12-13]).

Here, we are reminded of the difficulties of staging actually ubiquitous computer gaming in present, real-world environments. Rather than emulating the future of play (the ubicomp game design strategy discussed in Chapter Three) the *PacManhattan* team designs around the problems in existing urban ubicomp infrastructure by essentially abandoning the platform. Note that in defending this decision, the team identifies Manhattan as a fundamentally unfriendly environment for high-tech ubicomp gaming. If the GPS is so unstable and the WiFi coverage so spotty, why not search for a more suitable terrain elsewhere? But, of course, the point of pervasive gaming is not to demonstrate or to promote ubiquitous and pervasive computing. The point is to create playful provocations in specifically urban environments. If ubicomp technology impedes this goal, then it can and will be sacrificed by the designers. But as the decision of the *PacManhattan* team reflects, they will *not* trade the everyday urban environment for a lower-profile or less spectacularly disrupt-able site.

Use of ubicomp technology is not the only thing *PacManhattan*'s designers were willing to sacrifice in order to create a spectacularly big, urban game. In my analysis of the *B.U.G.*, I argued that intensity of gameplay and scalability of participation were sacrificed in order to achieve the game's central goal of creating a surreal spectacle. *PacManhattan*, I want to suggest, takes these sacrifices to an extreme level. Here, I will examine how the core game mechanics of the original *PacMan* videogame were stripped away and participation by the public completely denied in order to create and to control a highly visible, highly mobile instance of pervasive play.

In a 2005 SIGGRAPH lecture titled "An Ubiquitous Approach to Mobile Applications", *PacManhattan* co-designer Dennis Crowley discusses *PacManhattan* as a successful experiment in taking a low-tech approach to creating novel ubiquitous experiences. He argues: “The world gets more interesting as the devices around us get smarter. The problem is, sometimes it's no fun sitting around waiting for devices to evolve. Mobile location-based services, games, and social software are more fun when everyone can play” (1). But can everyone play in a game like *PacManhattan*? In fact, *PacManhattan* places strict limitations on who can play, where. Most tellingly, the FAQ page published before game day addresses the issue of public participation in the game as follows. “Q: Can I play too? A: The players for Saturday's game have already been pre-selected. Spectators will not be allowed to play” (“Archived About” [9]). According to a personal interview with Frank Lantz, the pre-selected players consisted of the members of the graduate seminar at NYU. Much like the *B.U.G.*’s use primarily of Design Institute members as the real-world players, the situated gameplay of *PacManhattan* was designed to be directly lived by its constructors.

Instead of direct participation, the public is encouraged to enjoy the spectacle. The next frequently asked question attempts to more properly channel aspiring participants’ interest in the project: “Q: Where should I watch? A: Position yourself anywhere around the game board and you should have a good view, but please don't get in the way of the players! You're welcome to take photos as long as you do so in a way that does not interfere with game play. For your reference, you can print out a copy of the game board” ([10]) (see image 4.6) Here, the public is explicitly instructed to stay physically outside the magic circle of the game. They are warned against interacting with the players. And the game board that could function as a guide for where to play instead serves as a map for where to stand to get a best vantage point on someone else’s play.

While the public was not invited to play *PacManhattan*, they were invited to become a part of the image-replicating machinery. The FAQ section offers a commerce-based solution to the desire to participate: “Q: Where can I get my PacManhattan t-shirts? A: We knew you'd ask!” (“Archived About” [11]) The answer includes a link to an online store where men’s and women’s shirts as well as a ladies’ thong are available for purchase (seem image 4.11). In this way, fans of the project are encouraged to replicate the iconography of *PacManhattan* even as they are not empowered to play the game.

4.11 Screenshot from *PacManhattan*’s Online Store. *PacManhattan* products were available for sale to would-be players. (http://www.cafepress.com/pacmanhattan, 2004)

After the playtests were complete, the *PacManhattan* homepage was updated with the following message: “Thanks to everyone who came out on Saturday to watch us play!”

("Archived PacManhattan" [1]). This message profoundly preserves the spectacular nature of the designed experience: the public was invited to watch a game, not to play it. Indeed, this message was directed not only at real-world players. Shortly before the final playtest, the design team announced on its website to various blogs: "Our team worked all afternoon to put together a way for you to experience *PacManhattan* from the comfort of your home. Tomorrow (Saturday May 8) from 12-2pm, tune into http://pacmanhattan.com to watch a live video feed from Mission Control, spy on the Control Panel our players are using or chat with other PacManhattan fans as the game plays on" (Techboy 5/7/2004). In the *Big Urban Game*, users were asked to become more ubiquitous; here *PacManhattan* encourages them to stay in the comfort of their own homes. This virtualization of a pervasive game reverses the direction the project claims to be exploring—the movement of a game from the little world of the screen to the big world of the streets. As such, it undercuts the momentum of the project's real-world probes. However, if *PacManhattan* aspires to massively circulate gameplay *imagery*, rather than to make gameplay itself or the gamers more ubiquitous, then having the real-world play visible to an online audience effectively achieves this goal.

Some members of the press and certain researchers have recognized the staged gameplay as a spectacle designed to generate a massively-scaled audience, rather than to generate massively-scaled play. A news article in *This is London* describes the project: "Instead of playing on a machine, gamers are acting it out on the streets of New York" (Taher [5]). Here, the activity is described as a performance—the gamers are described as *acting*, not playing. Likewise, mobile and pervasive computing researcher Patrick Lichty observes in an essay for the *TCM Locative Reader*: "One of my current favorite projects which uses locative technology is that of Pac-Manhattan, in which artist-performers physically manifest the iconic 80's video game by dressing up as the various characters and running around downtown New York in an almost Dadaistic techno-retro free-for-all" ([2]). Here, Lichty describes the street runners as artists-performers, rather than players, and places the project in an art historical context of everyday performance. Still, it is far more common to see the the spring 2004 project implementation discussed in both mainstream media and the critical literature as the development of a playable game, such as the *Village Voice*'s award for the project: "Best real-life video game - *PACMANHATTAN*" (Yarm [1]).

Here, I think it is worth noting that as a translation of the *Pac-Man* videogame, *PacManhattan* is not particularly faithful to the details of the original gameplay mechanics. While some design changes are certainly necessary in any real-world adaptation of an originally virtual experience, *PacManhattan* seems to have thrown aside most of the designed elements of the game. The only aspect of the game that is rendered faithfully is the iconic *look* of the costumes and game board. The actual rules of interaction for the Pac-Man and ghost characters, however, replicate only the most abstract principles: Pac-Man tries to get pellets and avoids the ghosts, while the ghosts try to get Pac-Man. But the nuance of the videogame's strategic limitations on how these goals are achieved are abandoned. For instance, in the videogame, Pac-Man's speed around corners is faster than the ghosts'. This is a key advantage that players of the arcade game can use to avoid otherwise certain death. However, there are no designed differences in how the Pac-Man runner and the ghost runners can move on the urban grid. And as original *Pac-Man* designer Toru Iwatani revealed in an interview for the 1986 collection *Programmers at Work*, the rules governing the attack strategies of the ghosts were complex and essential to the gameplay experience:

> INTERVIEWER: What was the most difficult part of designing the game?
>
> IWATANI: The algorithm for the four ghosts who are dire enemies of the Pac Man, getting all the movements lined up correctly. It was tricky because the monster movements are quite complex. This is the heart of the game. I wanted each ghostly enemy to have a specific character and its own particular movements, so they weren't all just chasing after Pac Man (Lammers [21-22]).

Presumably, each *PacManhattan* player who takes on the role of a ghost adopts or invents a personal chasing style. But such differences are not formally encouraged or developed through limitations on player movement. Indeed, the designers of *PacManhattan* do not articulate any rules of interaction regarding mobility or navigation within the game space. Perhaps project leader Lantz says it best when he writes: "PacManhattan creates a kind of slapstick street theater" ("Big Games" [5]). The players' mobility ultimately was governed by the rules of entertaining physical performance, rather than actual game rules.

A FAQ on the project website reveals the extent to which visual spectacle eclipsed game mechanics. "Q: What about *Ms. PacManhattan*? A: All we need is a bow. :) Look for our first female Pac Man during our next playtest" ([11]). While slapping a bow on the costume for the Pac-Man character certainly visually signifies the change in game, most *Pac-Man* fans will recall significant differences in the gameplay mechanics between the original male-version and the female-starring sequel. Besides changing the maze design, increasing the speed of the game, and making bonus elements move throughout the maze, instead of staying still, *Ms. Pac-Man* most significantly changed the movement patterns assigned to each ghost in the game (Classic Gaming [1]). While *Pac-Man* ghosts are programmed with unique hunting techniques—"Blinky", the red ghost, is the most aggressive ghost, while "Clyde" the orange ghost never hunts Pac-Man, but rather moves randomly around the board—*Ms. Pac-Man* ghosts are programmed to make sudden changes in hunting patterns. At random intervals, the ghosts will reverse direction. This decision, according to *Pac-Man* numerous histories, was made to prevent savvy players from learning the ghost strategies and outsmarting them.[30] Such a significant gameplay change could easily be reflected in a design for a hypothetical *Ms. PacManhattan*. In *PacManhattan*, as I noted above, real-world ghost runners are not allowed to ask their controllers for Pac-Man's position. In a *Wired News* article, Lantz explains that this decision was necessary to balance the gameplay—it was too easy for the ghosts to catch Pac-Man if they had accurate information on his position (Dielo 1). But perhaps a *Ms. PacManhattan* game could feature, in addition to a pretty new bow, limited random movement instructions for each ghost, delivered by the controllers, to force the runners out of their own hunting strategies. Such a design choice would replicate the *structure* of gameplay, not just the imagery.

*

For most who encountered *PacManhattan*, it was pure gameplay imagery and little gameplay affordance. However, as in the *Big Urban Game*, not all members of the public were satisfied with taking a passive role in the spectacle. They sought out interactive

[30] In addition to *GameSpy*'s Classic Gaming archive referenced earlier, an interview with original Pac-Man designer Toru Iwatani published in Susan Lammers' 1986 *Programmers at Work* is a useful resource for understanding the programming of characters in the Pac-Man games.

affordances even as the game's design denied them interactive access. Videos on the *PacManhattan* site document multiple instances of bystanders spontaneously attempting to insert themselves into the live game. In a video titled "Chase", for instance, three street merchants sit on folding chairs stationed on the sidewalk. Upon noticing *PacManhattan* in action, one of the men takes it upon himself to narrate the scene for other bystanders in the area. In a highly entertaining play-by-play, he yells for all nearby: "Where you going Pac-Man? Oh shit! He's chasing Pac-Man! He's chasing Pac-Man! Awwww Pac-man. He's going to catch Pac-Man and fuck Pac-Man up." Other bystanders sought a more direct role in the action. In a video titled "Crazy", a man strolling through Washington Square Park approaches one of the ghost players. "Have you seen Pac-Man?" the man asks the ghost, before volunteering, "I'll go get him!" He then sprints off in the direction Pac-Man was last seen running. In addition to this video documentation, Lantz recalls players reporting numerous other incidents of public intervention. In a personal interview, he relayed to me anecdotes of bystanders trying to protect Pac-Man by blocking the ghosts, shouting helpful instructions to the ghosts ("He went that way!"), and running halfway down the block after Pac-Man themselves. Like the *Big Urban Game*, then, the strategic use of classic gaming iconography instantly communicated to observers the kinds of interaction that might be available. Although the project was primarily designed and deployed as spectacle, some spectators managed to transform the primarily perceptual encounter into a situation of their own making.

In the case of this particular pervasive game, then, massively replicating iconic game imagery not only resulted in widespread visual appreciation of the game's critique of virtual play, but also inspired direct engagement even as the formal design sought to limit public participation. But in closing this chapter, I want to examine a game-based intervention that in taking the same pervasive approach failed to afford spontaneous situation making, and therefore met with considerable controversy.

4.5 ‘This is Not a Sinister Game’: *The Super Mario Blocks*

Replicating classic game iconography in everyday environments without concern for affordances not only runs the risk of frustrating would-be players, but also of engendering considerable anxiety in the local community. An April 2006 incident in Ravenna, Ohio vividly demonstrates the risks of a pervasive approach to game imagery. As reported in local news coverage, the problem in Ravenna began when five high school girls, ages 16 and 17, decided to decorate their town’s public landscape with imagery from the classic Nintendo videogame *Super Mario Brothers*. Their visual intervention was inspired by Canadian street artist Ryan North who had posted instructions online for “How to Make Your Own Totally Sweet Mario Question Blocks and Put Them Up Around Town.” The instructions, designed by another street artist called Poster Child, explained how to create and install life-size versions of the highly iconic gold blocks from the Nintendo game (see image 4.12). These instructions became a popular Internet meme in 2005; widespread blogging about the project resulted in game fans installing Mario question blocks throughout the United States—for example, in Casper, New York; Cambridge, Massachusetts; Berkeley, California; and Portland, Maine; across Canada—for instance, in Winnipeg and Toronto; and even around the world—for instance, in England, the Netherlands, and South Korea.[31] (The remarkable scalability of this non-performance project, in contrast with the single city iterations of the performance-based *B.U.G.*, *The*

[31] Photographs and further documentation of the installations in these particular cities can be found on the Mario Question Blocks project page at http://www.qwantz.com/posterchild.

Mp3 Experiment 2.0 and *PacManhattan*, reminds us that in our still ubiquitous imaging culture, it is simply easier to massively replicate visuals than functionality.)

4.12 A *Super Mario Blocks* Installation in Hoogeloon, the Netherlands. The videogame iconography is a stunning visual disruption to the ordinary suburban scene. (Qwantz.com, 2006)

The Ravenna girls created seventeen of their own Mario question blocks and installed them in a series of public locations: a church, the county courthouse, a bakery, a busy intersection, a public library, the local high school, and a private residence on the town's Main Street (see image 4.13). No information was left at the scene about the nature of the project, and the girls did not remain at any of the locations to observe local residents' reactions.

4.13 A *Super Mario Blocks* Installation in Ravenna, Ohio. The block hangs from the corner of the local high school marquee. They mysterious nature of the box resulted in the bomb squad being called to the scene. (Quantz.com, 2006)

In the absence of contextualizing information, the embedded game imagery was misinterpreted by those "in the dark" about its original semantic reference. Members of the community without classic videogame knowledge did not recognize the citation; local newspapers reported multiple calls from concerned residents. As the *Akron Beacon Journal* reports: "The Portage County Hazardous Materials Unit and Bomb Detection Unit were called in to downtown Ravenna on Friday morning after seventeen suspicious packages—boxes wrapped in gold wrapping paper with question marks spray painted on them—had alarmed residents” (*Beacon Journal* Staff Report [2]). The boxes were checked for radiation and chemical warfare agents, during which time the teenage artists heard what was transpiring and went to the local police station to take responsibility and to explain their intentions. The local police subsequently issued a statement to the press that they were considering pressing criminal charges against the girls for the disruption they caused.

Why did the installation backfire? Here, I want to suggest that the specific game icon chosen for replication carried with it real-world affordances that the girls did not adequately consider. As opposed to traditional graffiti, which in its two-dimensional renderings has no real affordance other than to be viewed, this kind of 3-D graffiti invites multiple potential modes of engagement. Consider the three primary interactive properties of a large, actual box: things can be put inside the box, the box can be opened, and the box can be picked up and moved. (Other potential interactions might include kicking the box, throwing the box, or defacing the box, but these are what we might call secondary affordances, those not as conventionally applied in everyday life.) Presumably, those who encountered the girls’ Mario question blocks approached the boxes with these specific modes of engagement in mind. *What might someone have already put in the box? What might happen to me if I open or attempt to move the box?* Here, the suggestive marking on the blocks—a question mark—worked to heighten uncertainty about the outcome of actions any bystander might take on the boxes. Furthermore, there was no other possible response suggested by the installation—for instance, no phone number or web site marked on the boxes to allow for a non-hands-on investigation. In this way, the objects were completely disconnected from the network that spawned them. By not designing an interactive opportunity for the boxes—intending them only to be viewed, rather than engaged—the girls left the installation open to interpretation. And in this case, the Ravenna residents interpreted the boxes as potential threats specifically due to their most obvious material affordances. As the *Ravenna Record Courier* quotes Police Chief Randall McCoy: "The potential is always present when dealing with a suspicious package that it could be deadly. In today's day and age, you just cannot do this kind of stuff" (Piltz [11]).

In contrast with the Ravenna incident, *PacManhattan*'s embedded game imagery avoids the problem of alarming affordances for two reasons. First, *Pac Man* is a recognizable cultural icon to virtually any American, as opposed to the icons of *Super Mario Brothers*, which speaks to a more limited audience. But the increased legibility of its signs is not the major reason, I would argue, that *PacManhattan* escaped the backlash faced by the Mario Question blocks. We could easily imagine a scenario, for instance, in which 3-D *Pac Man* pellet packages are left in public spaces, or in which sheets decorated to resemble the ghosts are hung over public fixtures. In such scenarios, the primary affordances of packages (to be opened or moved) or hung sheets (to be pulled down or peeked behind) could certainly incite alarm, even if the cultural citation were recognized. But by affixing the imagery to live performers, *PacManhattan* avoided this problem. The interactive affordances of a person running through the streets or down the sidewalk are rather clear: You can chase the person running, or you can attempt to engage the person in dialogue, or you can try to physically block the runner's path. As we saw in the videos of live gameplay, these indeed were the modes of spontaneous interaction inspired by the *PacManhattan* project. Otherwise, it so successfully diminished the opportunity for direct engagement—preferring instead to operate as a spectacle—that there was little cause for bystanders to fear the outcome of intervention. Such intervention was designed out of the experience.

The *Super Mario Blocks* incident is also compelling in how it reveals a potential consequence of pervasive, dark play, in which the game is *visible* to bystanders, but not *legible*. (Think here also of *The Mp3 Experiment 2.0*.) Although *Super Mario Blocks* was strictly a visual intervention, early news coverage misreported the events by treating the installation as an actual game, rather than artistic representation of game iconography. Headlines like “Girls attempt real-life version of video game” and “Ravenna teens’ game ends with bomb squad” described the visual intervention as dark play, rather than stealth art (Beacon Journal Staff Report, Piltz). The articles described the project as a “real” pervasive game in the model of *PacManhattan*: “Five teenage girls from Portage County face potential criminal charges after attempting to play a real-life version of *Super Mario Brothers*” (Akron Beacon Journal Staff Report [1]). “The girls found an Internet site called Mario Question Blocks which told you step by step how the game is played, along with instructions on wrapping the packages, just to see what kind of response you get,” [Ravenna Chief of Police] McCoy said. ‘This game is evidently being played all over the country.’” (Ravenna Record Courier [9]). The initial public response as documented in these news stories reveals that gaming is not always perceived to be a benevolent activity. Showy displays of gaming may be interpreted, instead, as hostile and anti-social behavior—especially if onlookers feel that they are not “in” on the secret.

North, the Canadian artist who originally posted instructions for how to create and install the Mario question blocks, updated his website within hours of the news report to protest this particular aspect of the coverage. “To clarify some of the points in the article: this is not a sinister 'game',” North wrote. “It is supposed to be a comment on public spaces… to bring a smile to people's faces, to get them to connect with their neighbours, to bring colour into an otherwise grey urban landscape” (North [3]). This disavowal of the project’s gameness is not disingenuous—the original instructions do indeed identify the work as an “art project” and never suggest that the installations could be played by either artists or onlookers ([6]). It is a clear case of replicated game imagery in the total absence of play affordances. However, the actual pervasive games discussed in this chapter often *appear* to offer no play affordances, even as play may be designed for and enjoyed by selected individuals. The public’s inability to read *Super Mario Blocks* correctly, not only as art but also as *not* a game, suggests a future of significant social friction in this emerging genre of pervasive play.

In response to North’s clarification that the project was not a game, the Ravenna authorities and local press changed their stance. Under the headline “Girls won't be prosecuted after bomb squad called on art project”, the Beacon updates the story by identifying the girls’ intervention as art rather than as gameplay. “‘The girls were imitating an art project which they found on the Internet,’ the prosecutor said…. ‘I do not believe that they had any bad or malicious intentions,’ he said” (Beacon Journal Staff Report [3-5]). Here, we see that imitating an art project is perceived as an innocuous public act, whereas playing a secret game was considered a sign of possible malicious intent. The spectacular visibility of pervasive gaming combined with its often inscrutability, illegibility, or protected participatory boundaries, is indeed a provocative public intervention that may ultimately engender fear or resentment in those left out of the game.

*

Poster Child, the artist who first conceived the *Super Mario Blocks* project, posted a design statement addressing the motivations for the piece.

> Authority over the visual landscapes of our cities has been placed out of reach to the very people who live in them. In my gentle way, I am simply connecting to my surroundings, and in this manner I also reclaim that which has been denied to me…. I create public installations (or "Street Art" pieces) that are both playful and political. I create my art to engage with my environment and those who share it with me. I do not seek to anger or upset my companions in the city, rather, I am searching for a benevolent, sustainable way to involve myself in our shared public spaces without being arrested or unnoticeable" ([1]).

I want to close this chapter with Poster Child's comment because it speaks so clearly to the central motivations and design challenges of pervasive gaming, even as Poster Child identifies his work as art rather than as a game. Pervasive gaming, at its heart, poses a power struggle. Who defines the norms for public spaces? Who creates the content for shared environments? Pervasive games suggest that drawing a magic circle of play is in itself a kind of power grab, a tool for renegotiating social customs and participatory access. Ultimately, pervasive gaming most closely approaches truly ubiquitous play and performance in its ability to teach and to inspire others to draw their own magic circles.

The arresting visual images created by the spectacles of big, urban games, like the playtest citations of ubicomp games, circulate extensively in popular media and online culture. Although given pervasive games may not aspire to generating massively participatory play in their particular local deployments, they may nevertheless inspire playful disruptions and social interventions on a massive scale if they are designed for replication. Indeed, if their aesthetic can move away from the *urbiquitous* toward the truly *ubiquitous*, they may even escape the city itself, such as in the form of mysterious ludic boxes installed around the public spaces of a small Ohio town.

CHAPTER FIVE

Activating Play: Affordances Everywhere, or, the Ubiquitous Games – Part I

> *The world had gotten fat with meaning; charged with invisible connections. Patterns jumped out at me like little electric shocks: a run of numbers on a license plate, the bar code on a box of cereal. I found myself making anagrams out of billboard copy and wondering if you could embed a message in traffic flow by hacking into the transit computers.… I learned faster and felt dumber than I ever had in my life; I passed my days in a paradoxical state, both hyper-alert and profoundly confused.*
>
> —from "Laia's Meditation #8", *The Beast* (Stewart 21)

5.1 The Structure of a Computer Science Revolution

In *The Structure of Scientific Revolutions*, philosopher Thomas Kuhn proposes that science does not progress steadily toward a more complete and truer understanding of nature. Rather, it routinely and abruptly changes course, redefining its basic assumptions and goals. Kuhn calls the successful emergence of a conceptual framework that fundamentally changes scientific practice a *paradigm shift*. He writes: "Scientific revolutions are here taken to be those non-cumulative developmental episodes in which an older paradigm is replaced in whole or in part by an incompatible new one" (92). Kuhn argues that such shifts occur only when proponents of the new paradigm are able to establish a need for urgent reform. "The sense of malfunction that can lead to crisis is a prerequisite to revolution" (92). In other words, something must be widely perceived to have gone fundamentally wrong in the course of *normal science* before a dramatic reconfiguration of a field can take place.

Kuhn's historical analysis of paradigm shifts focuses exclusively on the natural sciences, such as chemistry, biology and astronomy, rather than applied sciences, such as computer science and engineering. But in their earliest ubicomp manifestos, Mark Weiser, John Seely Brown, and other Xerox PARC researchers adopt a rhetoric of revolutionary science to explain their novel research agenda. They specifically take up Kuhn's theory of paradigm shifts to identify their computer science work as a necessary and radical intervention in the field, employing Kuhn's language to signal a major conceptual shift. For instance, in outlining the history of computer science, Weiser calls ubicomp the "third *paradigm*" of computer science ("Ubiquitous Computing" [1], emphasis mine). He writes: "First were mainframes, each shared by lots of people. Now we are in the personal computing era, person and machine staring uneasily at each other across the desktop. Next comes ubiquitous computing" ([1]). Xerox PARC researchers further evoked the revolutionary spirit of Kuhn's work by claiming to be making "radical" changes in the field. Kuhn describes new scientific paradigms as consisting of "radical new approaches" (84) In turn, Weiser and his colleagues write: "We have been trying to take *a radical look* at what computing and networking ought to be like" ("Ubiquitous Computing" [8], emphasis mine) Elsewhere, Weiser describes early ubicomp prototypes as "a start down *the radical direction*, for computer science, away from attention on the machine and back on the person and his or her life in the world of work, play, and home" (77, emphasis mine). Kuhn further characterizes paradigm shifts as "intellectually violent revolutions" (6). In this spirit of violent upheaval, Weiser predicts that a take-no-prisoners approach to overthrowing the current computing regime will be necessary. He writes: "This will not be easy; very little of our current systems infrastructure will survive" ("Ubiquitous Computing" [9]).

Today, references to ubicomp research as a paradigm shift are pervasive in the technical literature.[32] Even as the technology has failed to materialize according to schedule, the conceptual framework of ubiquitous computing is quite pervasive in the field of computer science. How did this victory for the ubicomp research agenda and design philosophy come to pass? Kuhn argues that new scientific paradigms do not win out through a process of objective reasoning and analysis, but rather through subjective claims.

> The choice [between paradigms] is not and cannot be determined merely by the evaluative procedures characteristic of normal science, for these depend in part upon a particular paradigm, and that paradigm is at issue. When paradigms enter, as they must, into a debate about paradigm choice, their role is necessarily circular. Each group uses its own paradigm to argue in that paradigm's defense…. That exhibit can be immensely persuasive, often compellingly so. Yet, whatever its force, the status of the circular argument is only that of persuasion. To discover how scientific revolutions are effected, we shall therefore have to examine… the techniques of persuasive argumentation (93).

According to Kuhn, then, the success of an attempted scientific revolution depends in large part on the power of its rhetoric. The proponents of a new paradigm must

[32] See, for example, the following ACM and IEEE papers that in the wake of Xerox PARC's early effective rhetoric continue to identify ubicomp research explicitly as a "paradigm shift": "Augmenting the Virtual Domain with Physical and Social Elements: Towards a Paradigm Shift" (Carsten Magerkurth, Timo Engelke, and Maral Memisoglu, 2004); "A Paradigm Shift: Alternative Interaction Techniques for Use with Mobile & Wearable Devices" (Joanna Lumsden and Stephen Brewster, 2003) "Designing the Internet for a Networked Society" (Barry Wellman, 2002); "Charting Past, Present, and Future Research in Ubiquitous Computing" (Gregory D. Abowd and Elizabeth D. Mynatt, 2000); and "Software Engineering Issues for Ubiquitous computing" (Gregory D. Abowd, 1999)—just a few of the hundreds of such references in recent computer science literature.

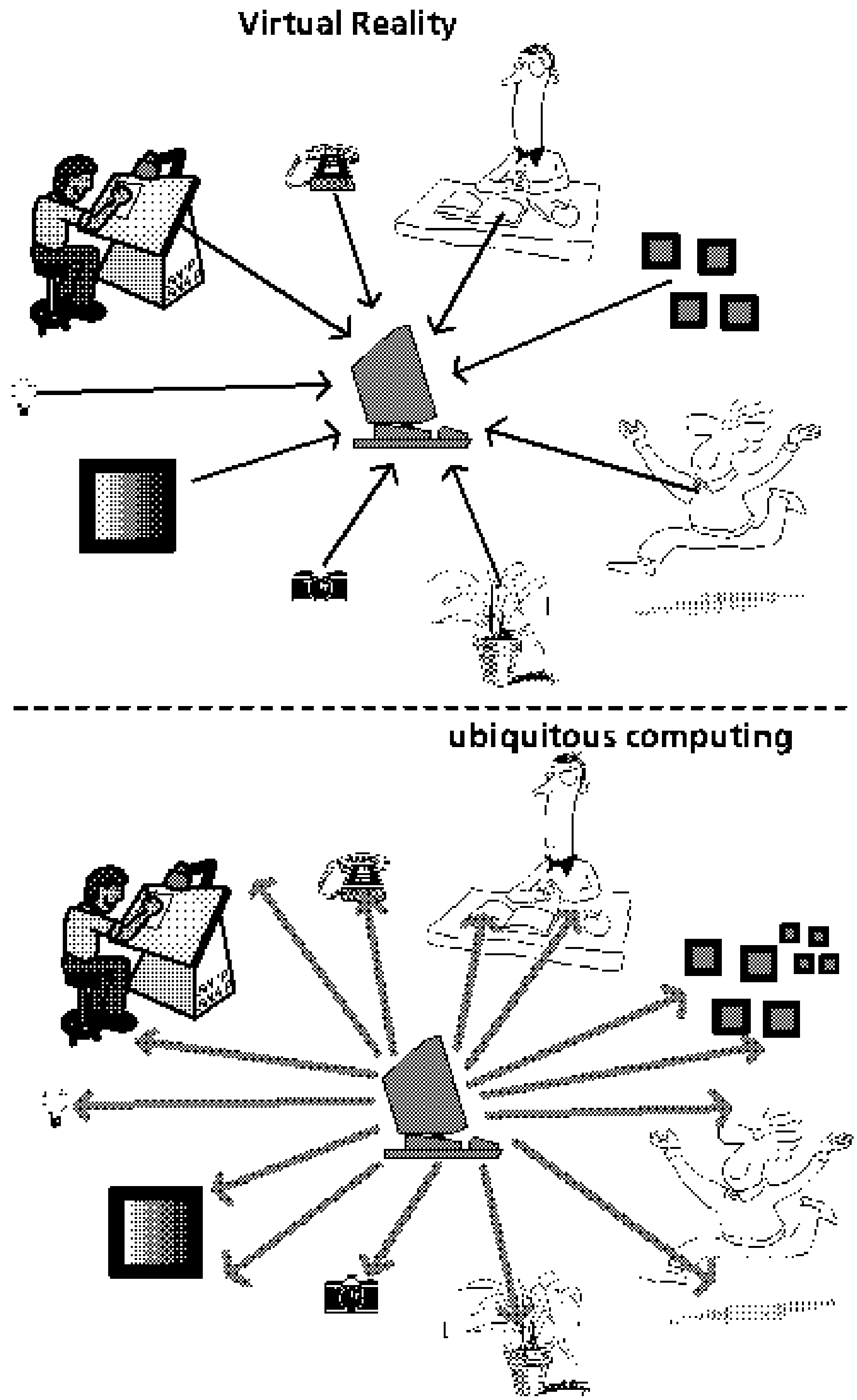
persuasively articulate *what* is wrong with the reigning paradigm, *why* the error poses an urgent problem, and *how* to fix it. And as Kuhn has noted, the subjective force of such arguments is immeasurably aided by taking up a dramatically *antagonistic* relationship to some aspect of the current paradigm.

It is this antagonistic aspect of ubiquitous computing's revolutionary rhetoric that I want to examine. What urgent crisis did ubiquitous computing promise to solve? What computing practice did Xerox PARC cast in the role of the antagonist that must be defeated? In several key articles, Weiser defines *virtual reality* as the reigning paradigmatic ideal that must be vanquished from mainstream computer science.[33] He writes in *Scientific American*: "Perhaps most diametrically opposed to our vision is the notion of 'virtual reality,' which attempts to make a world inside the computer" (95). Elsewhere, he argues: "Ubiquitous computing is roughly *the opposite* of virtual reality. Where virtual reality puts people inside a computer-generated world, ubiquitous computing forces the computer to live out here in the world with people" ("Ubiquitous Computing"[4]). He even sketches a cartoon called "Virtual Reality vs. Ubiquitous Computing", in which two panels depict the two approaches pitted directly against each other (see figure 5.1). In these early vision statements, we see an oppositional rhetoric at work. Virtual Reality (VR) is identified as the motivating crisis for a ubicomp revolution. Ubiquitous computing, the proffered solution, is characterized therefore as a *reversal* of VR's virtualizing effects. In his cartoon, for example, Weiser portrays ubicomp as the complete, 180 degree reversal of the directional relationship between computers and the

[33] Weiser acknowledges that virtual reality is an important application for very specialized and limited work, such as medical training. He writes in "Some Computer Science Issues in Ubiquitous Computing", for instance, that "VR is extremely useful in scientific visualization and entertainment, and will be very significant for those niches" (76). However, he argues that VR must be strictly limited to such niches in order to improve computing for mainstream, everyday users.

real world. The arrows in the drawing literally point in the opposite direction after ubiquitous computing comes to pass. This rhetoric of revolutionary reversal continues to circulate in more recent descriptions of ubiquitous computing. For instance, digital theorists Jay David Bolter and Richard Grusin claim in *Remediation*: *Understanding New Media* that “Ubiquitous computing is virtual reality’s opposite number” (213). They write: “Ubiquitous computing reverses virtual reality” (219).

If VR is the antagonist in ubiquitous computing’s revolutionary drama, then what crisis has its virtuality provoked? Weiser writes of VR: “It excludes desks, offices, other people not wearing goggles and body suits, weather, grass, trees, walks, chance encounters and in general the infinite richness of the universe” (“The Computer for the 21st Century” 95). He warns: “VR… is leaving the real world behind” (“The World is Not a Desktop” 7). The nature of the virtual reality crisis, then, is defined in terms of a phenomenological loss. This loss can be rectified only through a retreat from a virtuality, a return to the real world VR has left behind. Instead of producing increasingly realistic simulated environments, Weiser argues, computer scientists should focus on enabling users to interface more frequently with actual, everyday environments. This position is most clearly articulated in ubiquitous computing’s memorable call to action: “Back to the Real World”, the title of the 1993 special issue of the *Communications of the ACM* in which Weiser formally outlines the ubicomp agenda. The directive “back to the real world” suggests a concerted effort to escape virtuality in favor of actuality. And this well-coined phrase has come to serve as the rallying cry for the ubiquitous computing



5.1 "Virtual Reality vs. Ubiquitous Computing." Mark Weiser's self-published cartoon, which did not appear with a caption, summarizes the proposed paradigm shift of the new field of ubiquitous computing by depicting the direct opposition of two design philosophies. (Weiser, 1996) revolution. It appears pervasively not only in early Xerox PARC writings, but also throughout more recent ubicomp scientific literature.[34]

Together, Weiser's critique of virtual reality and Xerox PARC's goal of returning to the real world suggest that the main stake of ubiquitous computing is an objection to increasing virtuality in everyday life. Indeed, William J. Mitchell, a current leading design theorist of ubiquitous computing, argues that the field requires us to abandon our attachment to notions of virtuality. In *Me++: The Cyborg Self and the Networked City*, Mitchell writes: "The metaphor of 'virtuality' seemed a powerful one as we first struggled to understand the implications of digital information, but it has long outlived its usefulness" (4). He suggests, instead: "It makes more sense to recognize that invisible, intangible, electromagnetically encoded information establishes new types of relationships among *physical* events occurring in *physical* places […] concrete, with definite spatial and temporal coordinates" (4). But does putting digital information back in place require us, as Mitchell encourages, to reject the concept of virtuality entirely? Or does ubiquitous computing, instead, merely reconfigure the relationship between the virtual and the real?

Despite the revolutionary rhetoric of early ubicomp statements and their antagonism of virtual reality, I want to argue that the field does not in fact represent a true paradigm shift away from the virtualizing practices of pre-ubiquitous computer science. The fiercely oppositional stance toward virtual experience was, instead, a rhetorical maneuver

[34] To date, "Back to the real world" has been reiterated as a design philosophy in 80 ACM papers alone, in as diverse computer science contexts as *Transactions on Computer-Human Interaction* (Lars Hallnäs and Johan Redström, 2002); *Computers In Entertainment* (Magerkuth et al, 2006); and *Designing Interactive Systems* (Messeter et al, 2004).

designed to make the overall claims for the new field more persuasive. In this way, VR served the role Kuhn identifies as the necessary agent of crisis to provoke dramatic conceptual shifts in normal science. However, upon closer reading, it is apparent that even in the very same seminal articles that pit virtual reality against ubiquitous computing, Weiser hints at a relationship between the two that is far more complicated than one of simple opposition. In “Computing for the 21st Century”, for example, Weiser writes: “Indeed, the opposition between the notion of virtual reality and ubiquitous, invisible computing is so strong that some of us use the term ‘embodied virtuality’ to refer to the process of drawing computers out of their electronic shells” (96). Here, Weiser both reaffirms the paradigm shift away from virtual reality while retaining the concept of virtuality as a core part of the new design philosophy. The term “embodied virtuality” suggests that it is not the value of virtuality itself that is being disputed by the new paradigm of ubiquitous computing. Rather, in dispute is the idea that virtuality belongs to simulated environments only. Indeed, Weiser admits that computing is always already virtual. He writes: “The ‘virtuality’ of computer-readable data—all the different ways in which it can be altered, processed and analyzed—is brought into the physical world” (96). Thus it is impossible to imagine a ubicomp-fueled return to the “real world” that is not marked by virtual experience. The paradigm shift of ubiquitous computing therefore is not really an escape from virtuality, but rather a movement toward a more materially-based virtuality.

5.2 A Virtual Paradigm Shift

In *The Rise of the Network Society*, sociologist Manuel Castells argues that ubiquitous digital media and network technologies are indeed ushering in a new, more physical mode of virtual experience. Castells adopts “real virtuality” to describe this new, *non-simulated* virtual environment. In the culture of real virtuality, according to Castells, our material existence and our symbolic systems merge so that pervasive data flows shape our experience of everyday physical spaces and the things they contain. But Castells is quick to point out that these digital data flows are not the first virtualizing agents in everyday life. Castells argues that all built environments, computer-augmented or not, are symbolically encoded, and therefore possess a virtual aspect. “Cultures are made up of communications processes,” he writes,

> and all forms of communication, as Roland Barthes and Jean Baudrillard taught us many years ago, are based on the production and consumption of signs. Thus there is no separation between ‘reality’ and symbolic representation…. Reality, as experienced, has always been virtual because it is always perceived through symbols that frame practice (372).

Here, Castells challenges the rhetoric of scientific revolution that directly opposes virtual reality and the real world, arguing that reality itself has always already been virtual. “When critics of electronic media argue that the new symbolic environment does not represent ‘reality’, they implicitly refer to an absurdly primitive notion of ‘uncoded’ real experience that never existed” (372-3).

Weiser does not, in fact, make such a naive critique of virtuality. Although he opposes what he calls the “gluttonous” mediation of everyday computing, he also explicitly acknowledges that the “real world” to which ubiquitous computing aspires to return is not a realm of pure, unmediated experience (“Some Computer Science Issues in Ubiquitous Computing” 78). In a later and less widely cited article titled “Open House”, he writes:

"Mediation is a red herring. As Donna Haraway says, to be human is to be a cyborg. There is no 'natural' experience: the eyeball, the middle ear, the visual cortex, are far more sophisticated than the personal computer" ("Open House" [9]). Here, Weiser suggests that the phenomenological richness of the real world is not lost through mediation, as long as it the mediation affords non-simulated physical experience. While he uses the physical apparatus of human sensory organs to epitomize this embodied mediation, we can also understand the tactile experience of physical computing, for instance, or the face-to-face social experience of urban computing as the kind of phenomenologically rich mediation Weiser prefers. Here, we see that Weiser's concept of embodied virtuality corresponds precisely with Castells' theory of a real virtuality. Both Weiser and Castells believe that our notion of virtuality must be reconfigured to include non-simulated, material experiences.

But how, exactly, will ubiquitous computing create a material virtuality? Just as Castells sees virtual mediation of the real world in everyday language and signs, Weiser finds inspiration for ubiquitous computing's virtualizing practices in ubiquitous symbols. He writes: "The most ubiquitous current informational technology embodied in artifacts is the use of written symbols, primarily words, but including also pictographs, clocks, and other sorts of symbolic communication…. I wanted to put the new kind of computer also out in this world of concrete information conveyers" (76). Returning to Weiser's cartoon (figure 5.1), we can see now that reversing the directionality of virtual reality's arrow is not simply representative of ubiquitous computing's flight from traditional desktop computers. It also depicts the reversal of the virtualizing data flow. Whereas VR extracts data from the real world and digitally recombines it to create a realistic virtual environment, ubiquitous computing strives to extract virtual data from the global communications and computational network and to embed it, materially, creating a virtualized real environment. New concrete interaction platforms will join and parallel the "concrete information conveyers" of ubiquitous symbols.

In order to effectively virtualize everyday objects and spaces, however, it is not enough to embed data flows and computer functionality. The opportunities for interaction must be both *apparent* and *meaningful* to users. In "The Condition of Virtuality", new media theorist N. Katherine Hayles writes: "Virtuality is the cultural perception that material objects are interpenetrated by information patterns" (69). The key terms here are "cultural perception" and "patterns": users must *recognize* that patterns of information are circulating in a given environment, and they must understand how to interact with the objects according to these patterns. Castells describes the virtualizing network in similar terms of pattern recognition: "The communication of all kinds of messages in the same system… induces an integration of all messages in a common cognitive pattern" (371). In other words, as data flows become linked and enframed by a single, ubiquitous network, users begin to process the flows according to a common cognitive framework. A pattern of thinking, and concomitantly interacting, emerges from the increasingly all-inclusive structure of the socio-technological network.

Castells describes the patterns of real virtuality as inspiring interaction, or a *response*. Indeed, responsiveness is a key term in ubiquitous computing. It has been since Xerox PARC first started talking in its earliest manifestos about creating "responsive environments" and "responsive objects"—that is, spaces and things that are responsive to users. In an informal statement on "Ubiquitous Computing", Mark Weiser explains: "We have been trying to take a radical look at what computing and networking ought to be like…. Our preliminary approach: Activate the world" ([8]). Traditionally, this term is interpreted in ubiquitous computing to mean technological activation: *to turn on, supply power, or enable systems, equipment, or devices to become active.* To activate the world in this sense means to bring *things* to life through ubiquitous sensors, processors and other computing infrastructure. Here, we can think of Rich Gold's toys that sing and dance in the dark. But does Weiser mean only to activate the inanimate elements of the world? What about the users? In biology, to activate means *to stimulate a cell in a resting state to become active*. Can embedded patterns stimulate users to become active in contexts, spaces and scenarios they would ordinarily be passive? If so, we are talking about a different kind of activation—not technological augmentation. The social world is activated through embedded patterns, rather than through embedded technological systems.

Teaching users the cognitive and interactive patterns of the network is, to a large extent, the work of ubiquitous computing. Weiser writes of the goals of the field: "We become smarter as we put our roots deeper into what is around us" ("Open House" [12]). For Weiser, these roots are the proliferating connections created when ubicomp users engage with the surrounding array of computer-augmented objects and spaces. Describing ubicomp infrastructure as "one giant connection to the world", Weiser predicts: "Ubiquitous computing just might help to… connect us to the fundamental challenge that humans have always had: to understand the patterns in the universe and ourselves within them" ([12]). Here, Weiser seems to suggest that by training users to be more attentive to the computing patterns of everyday life, ubicomp culture will create a society more sensitive to social patterns, the design of nature, and other real-world structures of meaning.

Weiser compares this sensitizing aspect of ubiquitous computing to a kind of developmental learning. In “The World Is Not a Desktop”, Weiser identifies childhood play as a potential metaphor for how users will grow to recognize and understand the patterns of ubiquitous computing. “Invisible technology needs a metaphor,” Weiser writes. “I propose childhood: playful, a building of foundations, constant learning, a bit mysterious and quickly forgotten by adults. Our computers should be like our childhood: an invisible foundation that is quickly forgotten but always with us, and effortlessly used throughout our lives” (8). Here, Weiser describes a playful kind of learning that instills a foundational and persistent way of thinking and being in the world. Weiser’s turn to play as a mode of learning patterns is not surprising. In *A Theory of Fun*, game designer Raph Koster argues that pattern recognition is in fact the quintessence of all gameplay. His thesis, arguably one of the most important to emerge from the field of digital game studies to date, is that what we call the “fun” of game play is actually the distinctly human pleasure of learning new patterns. He writes: “The human brain is mostly a voracious consumer of patterns, a soft pudgy gray Pac-Man of concepts. Games are just exceptionally tasty patterns to eat up” (14). What makes games “exceptionally tasty”, or fun, according to Koster, is their design as formal systems that strip away much of the noise of everyday reality. A good game makes it challenging, but ultimately possible, to discern the essential signal of its interactive pattern. “They are concentrated chunks ready for our brains to chew on. Since they are abstracted and iconic, they are readily absorbed” (36). Once the pattern of the game is learned, players become experts at detecting, decoding and most importantly *responding* to that one signal as they explore the game world.

Koster proposes that games fundamentally “are about cognition, and learning to analyze patterns” (36). Meanwhile, the cultural perception of real virtuality, Weiser and others have argued, depends on the apparentness and legibility of interactive patterns. Therefore, it makes perfect sense to discover that the nascent patterns of ubiquitous computing have emerged, to date, most clearly in the form of a game. Indeed, the greatest evidence of the computer science revolution predicted by Xerox PARC is found currently in the category of massively multi-player works I call *ubiquitous games*.

In this chapter, I will explore how ubiquitous games realize ubiquitous computing’s desired paradigm shift in the relationship between computers and virtuality. I will explore the *mechanics* of how they work to construct a new symbolic environment, one in which interactive signals proliferate. Weiser has argued that to virtualize everyday life without sacrificing its full range of social and material affordances, data flows must deliver not just information, but also interactive opportunities. Indeed, I will show how ubiquitous games prove signs to have a wider range of phenomenological affordances than previously suspected. In this new environment of real, or embodied, virtuality, the multitude of everyday objects and places are linked and activated through the singular pattern of a game. This ludic pattern suggests a common interactive pattern, or affordances for play, across the media landscape and the public environment.

In comparing the noisiness of everyday life to the clear signal of a digital game, Koster writes: “Usually our brains have to do hard work to turn messy reality into something as a clear as a game is” (36). This transformation of everyday life into a gaming platform is, I will argue, the central task of ubiquitous games. The clarity of a game mechanic is proposed as an alternative to the often alienating complexity and inscrutability of everyday events and encounters. Multiplayer gameplay is proposed as an alternative to passive reception of media content, and as an alternative to social isolation both in the private and the public sphere.

To establish the core mechanics and aesthetics of ubiquitous games, I want to focus first on the most widely-played and influential genre within the larger category: *alternate reality gaming*, an immersive entertainment form first deployed in 2001 and responsible to date for seventeen commercial alternate reality games (ARGs), fifty-two independent ARGs, and many dozens more smaller and lesser-known ARGs.[35] Jordan Weisman, creative director for the first alternate reality game (ARG), described the design philosophy of the genre in a 2005 lecture for the International Game Developers Association:

> We take a pretty radical approach to games and storytelling. Our gaming platform is the world. The whole electronic sphere. We don't limit ourselves to the kind of game you can fit onto a disc. We'll use anything with an electronic current in it, any communication platform we can get

[35] Commercial ARGs include those produced as game properties by entertainment companies, such as Electronic Arts' *Majestic* (2001) and Mind Candy's *Perplex City* (2004 – present), as well as those produced by marketing or gaming companies on behalf of commercial clients, such as 42 Entertainment's *I Love Bees* for Microsoft/Bungie (2003) and GMD Studio's *Art of the Heist* for Audi (2005). Independent ARGs include those produced by non-professional game developers, usually ARG fans or game design students, and are typically on a substantially lower budget. An archive of the player message boards for successfully completed Alternate Reality Games is maintained by the largest ARG player group, Unfiction, at http://forums.unfiction.com/forums/index.php?c=7. As of this writing, it archives 47 games, with an additional dozen games active on the Unfiction forums. While the Unfiction group has not played all of the ARGs that have been produced worldwide, their archive is by far the most substantial collection. Also, although not as up-to-date as the unfiction message board archive, the Unfiction Games directory includes roughly a dozen ARGs played before their message boards were launched. The games directory can be accessed at http://www.unfiction.com/category/compendium/games/ .

> our hands on. If we could get your toaster to print a game mission on your bread, we would do it.

Here, Weisman presents a game genre that models itself after the ubiquitous network. It circumscribes, co-opts and links together all forms of communication media in a massively-scaled, ludic system. As Gold observed in “This Is Not a Pipe”: “If Nineteenth-Century technology shredded the objective world into fine scraps, then ubiquitous computing can be thought of as the great Integrator” (72). Alternate reality gaming clearly aspires to this great integration. It projects the interactive pattern of play anywhere and everywhere it can. It refuses to shrink its magic circle any smaller than the entire mediated world.

Weisman, it is worth noting, was also a pioneer of virtual reality, before he began exploring the design space of embodied reality. In the late 1980s, he formed the company Virtual World Entertainment and launched the first virtual reality gaming center open to the public. According to a *Wired* magazine report, Weisman’s BattleTech Center featured sixteen networked VR simulators; co-located gamers competed against each other in VR military battles played across the network (Jacobson). But as ubiquitous computing took hold as a field, Weisman joined the virtual paradigm shift, leaving the environmental simulators behind and embracing, instead, the real environment of everyday media and network technologies. As players have come to define it: “Alternate Reality Gaming (ARG) is a relatively new genre of games that encourages players to interact with a fictional world *using the real world to do it*” (Thompson “Alternate Reality Quickstart Guide” [1], emphasis mine).

I will begin to explore the activating play of alternate reality gaming by working backwards through the design, deployment and aftermath of Weisman's seminal alternate reality game, *The Beast*.[36] First, I will present a brief study of how players reconvened three months after the game had ended to consider applying their collective gaming techniques to a real-world problem. Then, to articulate how and why the ubiquitous game inspired this ludic response to actual events, I will use archived game content and player discussion threads to analyze *The Beast*'s core gameplay mechanics, particularly as they attend to the affordances of everyday media objects. I also will work with a set of personal interviews with the lead designers, and some of their game industry lectures, in order to explore the goals and strategies of the project's highly influential ubiquitous design philosophy. I will argue that this philosophy, which seeks to reverse the directional relationship between virtuality and reality, produces the project's signature effect: the creation of a *perpetual*, reality-based game engine.

But before I embark on this course of analysis, I want first to provide some background on the original production context of *The Beast*. I intend to correct a longstanding misconception about the reasons for the game's production, and in doing so, to explain how *The Beast* was always already intended to train audiences to discover gameplay patterns the most in unexpected locations.

[36] Although I will refer to the first ARG as *The Beast*, in fact this particular game does not have an official title. During its deployment, it was referred to variously as "the *A.I.* web game", "the *A.I.* web experience", and "Who Killed Evan Chan?" by players and media. According to a personal interview with lead designer Elan Lee, the game was nicknamed "the Beast" by members of the design team after they realized their first design specifications document called for exactly 666 (the number of the devil, of the beast) media objects to be created. When Lee revealed this tidbit to fans, the name "the Beast" stuck and is currently the most popular way to refer to the project.

5.3 The Originary Pattern of Ubiquitous Play in *The Beast*

Why was *The Beast*, the originary ubiquitous game, made? Conventional wisdom states that the project was conceived as an elaborate viral marketing promotion for Steven Spielberg's 2001 film *A.I. Artificial Intelligence*. In the year it was produced, *The Beast* was described as "the most fascinating online marketing effort ever" (Parker [1]). It was hailed as "without a doubt the most elaborate movie promotion ever devised" Wendland [1]). And *Time Magazine* named the project the "Best Advertisement of 2001", describing it as "a stealth campaign for Spielberg's robo-Pinocchio story" ("Best and Worst of 2001" [5]). One technology reporter summed up the purpose of the sprawling game: "It's all promo for a movie" (Bridge [5]).

But when Katie Salen and Eric Zimmerman first mention *The Beast* in their 2003 *Rules of Play*, they identify it as "a game *reportedly* designed and operated by Microsoft as a viral marketing campaign for the film *A.I.* Artificial Intelligence" (575, emphasis mine). Here, the authors hedge slightly on the origins and purpose of the game—and with good reason. During the game, Microsoft never released an official statement taking credit for the campaign or explaining its intentions. As *CNN News* reported on June 13, 2001:

> A spokeswoman for Warner Bros. in New York offers only a few cryptic comments on the game. "We don't have any official position on that," she says. "It's not something that we created." Previously published reports have suggested that Microsoft Corp. is involved with the design and maintenance of the game, but no one from the Redmond, Washington-based company would comment for this story ([23]).

Microsoft did eventually acknowledge, beginning with a June 21, 2001 exclusive for *USA Today*, that the project was created and managed by a small development team—including creative director Weisman and lead designer Elan Lee—housed in the Microsoft Games Studio (Kornblum). However, the public statements made by Weisman and Lee in these interviews always focused on the creation of the online game experience rather than the project's relationship to the film. Indeed, *Wired News* notes: "Lee wouldn't say whether, with the movie's imminent release, the game is coming to an end" (Manjoo [2]).

In the five years since the launch of *The Beast*, Microsoft's role as corporate sponsor for the promotional game has been taken at face value. No one, it would seem, has paused to ask: Why would a technology company such as Microsoft create a marketing campaign for a Hollywood film?[37] How would such a project be in Microsoft's interests? A May 1, 2001 press release from Microsoft—delivered just as *The Beast* was beginning to receive widespread online attention, but before the intense international media coverage began—offers a significant clue to the technology company's intentions in developing the game. Under the headline "Microsoft Signs Exclusive Licensing Deal With Warner Bros. to Create Games Franchise for *A.I.* Movie", the statement reveals the full scope of Microsoft Game Studio's involvement with the *A.I.* brand:

> Microsoft Corp. announced an exclusive licensing agreement with Warner Bros. to develop and publish games for the Microsoft® Xbox™ video game system and the PC based on Steven Spielberg's highly anticipated

[37] Microsoft historically has had a close working relationship with DreamWorks, the studio that produced *A.I.* However, while DreamWorks Interactive, a joint venture by computing giant Microsoft and multimedia publisher DreamWorks SKG, was formed in 1995 to create interactive entertainment software, it was sold in 2000 to Electronic Arts, and therefore this relationship would not sufficiently explain the production of *The Beast* in 2001.

> movie, "A.I.". Considered to be interactive sequels to the "A.I." movie, three action-packed adventure games will be published by Microsoft for Xbox, two of which are slated for release this fall with the console's launch in North America on Nov. 8. To help preserve the film's secrets, the titles and genres of the Xbox games will not be unveiled until the movie is released. The games will be high-action interactive sequels to the "A.I." movie with a new story that unifies all three titles (Microsoft Press Release [1]).

Is it possible, then, that *The Beast* was not so much a marketing campaign for the film as it was a lead-in to Microsoft's series of *A.I.*-licensed games? Was Lee's hesitation to say that the project would end upon the film's release a result of the game studio's much longer-term plans for the license? Indeed, in a personal interview, the Beast's lead writer Sean Stewart confirmed for me that the initial design challenge posed to *The Beast*'s creative team was to develop a project in anticipation of the series of Spielberg-inspired Xbox games, rather than for Spielberg's film itself. "The function of the project was to develop *A.I.* as an I.P. [intellectual property], as a world, as a context for building first-person shooters, race games, gladiator games, chase games" (Personal interview 4/20/2003). According to Stewart, *The Beast* was originally scheduled to run through December 2001. Its climax would have coincided with the fall release of the *A.I.*-licensed Xbox games.

Why is this central aspect of the *The Beast*'s history not generally known? In the wake of the film's lackluster summer 2001 box office performance, Microsoft scuttled the entire series of *A.I.* projects. Likewise, *The Beast* was cut short—it wrapped in July, several weeks after the movie's disappointing opening weekend. But even as the film failed and the Xbox titles were abandoned, *The Beast* was being hailed as "the Citizen Kane of online interactive entertainment" (Robertson [1]). Accordingly, Microsoft chose to focus on the success of the project as an immersive back story for the movie, the role it ultimately served in the absence of the Xbox games. Microsoft never mentioned its original purpose in setting up the cancelled series of videogames.

In retrospect, *The Beast* did serve primarily, if unexpectedly, as marketing for the film. But this was not the purpose that initially informed the game's development and deployment, and consequently the players' designed experience. It is worth examining, then, the *game-marketing* objectives of *The Beast* in order to document more accurately the origins of the project's now famous aesthetic.

Why launch a console game franchise with such an experimental, Web-based game? According to Stewart, the central creative problem Microsoft Games Studio (MGS) faced in developing the *A.I.* license was the film's apocalyptic ending, which did not intuitively suggest any possibility for future play. The MGS team was concerned that the dark plot and somber tone of the film would not put viewers in a ludic mindset. As Stewart related, "The first thing Jordan [Weisman] said after reading the *A.I.* script was, 'No one will come out of that movie and say, 'That was great… but what I really want to do is play the game!'" As Stewart reminded me, Spielberg's sci-fi/fantasy film depicts an epic climate change that wipes out the human race, leaving only sentient machines to roam the Earth. The movie ends with the film's hero, an android little boy, committing suicide when he realizes that all the humans, including his beloved mother-figure, are dead. "Basically, the *A.I.* license required us to say, 'Everybody's dead! Now go play.' It didn't quite work.” The internal consensus at MGS, then, was that they needed to create a media context in which the urge to game would seem a natural reaction to Spielberg’s otherwise decidedly non-ludic film. But how?

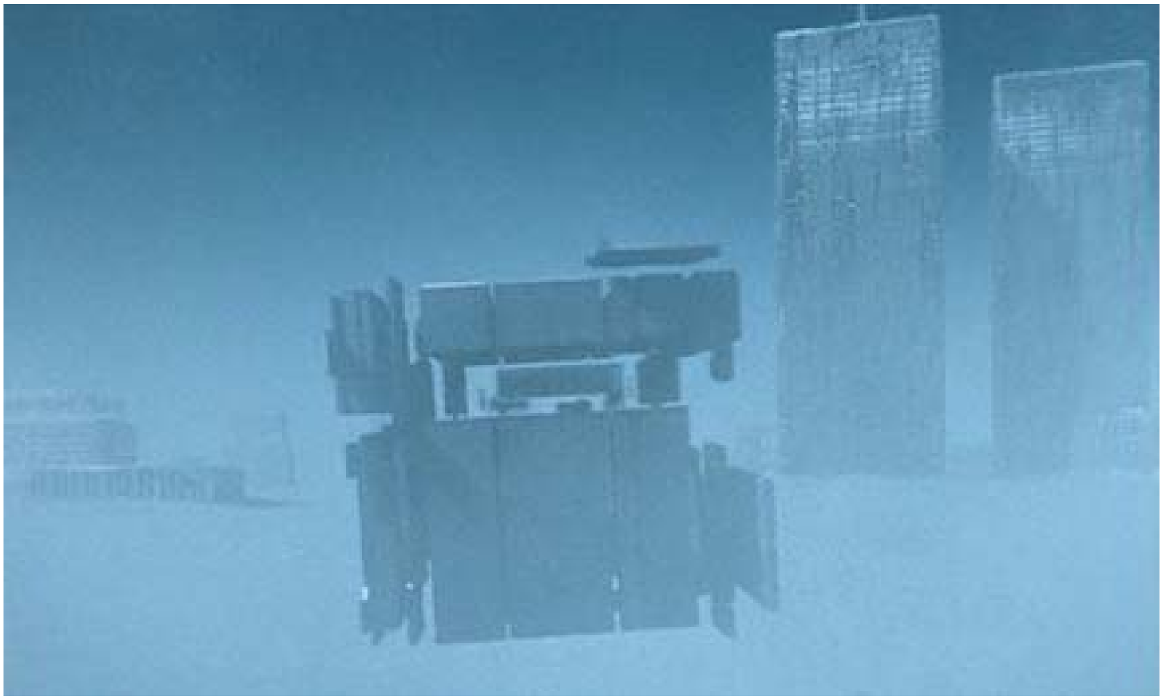
“The film itself is great, so big and so robust. But it’s also really depressing.” Stewart describes the film’s ending as “a grim, post-holocaust scenario seen through the eyes of robots from the future.” He compared its tone and darkness to another Spielberg project: “It’s like *Schindler’s List*,” Spielberg’s 1993 film about the Nazi Holocaust. “And no one came out of *Schindler’s List* and said ‘I gotta buy the game!’” However, Stewart points out that while a film like *Schindler’s List* may not put viewers in a gaming mindset, there have been dozens of successful videogames made about World War II. Here, we can think of the *Medal of Honor* series, the *Castle Wolfenstein* games, *Battlefield: 1942*, and so on. In such games, Sean argues, “It’s about understanding the zeitgeist. You don’t make *Schindler’s List: The Game*, you build a World War II basket for a game. An intense cultural moment the game lives in. And so that’s what we decided to do for *A.I.*—to create the *A.I.* Zeitgeist.”

The mission of *The Beast*, as Stewart describes it, was to create a context for thinking about the coming, fictional extinction of the species *homo sapiens* as a highly playable scenario. To meet this end, Stewart explained, *The Beast* was designed as “a collective archeological dig” through the digital artifacts of an imagined doomed society—the same society that would be wiped out in Spielberg’s film. “We created all of the media evidence that would exist if Spielberg’s story really happened, and then we broke it into thousands of tiny pieces and buried them among the 70 billion pieces of online content that had nothing to do with *A.I.*”.

The main gameplay would consist of solving puzzles and following bread crumbs to find the important pieces, put them back together, and make sense of them. The media documents assembled through gameplay would document the everyday co-existence of people and sentient machines in the year 2142 AD. Stories from the pieced together web sites, emails, voice mail messages, faxes, photos, QuickTime videos, and so on would reveal the political struggles, love lives, family dramas, criminal underworld and the overall violent desperation of the future generation. As Castells observes of the culture of real virtuality, “time is erased in the new communication system when past, present, and future can be programmed to interact with each other in the same message” (375). In the symbolic space of the *The Beast*, digital communications would indeed allow players to interact with the future. It was this fictional, future cultural moment in which the more traditional action and strategy games for Microsoft’s *A.I.* franchise would live. Gamers would come to know and be trained to play in that moment through the archeological detective work of *The Beast*’s campaign.

The designers of *The Beast* had a particular design agenda: to create an interactive media space in which a licensed apocalyptic fiction would generate the desire to play games—specifically, console videogames. But it is important to note, as Salen and Zimmerman have argued, that “game design is a second-order design problem…. As a game designer, you are never directly designing the behavior of your players. Instead, you are only designing the rules of the system. Because games are emergent, it is not always possible to anticipate how the rules will play out” (168). Indeed, they write: “One of the great pleasures of being a game designer is seeing your game played in ways that you never anticipated” (168). However, not all of the emergent gameplay that occurred during *The Beast* was pleasurable for its designers to watch. Here, I begin my analysis of the seminal ubiquitous game with a case study of a highly unanticipated, but logically emergent, player behavior: the impulse to game reality.

5.4 Real Ruins and the Ludic Impulse



5.2 Screenshot from *A.I.: Artificial Intelligence*. In Steven Spielberg's science-fiction fantasy, New York City late in the second millennium is a frozen wasteland. In this shot, the abandoned twin towers of the World Trade Center, destroyed in real life less than three months after Spielberg's film was released, are depicted as rising from the snowy ocean. (DreamWorks, 2001)

The core mechanic of *The Beast* was to dig through the digital detritus of the Internet for meaningful artifacts of a lost, future society. This proposed archeological aesthetic recalls one of the most memorable and haunting moments in Spielberg's film. After the global flood and new ice age that leaves only the machines behind, two sentient machines return to what was formerly New York City to explore the ruins. This scene is described in a popular culture studies report on cinematic images of the former twin towers at the World Trade Center. The report, titled "Persistence of Vision – The State of Movies After 9/11" notes:

> Androids [actors] Haley Joel Osment and Jude Law fly to an abandoned New York City mostly underwater from melted polar ice caps. As their amphibicopter approaches Manhattan, the computer guidance system shows a navigation image with the outlines of the submerged World Trade Center towers. The image then dissolves to the 'real thing'" (Mielke [31]).

Here, the author means the *fictional* real thing: Spielberg's image of the towers intact, but abandoned and lifeless (see figure 5.2). This image was much remarked upon when the film's DVD was released in March 2002, after the 9/11 terrorist attacks destroyed the towers. Indeed, it has been widely observed in general that for many Americans, watching the events of 9/11 unfold was like watching a movie. Film critic Matt Zoller Seitz writes:

> After the attacks, commentators observed that 9/11 was, in some horrendous but palpable way, "like a movie," with good reason. Like so many modern terrorist attacks, 9/11 was an example of mass murder as televised homicidal performance art, designed not merely to kill large numbers of people, but to create spectacular images which could then be *replayed* ad infinitum—the mass media equivalent of a dirty bomb, with lingering psychic residue [20, emphasis mine].

I emphasize the word *replayed* to point to a different kind of replayability—not the reproduction of moving images that we traditionally associate with 9/11, but rather the reproduction of gaming functionality. *The Beast* was designed to make a licensed dark plot feel playable. Moreover, the two robots' exploration of the destroyed city in Spielberg's film perfectly mirrors the way in which the *The Beast*'s players are asked to explore the digital ruins of the very same culture. So perhaps it is not so surprising that when the real twin towers fell on September 11, 2001, many players of *The Beast* experienced the moment as one with hidden ludic possibilities.

*

September 11, 2001—Within three hours of the 9/11 terrorist attacks on the Pentagon and the World Trade Center, players of *The Beast* began logging onto their usual online forum, a public message board.[38] The first players to arrive announced their own safety and asked their fellow players, or "Cloudmakers" (their chosen nickname), to report in as well.[39] "Hope all of our Cloudmakers are safe and sound.… Please check in and let us all know you're OK" (darklytr #44263). They posted short prayers: "May all of your loved ones be safe on this dark day" (Cayalianel #44266). Some expressed a sense of helplessness and fear: "Here in Chicago, all of downtown has essentially shut down.… What is happening to our world? The whole country is frightened that something else could happen" (vampr0se #44271). Others struggled to find a way to help: "if you can donate blood, get to a donation center! It's the best way you can help right now" (Banshee #44267). In this first wave of posts, the Cloudmakers' messages reflected shock, uncertainty, the need to connect to friends and families, and a desire to rally in support of

[38] The Cloudmakers' public message board, which is accessible but relatively inactive as of this writing, was established as a free Yahoo! Group. Its home page is http://movies.groups.yahoo.com/group/cloudmakers/.

[39] As I document more thoroughly in "This Is Not a Game: Collective Aesthetics and Immersive Play" (2003), the Cloudmakers group was founded on April 11, 2001 by a 24-year-old, Oregon-based computer programmer named Cabel Sasser who was one of the first people to discover *The Beast*. He named the group "The Cloudmakers" after the name of a boat featured in early game content. 48 hours after Sasser launched the Cloudmakers, there were 153 new members in the group; when the game ended on July 24, 2001, the Cloudmakers group had grown to 7480 members who had scribed a total of 42,209 messages.

the victims–in other words, they were quite typical of the widespread online messaging that occurred in the wake of the 9/11 attacks.[40]

By early afternoon, however, the content and tone of the Cloudmakers' conversations had changed. A small but vocal minority began advocating a *ludic*, or playful, response to the terrorist attacks. Their proposition: Treat 9/11 like a game—specifically, like *The Beast*, the massively-multiplayer puzzle game they had recently solved—and play it.

This ludic approach to 9/11 first appeared on the message board at 12:29 PM Eastern Time the day of the attacks. A Cloudmaker, or CM for short, wrote: "since I found out about this today, I could do nothing but think of the CMs group. … I AM IN NO WAY ATTEMPTING TO MAKE LIGHT OF SITUATION. However, the whole thing has caught my interest and I know that this sort of thing is sorta our MO. Picking things apart and figuring them out" (Mullins #44272). The post's author, Todd Mullins, recognized that his suggestion to apply a gaming modus operandi, or "MO", to 9/11 could be controversial. He advised readers: "If you have already been disgusted by this post, please don't read any further." But despite this trepidation about a hostile reception to his suggestion, Mullins felt hailed by 9/11 first and foremost as a gamer. And so he took a tentative first step toward gaming the attacks, announcing: "The following contains a lot of SPEC."

The term SPEC is shorthand among alternate reality gamers for "speculation". It is often used as a metadata tag for discussion posts that make exploratory predictions about a game based on what has already transpired. As a "newbie" gaming guide explains,

[40] The September 11 Digital Archive, organized by the American Social History Project/Center for Media and Learning at the City University of New York Graduate Center and the Center for History and New Media at George Mason University, includes an extensive online collection of digital communications sent in the hours after the 9/11 attacks at http://www.911digitalarchive.org/email/.

“Spec is basically just player guesswork that can't be proven yet. Most of the time, spec is about the plot: what will happen next” (Phaedra #210858). It’s important here to note how gamer *spec* functions differently than everyday online speculation, such as the political and cultural water cooler talk, gossip and opinions that circulate on most blogs and message boards. In a recent live chat about the formal role of spec in games such as *The Beast*, a dozen former Cloudmakers discussed the special structure, purposes and pleasures of the practice. They identified their form of spec as a specifically ludic activity. Ehsan writes: “the plot is like a huge puzzle and a correct spec makes you feel like you solved it” (“Unfiction Chat on SPEC 6/1/06”). Imbri writes: “spec is pretty 'gamelike'. it's like a big puzzle that you're attempting to put together. you're placing bets that you're right. you're placing bets (support) that others are right”. SuperguyA1 states: “if you're right, you win!” One important function of spec, then, is to create a formal win condition for general discussion of narrative themes and events. Predictions eventually are proven right or wrong; those who made or supported the correct predictions have successfully gamed the story. By creating such an objectively verifiable win condition, spec constructs a ludic frame around the subject under discussion. This framework disciplines the often ambiguous and complex content at hand, making it ultimately knowable and beatable.

The players also described spec as transforming media content designed for passive consumption into a more interactive platform. Phaedra observes:

> It's a less passive way of interacting with a story…. Some parts of the game are always going to be more like a traditional, non-interactive narrative. You can read/watch/listen to them, but that's it—and therefore the only way to interact with them is to speculate about what they mean or

> what will happen next: in essence, to treat the story itself like a puzzle… For me it boils down to spec being another form of interaction -- just a much more subtle one.

Note here that spec is not about solving “real” puzzles, the pieces of interactive content created by the designers with specific solutions necessary to advance the game. Instead, spec is about constructing a puzzle out of *non-puzzle* content so that it, too, can be formally gamed. As Helion writes: “even if you can’t solve the real puzzles, you can still spec.” We might say then that spec arises from the gamers’ desire to always be playing, to treat all data as an interpretive challenge that operates inside, rather than outside of, the interactive ludic frame.

In a style and level of detail absolutely typical of Cloudmaker spec, Mullin’s lengthy post—1211 words in total—outlined an organized theory of the 9/11 attackers’ master plan and made a series of tentative guesses, according to the limited known facts, about how the terrorist plot might further unfold. In this way, Mullins circumscribed the morning’s events in a kind of magic circle. The formal conventions of spec created a safe space for processing the staggering events and for taking what felt like a more active stance toward a situation that seemed otherwise beyond comprehension or intervention.

Spec was the first of many Cloudmaker gameplay strategies that would eventually be applied by members of the group to 9/11. Mullins concluded his first post with an apology for his game-like M.O.: “sorry if this post offended anyone.” But in fact, Mullins’ SPEC post and ludic approach to 9/11 appealed to many other Cloudmakers. Subsequent posts with subjects like "The Darkest Puzzle" (Xtrymist #44287) and "Cloudmakers to the Rescue!" (Biomade #44311) piled up in agreement, arguing that a ludic mindset was, for hard-core gamers like themselves, an appropriate and productive way to confront the stark reality of 9/11. "I think a bit of SPEC and puzzlepiecing would be good to do.... We have the means, resources, and experience to put a picture together from a vast wealth of knowledge and personal intuition," one Cloudmaker wrote (Xtrymist #44287). Another agreed: "I think that with some effort we can solve this puzzle of who the terrorists are" (Biomade #44311). One player suggested that they apply the same online networking skills they had developed through collaborative gaming to tackle the 9/11 problem: "Why shouldn't we utilize this forum for finding information that might be pertinent? I'll bet that our size far outreaches the CIA or FBI in sheer numbers and distance…. lets become a resource. Utilize your computer & analytical talents to generate leads" (Curtis #44331). Someone else implored: "We like to flout [*sic*] our 7,000 members and our voracious appetite for difficult problems, but when the chips are down can we really make a difference?" (Leboeuf-Little #44346).

Gaming 9/11 was presented as an alternative to being passive or feeling helpless: “there are many curious minds on this list that want to DO something. I recommend that if you're emotionally up to it” (maillist #44341). Mullins, the SPEC poster, wrote a follow-up to his original post: “It may just be a good way to cope with the events. To bring it down to a level you can deal with. I am think[ing] more than anything that right now, people just need more than anything a way to cope” (#44295). Some posters clearly believed they could be quite effective in investigating 9/11: “We have some keen minds here... A single genuine lead could tip the balance” (Stoehr #44389). “Would be hard to do worse than the NSA [National Security Administration] in recent years” (shadowfyr55 #44371). Others were more skeptical of their ability to contribute solutions, but embraced the ludic approach as a structured way to feel better about the overwhelming events: "this idea is an attempt to lend our unique skills to help. Is it needed? I don't know. Will it help? Maybe not. Is it cathartic to try to do something about a situation that is abhorrent to you? Yes" (Leboeuf-Little #44381). Another gamer wrote: "Maybe it is the only way we can cope at this point -- to pretend its a game, to pretend that we can be more useful than giving blood, clothes, or money, to pretend that if we put our collective conscious together, we can find the perpetrators of this crime" (priorK8 #44347).

And so, with a marked self-consciousness about their ludic appropriation of 9/11, the Cloudmakers were on the case. As a group, they outlined tactics that clearly paralleled the online sleuthing and coordinating they'd previously done as gameplay. One Cloudmaker suggested searching online for clues: "All organizations involved in this incident use the internet as a method of communication. Whether or not we agree that Osama bin Laden organized this activity many believe he and his group used the internet to communicate.… Scour the internet for such communications. A vast archive of information of actions, intentions and communications remains out there" (maillist 44342). Another proposed utilizing the Cloudmakers' known skill at collecting distributed data and putting it into more accessible format for a mass audience: "we don't have the kind of resources that the FBI, CIA, even the NYPD have. What we CAN do, however, is put together the public story as clearly as possible. With our access to online news agencies, newsgroups, etc, we can put together facts and debunk rumors much faster than mass media" (RazorDullWit #44343). Many more simply engaged in full-blow speculation—"Just think of it as the most wild 'wild spec' we ever had on here," wrote one player, explicitly putting their discussions of 9/11 in the context of their usual gaming practice (Kearns #44299). One player was so inspired by the group's discussion of 9/11 that he suggested extending the ludic approach to other real-life scenarios: "CM has a lot going in the way of brains. Maybe we can be useful, if this collective intelligence is applied to problems more significant than The Beast. Anybody got good ideas ???" (Greenlaw #44361).

At the same time as the Cloudmakers were developing their strategies to play 9/11, other massively multiplayer online gaming (MMOG) communities were also gathering in online forums and virtual game spaces to react to the day's events.[41] Their activities, however, took the form of virtual versions of mainstream memorial practices. In *Everquest*, the most popular MMOG at the time, players organized in-game candlelight vigils (using their characters' torches) on multiple servers: "All are welcome to mourn and discuss" (Nirrian). Various moments of silence were also conducted: "About 20-30 of us … laid down our arms and lifted torches in memory of those lost. We then had a moment of silence in their honor" (ZeresThex). *Ultima Online* moderators encouraged players to attire their avatars in black as a way of mourning in-game the loss of real lives: "Let's all get the word out, shall we? I think black robes would be appropriate for all" (Cynthe). One *Ultimate Online* guild requested a voluntary cease-fire: "We request that everyone please cease in all Player vs. Player combat for the next few days. We, at least, can put down the 'Virtual Sword'" (Omicron). From these examples, we can see that it was not unusual for close-knit gaming communities to turn to each other online in the wake of the attacks. However, the *Everquest* and *Ultima Online* player groups

[41] In addition to the example I have gathered here, game historian Henry Lowood explores a wide range of gamers' online responses to 9/11 in his 2006 article "Death in the City: Computer Games and the Urban Battlefield" for *Games Without Frontiers - War Without Tears. Computer Games as a Sociocultural Phenomenon*, ed. Andreas Jahn-Sudmann & Ralf Stockmann. Georg-August-Universität Göttingen, Zentrum für interdisziplinäre Medienwissenschaft. (Spring 2006)

constructed a relationship between 9/11 and their favorite game that was very different from, and decidedly less controversial than, the Cloudmakers'. The mainstream MMOG players were using online games as a platform for reacting to 9/11, in contrast to the subset of the Cloudmakers group that proposed using 9/11 as a platform for online gaming. In the case of the former, a virtual playground became an appropriate space for reflecting on a real-world tragedy. In the case of the latter, a real-world tragedy became an appropriate space for virtual play.

Some of the Cloudmakers noticed in this appropriation a potentially unsettling slippage between fictive game and real-life terror. But at first, they dismissed this concern. "What's being proposed is beyond the game we've played," one player conceded, "but you must admit that the spirit is the same" (Curtis #44331). For many, working closely with the Cloudmakers group to play *The Beast* had profoundly affected their sense of identity and purpose, to the point that a game mentality was a natural response to real-world events. During the six months preceding the 9/11 attacks, the Cloudmakers, who specialized in collaborative puzzle solving, social engineering, and collecting and analyzing distributed data, had proudly identified themselves in member profiles, home pages and email signatures as "a collective intelligence that is unparalleled in entertainment history" (Fabulich and Phillps [8]).[42] Now, their pride in being able to solve mysteries and problems collectively translated into a tentative confidence and array of possible actions to take—even as they experienced the confusion and uncertainty shared by most Americans after the 9/11 attacks. One post explained: "I know the when I

[42] The phrase "a collective intelligence that is unparalleled in entertainment history" first appeared on a poster distributed at advance screenings of *A.I.: Artificial Intelligence* to which players of *The Beast* were invited. The poster included credits for the game and acknowledgements from the producers; the Cloudmakers were thanked and described using the above phrase.

first heard of the events that I went to this state of mind automatically….I did it without even thinking. It's really just become of a state of mind, and I think a lot of people think the same way" (Mullins #44295). Another professed: "I'm a Cloudmaker. What I do best is look at the world like a Cloudmaker. Perhaps that's taking group identity to the next step…. But I've been permanently changed by the Game" (Leboeuf-Little #44346).

One player who was conflicted about whether or not to apply the Cloudmaker mentality to 9/11 was struck by, what was to her, a particularly unsettling detail: the time of day, and the day of the week, that the attacks and the Cloudmakers' subsequent speculation about them occurred. During the four month run of *The Beast*, new puzzles had been released on a very regular schedule: every Tuesday morning, at 9 AM. Mirroring this update schedule, September 11, 2001 was a Tuesday, and the attacks occurred in shortly before 9 AM. Noting this similarity, she wrote: "it is a little morbid to watch this thing and post updates about it as if it were a regular Tuesday update" (priork8 #44347). Nevertheless, to explain her return to the Cloudmakers message board three months after the game's conclusion, she pointed to the fact that their archeological play consisted primarily of digging through the digital detritus of New York City residents of the future. "for more than three months, this game was a very real world. It largely took place in Manhattan, for pete's sake." But she voiced concern about *The Beast*'s designers, and how they might feel that their gamers had gathered at the game site to analyze 9/11: "I'm sure that probably people coming to Cloudmakers [on 9/11] is a little disconcerting to the people responsible for this game."

In fact, in a 2003 phone interview, *The Beast*'s lead designer Elan Lee confirmed his unease with the Cloudmakers' actions. When I asked him if he had read any of the forum posts about gaming 9/11, Lee told me: “Yes. That was when I stopped reading Cloudmakers…. I just couldn’t deal with it. I didn’t know what to make of it.” (“5/3/2003 Interview.”) After two days of gaming 9/11 discussions, the five co-founders of the Cloudmakers group also felt that the gameplay had been taken too far. Following on the heels of a few dismayed posts, in which some Cloudmakers questioned the appropriateness of treating 9/11 like a massively-multiplayer puzzle, the forum’s moderators released an official announcement asking members to cease any attempts to "solve" 9/11. "The Cloudmakers were a 'collective detective' for a *game*. Remember that," they advised. "It was scripted. There were clues hidden that were gauged for us. It was *narrative*…. *This is not a game.* Do not go getting delusions of grandeur. Cloudmakers solved a story. This is real life" (Hon #44349). A flurry of concurring posts appeared, suddenly shifting the momentum of the Cloudmakers’ group. "The references to this as a 'puzzle' and the thought that this group could 'solve' this make me sick. Even if the people posted with good intention. This is not a game" (missphinx #44352). "The game was just that --- a game. not real. therefore it didn't really matter in the real world. It was what we did for fun. this is not fun, this is LIFE…. Everyone should have had the sense to keep out of what we don't really understand" (norahrose #44375).

I want to explore three issues raised by the Cloudmakers’ experience of 9/11. First, why did 9/11 look gamelike to that particular group of gamers? How did the structure and aesthetics of *The Beast* create a paradigm of gameplay into which 9/11 seemed to fit? Second, why did the Cloudmakers’ initial perception of a correspondence between 9/11 and their favorite game ultimately become so worrying to the players and to the game’s lead designer? Why was the instinct to make connections between a realistic game and reality itself so harshly judged? And third, why did a gaming paradigm appeal to the Cloudmakers in the aftermath of the terrorist attacks? What had they experienced together during *The Beast* that made a massively multiplayer puzzle gaming scenario so attractive, so comforting at that time? I will address these three sets of questions, in this order, over the course of this and two subsequent chapters. To understand this specific, emergent phenomenon, I will consider the three primary elements of the ludic system that produced it: ubiquitous gaming's *interactive platform*, it *aesthetics*, and its *community structures*—all of which, I will argue, seek to virtualize reality by bringing the *technological*, *formal*, and *social* limits of play into a more intimate and flexible relation with everyday life, respectively.

I begin this three-prong examination by focusing, for the rest of this chapter, on *The Beast*'s ubiquitous interface and massively distributed core mechanics. Koster summarizes his argument in *A Theory of Fun* that all games teach a cognitive pattern:

> Your sole responsibility [as a game designer] is to know what the game is about and to ensure that the game teaches that thing. That one thing, the theme, the core, the heart of the game, might require many systems or it might require few. But *no system should be in the game that does not contribute toward that lesson.* It is the cynosure of all the systems; it is the moral of the story; it is the point (126).

The moral of *The Beast*, I have suggested, arises from the original project goal to establish a pattern of play that could be reiterated in and as future games. The generalizable point of *The Beast*, made emphatically by its embrace of a serious apocalyptic scenario for play, is as follows: Everything has the potential affordance of game-playability; there is no scenario that completely and automatically precludes play. It is simply a matter of being trained to perceive what is ludic about any given context or platform.

If the signature lesson of *The Beast* is that anything and everything is potentially playable, then how was that lesson taught? In the next two sections, I will describe first the virtualizing core mechanics and second the realistic aesthetic of the game that, together, made every object and space in the real world seem as if it could be (or become) a viable platform for play.

5.5 Affordance Hunting as Core Mechanic

The gameplay of *The Beast* is best understood as the discovery and engagement of a series of secret affordances, embedded in everyday media objects. The game's designers augmented symbols circulating "in the wild"—in the worldwide network of both online and on-site media—with novel actionable properties. Data flows enframed by the game system came to express not only semantic content, but also interactive directives. These signs embodied *techniques*, in the Latourian sense: they suggested, through their form, specific modus operandi for user to adopt. *The Beast* lasted four months; here I want to walk through just the first week's worth of gameplay to illustrate the *affordance hunting* gameplay of the project.

The game was launched covertly when, in March and April of 2001, Warner Brothers and DreamWorks Pictures released the official one-sheet movie posters and a full-length theatrical trailer for the film *A.I.: Artificial Intelligence*. The trailers and posters featured two embedded platforms for play: an encoded date, "Summer 2001", and a mysterious credit, "Sentient Machine Therapist: Jeanine Salla". Both date and credit have the primary form and function of text. As part of the symbolic environment, they each communicate in straightforward English language and numerals information about the film: when it will open in theaters and who is responsible for various aspects of its production. However, in addition to their primary textuality, both the date and the credit are augmented with an interactive affordance not normally associated with trailers or posters. For users willing to investigate their hidden potential, both date and credit served as portals to a sprawling gaming universe.

5.3 The Secret Affordance of "Summer 2001". On the official one-sheet movie posters and in the first wide-release trailer for Spielberg's film *A.I.: Artificial Intelligence*, the phrase "Summer 2001" featured an embedded code. Notches in the letters and numbers are not aesthetic noise: they signal interactive opportunity. (Warner Brothers, 2001)

Consider first the date of the film's release (see figure 5.3). A series of notches marks the sides of the letters and the numbers that comprise the phrase "Summer 2001". Users viewing the trailer and poster as typical media objects—conveying content, rather than inviting action—would interpret these marks as serving a purely decorative function. However, the number of notches on each character is not uniform. Are the notches aesthetic noise—or is there a pattern to be detected? Counting the notches in each character produces a series of numbers: 5,0,3,3,2,1,5,2,2,2. What do these numbers represent? In fact, the meaning of this series of numbers is not in what it represents, but rather what it affords. A series of ten digits in the United States has the affordance of being dialed on a telephone. As a player-compiled walkthrough guide to *The Beast* reports: "If you call that phone number, you hear this message" (Hon "The Guide: A Tale of the A.I. Trail"). The transcript of the message, recorded by a robotic-sounding woman, follows:

> Welcome my child. Once upon a time there was a forest, that teemed with life love, sex and violence. Things that humans did naturally. And their robots copied—flawlessly. This forest is vast and surprising. It is full of grass, and trees, and databanks, and drowned apartment buildings, filled with fish. It can be a frightening forest, and some of its paths are dark, and difficult. I was lost there once—a long time ago. Now I try to help others who have gone astray. If you ever feel lost, my child, write me at thevisionary.net. And I will leave you a trail of crumbs.... (Hon "The Guide: A Tale of the A.I. Trail").

There are several things worth nothing about this voice mail message. First, the cryptic reference to "drowned apartment buildings, filled with fish" alludes to the apocalyptic scenario of Manhattan skyscrapers under water. From the very start, then, *The Beast* works to draw this specific, dark vision into the ludic framework. Second, the notion of robots copying flawlessly things humans do naturally evokes an aspiration of the technological to the real. As such, it points to the powerfully dissimulative mimesis (discussed in the next chapter) that defines the game's innovation approach to a realistic aesthetic. Finally, as a poetic audio passage, the dialogue is quite beautiful and enchanting—a bit like a fairy tale. And this fairy tale is, as in Gold's vision of ubiquitous computing as an enchanted village, enchanting toward a particular end: further interactive engagement.

The parting message "If you ever feel lost, my child, write me at the visionary.net" is more than language; it is a proffered *modus operandi*. It hints at its own hidden affordance. The latter part of the phrase, with its reference, suggests email as the medium of communication. But it provides only half of a necessary email address: What would precede the @ sign? At this point, visiting the domain proffered as one half of an email address seems a logical next step. "The Guide" reports the effect of this action:

> If you visit thevisionary.net, then you are treated to a sound file…. It says: 'Once upon a time, there was a rude and wicked child who came visiting when told to write!' At that point, your browser will spawn a new email message window with an empty address box and subject line "I'm so sorry...": The content of the message reads: "I am so, so sorry. I don't know what got into me. You weren't asking very much from me; it was thoughtless and hurtful of me not to do as you had asked. Please accept my apology. I promise that in the future I will try really hard to do better. Your remorseful child."

Here, the game designers have anticipated the precise action a player investigating hidden affordances would take. The game generates a new, personalized media object for the player—a partially written email from the player's own email address—with a blank address box. The affordance of empty fields, of course, is to be filled. The solution to this first puzzle, then, is to a figure out an appropriate e-mail address based on the content of the messages received thus far—and then to send the email. “The Guide” reveals the solution: “You send this to '*mother*@thevisionary.net' (because this person is calling you 'child')” Here, the contents of the audio message—“Welcome my child”—and of the automatically scribed email—“Your remorseful child”—are more than communications. They are a directive: In your interactions with this character, you are to adopt the role of child. And to enact the correct solution—that is, to write a letter to one’s “mother”, which is the necessary next step of the game—is to perform the directive.

Players who sent the email to the correct address subsequently received a reply in their Inbox. The email appeared exactly as the text does below, with the same amount and placement of white space:

> Once upon a time there was a young man who dreamed of the sea. The waves, he thought . . . the waves beat like the world’s heart, crashing and hissing against the shore.
>
> Crash and hiss.
> Crash and hiss.
>
> He loved the sound of the swell as it slapped and gasped against the hull of his boat.
> Slap and gasp.
> Slap and gasp.
>
> And he was thinking about the rocking ocean, gentle as a mother’s arms, at the very moment he was murdered.
> A mother’s arms.
> A mother’s arms.

Just a few puzzles into the game, players have already started to learn that the everyday media they encounter may be hiding interactive affordances. But what technique does this e-mailed poem suggest? In confronting a mysterious poem, a player might think first of modes of literary analysis. The visual “white space” or “blank space” of a poem, for instance, is often said to convey as much as the carefully arranged words. In this particular poem, there is indeed a significant amount of white space. But how, in the medium of email, might one investigate white space? What interaction does an email text afford? The text of opened emails is not editable unless it is cut and pasted into a text-editing program or window; however, text in an email can be highlighted. Here, the player may think to *highlight* the text of the email. The black bar created through this action reveals that some of the email has been written in HTML and coded to appear in a white font. Invisible unless highlighted, this white text occupies the white space of the poem. Highlighting the text reveals the following:

Here, the form and the medium of the poem together have suggested a particular affordance beyond reading. The player is required to act upon the text in a specific technological manner in order to reveal its hidden assets. Like Gold’s ubicomp objects that assume an ordinary appearance as a kind of ruse, this email obscured its interactive properties for everyone but those who playfully investigate beyond the surface.

Already, just a few puzzles into the game, the players are learning to scrutinize data for its secret interactive potential. Does the newly uncovered, highlighted text demand and direct an active response as well? Key phrases include: “You’ve seen her name before… but you’ve probably forgotten.” Here, the poem alludes to a mode of everyday disengagement with the symbolic environment. Signs, such as names, float by in the vast, media sphere without demanding response or remembrance. But here, the player is prompted to return to previously encountered communications to find out what secret affordance was missed.

5.4 *The Beast:* Credit for Jeanine Salla, Sentient Machine Therapist. The original film credits featured on posters and in trailers for Steven Spielberg’s film *A.I.: Artificial Intelligence* include the mysterious one for Salla, four lines from the top. (Dreamworks, 2001)

The game began with notched letters and numbers in trailers and posters for a particular movie, *A.I.: Artificial Intelligence*. Returning to virtually any media asset associated with the film—a poster, a trailer, a billboard, the official website, even the Internet Movie Database entry—would enable the player to discover that, indeed, Jeanine’s name had been seen before by millions. In each of these assets, the name “Jeanine Salla”, following the strange credit “Sentient Machine Therapist”, was embedded in a list of ordinary film credits: “Music by John Williams”, for example, and

“Costume Designer Bob Ringwood” (see figure 5.4). Now that Jeanine has been found, what to do with her? A clear pattern has been established: it is not enough to receive content; an interactive stance must be assumed. What affordance is suggested by this five-word credit and the message that “JEANINE WAS THE KEY”?

Jeanine’s name is offered in the hidden poem text as “the key”. Here, players must consider which interactive platform at their disposal requires a key that takes a linguistic form. Just as players of classic 1980s text adventures who, in their course of exploring the interactive text “found” metal keys and were required to search for the traditional door lock or padlock into which they fit, here the players have found a key that is symbolic, rather than material, and must find a lock into which it fits. What lock takes symbolic keys? In computer science, the term “key” has several potentially relevant meanings. Cryptography requires keys to translate encoded messages. Is the mysterious film credit some kind of public key for encryption? Interface design also employs keys: buttons that are depressed to operate a machine, such as the keys on computer keyboard or the keys on a cell phone. Or perhaps Jeanine is the key in the sense of database systems: in a search routine, the data entered and used to match other data in the database is called “the key”. With multiple possibilities, players are required to identify the interactive affordance that is best embodied by the sign. Cryptography keys are usually presented in the form of an algorithm—this does not seem a good fit with the proffered data. Meanwhile, interface keys often feature letters--could dialing or typing Jeanine’s name and credit activate something, in the way that the decoded phone number from the notches did? Whereas a sequence of 10 numbers embodied the technique of phone dialing, it is not apparent that a sequence of 36 characters is the correct form for any

5.5 *The Beast:* Jeanine Salla's Home Page. Search engines turned up a home page for the fictional woman credited as a "sentient machine therapist" on Steven Spielberg's film *A.I.: Artificial Intelligence*. (Microsoft, 2001)

similar kind of activation. However, both the content and the form of "Jeanine Salla Sentient Machine Therapist" suggest that the third interactive option is the most likely actionable property of static text. The phrase could be easily used as a search term in any major search engine; moreover, the notion of a sentient machine therapist on a movie set is certainly one that suggests further inquiry. What *is* a sentient machine therapist, and what would you do with one while filming a blockbuster motion picture?

Indeed Salla's name, when searched for in any major Internet search engine turned up the fictional woman's home page, which included an appointment calendar for the year 2142 A.D. and a curriculum vitae of research on highly advanced artificial intelligence (see figure 5.5). From Salla's home page, by following traditional web links and conducting further searches of unusual terms, players uncovered a complex network of websites, many dealing with the technical, social and philosophical problems of artificial intelligence and sentient machines, and all of which were set in year 2142 A.D.

By the end of the game in July 2001, this network included a truly staggering amount of content embedded with interactive affordances. The story involved an epic range of ninety fully developed characters and organizations: fifty-three humans, ten humanoids, seven sentient machines, two universities, eleven corporations, two political groups, three militant groups, and two government agencies.[43] The collected digital detritus consisted of 2994 separate, widely flung pieces of interactive content, including: thirty-one distinct web sites; eighteen emails received by players at their personal email addresses; fourteen voice mail greetings and messages intercepted by players accessed by calling five separate working phone numbers; five phone calls received by players on their personal phone numbers; four live-action QuickTime videos; three faxes received by players on their personal fax machines; twelve messages and codes embedded in newspaper, television, billboard advertisements; and so on.[44] Castells writes of the new culture of real virtuality: "What characterizes the new system of communication, based in the digitized,

[43] These character statistics are compiled from Paul Cox's player-created rolodex of *The Beast* characters called "Who's Who in 2142". As of this writing, the document was archived in a moderated Cloudmakers forum at http://movies.groups.yahoo.com/group/cloudmakers-moderated/.

[44] I have compiled these statistics from a personal digital archive of original game content, press coverage, player-created documents, message board posts, and original design documents obtained from Microsoft. I created this archive in 2003 as a resource for other researchers interested in studying *The Beast*. As of this writing, the archive is available upon email request by writing me at jane@avantgame.com.

networked integration of multiple communication modes, is its inclusiveness and comprehensiveness of all cultural expressions" (373). In an essay for the 2002 Game Developers Conference (GDC), Elan Lee writes: "I remember one of our earliest meetings was spent coming up with a list of every possible way to deliver a message" (4). Indeed, *The Beast* enframes and connects a comprehensive range of everyday communications in its catalog of scattered game content.

To discover and put together the nearly 3000 pieces of the game, the players were required to solve an escalating series of affordance puzzles. The game never told them explicitly what their next challenge was; the players were required, instead, to investigate each new piece of game content for its interactive potential. For instance, when players called a phone number they found on Jeanine Salla's home page, they reached a voice mail system with the option to enter a passcode to hear new messages. They therefore deduced that they were to figure out the code, enter it, and intercept the voice mail messages. Likewise, when they found a corporate website that included an employee login field, they devoured all of the known game content for a potential username and password. Over the course of four months, players continued following this trail of bread crumbs through increasingly live-action and collaborative challenges. They scoured the source code of known websites for political messages, and then figured out how to sign up for the political and militant groups to which the messages alluded. The players built real-life clay models of found digital architectural blueprints, scribed fake autopsy reports after hacking into a coroner's website, and chatted for hours with an *A.I.* conversation program named Eliza in order to sort out its psychological problems. They socially engineered a security guard through a daylong series of collaborative, live phone calls.

They lured a psychotic A.I. program into a database they built from scratch, comprised entirely of players' descriptions of their real-life recurring nightmares. They decoded dates, times and locations for live-action anti-robot military rallies in three cities—actual, real-world rallies, at which, of course, the players showed up to demonstrate for and against robot rights.

In its sprawling multi-platform design, its depth of content, and its diversity of challenges, the fictional network of *The Beast* was designed to be both exceptionally *immersive* and startlingly *actionable*. Stewart referred in an interview to the quintessential science-fiction notion of an immersive virtual environment: "We thought a lot about Neal Stephenson's *Snow Crash*. We wanted the game to feel like being in the Metaverse, only it's not virtual. It's real." Here, Stewart cites Stephenson's imagined virtual reality universe, a real-time, 3D virtual environment inhabited by millions of simultaneous users and featuring simulations of all of the phenomenological affordances of the real world. In the Metaverse, like in alternate reality games, users from around the world are networked into a single system that encourages highly social exploration of a fantastic environment. Indeed, in a 2004 *Slashdot* interview, Stephenson was asked if he thought a truly interactive, immersive gaming environment would come to pass in the form imagined by *Snow Crash*. Stephenson wrote: "It has already happened in the form of the alternate reality game" ([6]). But Stephenson's Metaverse, first described in his 1991 cyberpunk novel, also is arguably the epitome of the VR model rejected by the original ubicomp texts and Weisman's ARG design team. Stewart noted above that the metaverse of *The Beast* was not a virtual reality, but rather a virtualized reality. Instead of digitally simulating real-world phenomenal affordances, the game projected its ludic pattern onto the already-digital and already-virtual affordances of the real world. Bolter and Grusin argue that in our hypermediated culture, “media have the same claim to reality as more tangible cultural artifacts” (19). *The Beast*’s extensive use of real media therefore escapes the traditional virtuality of Stephenson’s Metaverse.

In a memorable *Snow Crash* action sequence, the novel’s hero turns off his VR goggles and proclaims: “Time to get immersed in Reality” (305). In the next section, I want to discuss how the use of everyday affordances in real, virtualized environments created a new and powerfully immersive game aesthetic.

5.6 The New Realism: Phenomenological Identity

One constant axiom of the game industry is that contemporary gamers want highly realistic gameplay. For decades now, game developers have aggressively pursued better 3-D graphics, smarter physics engines, more dynamic sound effects, haptic feedback loops, augmented reality systems and all manner of other immersive technologies—all in order to give the gamers what they want. This ‘will to reality’ has driven the majority of digital game design in a particular direction—toward greater sensory realism. But *looking like*, *sounding like* and *feeling like* the real thing is not the only conceivable set of criteria for a realistic digital aesthetic. Indeed, *The Beast* presents a realistic aesthetic that is defined not by its sensory simulation, but rather by its basis in actual affordances.

The Beast maps the futuristic fiction of the game directly on the real media and real technological objects of the present day. As such, it draws on the *actuality* and *physicality* of other people, objects and spaces to create an alternative mode of immersive gameplay. The alternate reality required no tool or interface outside of player's ordinary interactive network. The fictive, futuristic world of *The Beast* was, indeed, simulated through immersive narrative and detailed media design. But the gameplay of *The Beast* was in no way simulated. Everything players did in the fiction of the game, they did for real in the virtualized environment of everyday life. If they hacked into a coroners' website in the game fiction, they hacked into a fictive coroners' website for real. If they received a phone call from an angry sentient machine in the game fiction, their real, everyday phone rang and they took they actually took the call. The computer-driven alternate reality the Beast created was make-believe, but every aspect of the player's experience was, phenomenologically speaking, real.

The Beast also engaged the players' sense of "real time" to ensure that the game fiction unfolded in perfect synchronization with the players' everyday lives. The game's internal plots adhered strictly to an external clock and calendar so that plot developments corresponded precisely with the passage of time in the players' lives. The puppetmasters used a variety of temporal clues, including the header content of faxes and emails from game characters and the datelines of articles posted to in-game news sites, to indicate that midnight in the real world was midnight in the game, Tuesday in the real world was a Tuesday in the game; and April 13 (2001) was April 13 (2142) in the game. This temporal synching, another innovation of the ARG, ensured that experiences inside the ludic frame had the same phenomenal rhythm and flow of everyday life.

In "Games, the New Lively Art," media theorist Henry Jenkins critiques the gaming industry's obsession with realistic sounds and graphics, suggesting: "The art of games may not come from reproducing the world of the senses" (179). Indeed, in the case of a game like *The Beast*, reproducing the world of the senses is not a design consideration at all, let alone the primary objective. Jenkins proposes that the true art of digital games lies in the creation of a beautifully *responsive* system. He writes: “Game play becomes memorable… when the computer seems to be totally responsive” (180). He suggests that future creative innovation in the industry will emerge from its investigation of the “pleasures of intense and immediate feedback”, rather than sensory reproduction (182). *The Beast* poses a provocative case study of this claim.

A year after *The Beast* ended, players visited the old Cloudmakers message board to celebrate the anniversary and to reflect on the experience. One player’s post beautifully illustrates the idea that a realistic game aesthetic can be based not on sensory immersion, but rather on system responsiveness. He wrote that what he remembered most was the “responsive feel” of the game:

> It was like a house that was revealed room by room... and it was especially exciting, because the house was strange and filled with secret doors and levers and basement laboratories that WE had to find before we could venture deeper into the house. And not just in one direction, but in many directions at once though they linked directly to each other…. In other words it was a house from our childhood dreams where when one looked for buried treasure, or a secret passage... IT WAS THERE! How cool (yawngol #47387).

Several things are worth nothing about this account. First, in building the metaphor of game-as-house, the player describes its interactivity in terms of the secret affordances of everyday physical objects. There are “secret doors and levers”, as well as “secret passages”. Here, we are reminded of Gold’s original vision of enchanted objects. Indeed, whereas Gold described a childhood vision of singing and dancing toys, the player here calls the ubiquitous game like “a house from our childhood dreams”. Meanwhile, the player notes that “WE had to find” the affordances, through a kind of tactile, exploratory play. This is precisely the process of affordance discovery described by Gold’s “This Is Not a Pipe” manifesto. What is so profoundly engaging about this house, according to the player, is how it provides a satisfying response to their explorations. Note how the player effuses that when they looked for something, like a treasure or a passage, “IT WAS THERE!” He recalls his amazement at the game system working exactly in the fantastic ways the players hoped it might. This player expresses his amazement through metaphor, but during the game many Cloudmakers spoke plainly about their astonishment at the intensity and immediacy of game feedback. For instance, during the first two weeks of play, a website for a sexbot catalog appeared. Hon writes in *The Guide*: “When you go to the Contact Us page, and click on any of their service representatives, you reach a page which allows you to input your fax number. Unbelievably, if you put your fax number in them you'll actually receive a fax from the company” (“Belladerma”). Why does Hon precede his description of the feedback with the qualifier “unbelievably”? There is nothing inherently fantastic in receiving a fax. What was unbelievable to Hon and his fellow players, instead, was the thoroughness of the game’s responsiveness. Each lever the players pressed really did reveal a secret passage to a hidden room.

Lee explains in his GDC lecture that in order to create this kind of consistently responsive game world, the designers tried to anticipate what a player might do at any given moment, when confronted with any given piece of game content. “We had to predict every action a user might take and have a solution in place” (4). While this kind of anticipatory design drove the realistic aesthetic of *The Beast*, it is not the only method of design by affordance that has emerged in the alternate reality games. In *The Beast*, players were required to discover the game's secret affordances on their own. But this is not necessarily a requirement of what Jenkins describes as the true art of digital games. In the next section, I will examine the design strategies of an alternate reality game that preferred to directly reveal its surprising affordances.

5.7 Desired Affordances and the Affordance of Desire: *I Love Bees*

The 2004 alternate reality game *I Love Bees,* like *The Beast*, was sponsored by Microsoft and developed as a promotional, interactive backstory to an Xbox videogame—in this case, the multiplayer action game *Halo 2*.[45] According to Elan Lee, who directed *I Love Bees* (*ILB),* the game concept was conceived by imagining a meaningful context in which players could engage the already actionable properties of a low-tech ubiquitous platform: payphones. In addition to the genre-defining qualities of cross-platform interaction (emails, blogs, websites, trailers, et cetera) the novel core mechanic of *ILB* consisted of the following sequence of player actions: 1) uncover GPS coordinates on a website; 2) navigate on a specific day and time to the real-world location signified by the coordinates; 3) find a nearby payphone; 4) wait for it to ring; and 5) answer it. These mechanics were borne out of a simple hypothesis about the interaction people *desire* to have with payphones.

When Lee first described the project to me in April 2004, roughly three months before its launch, he asked: "When you hear a payphone ringing, don't you secretly wonder what would happen if you answered it? Don't you wonder if maybe you *should* answer it?" (personal interview 4/3/2004). Lee explained that he had called many payphones

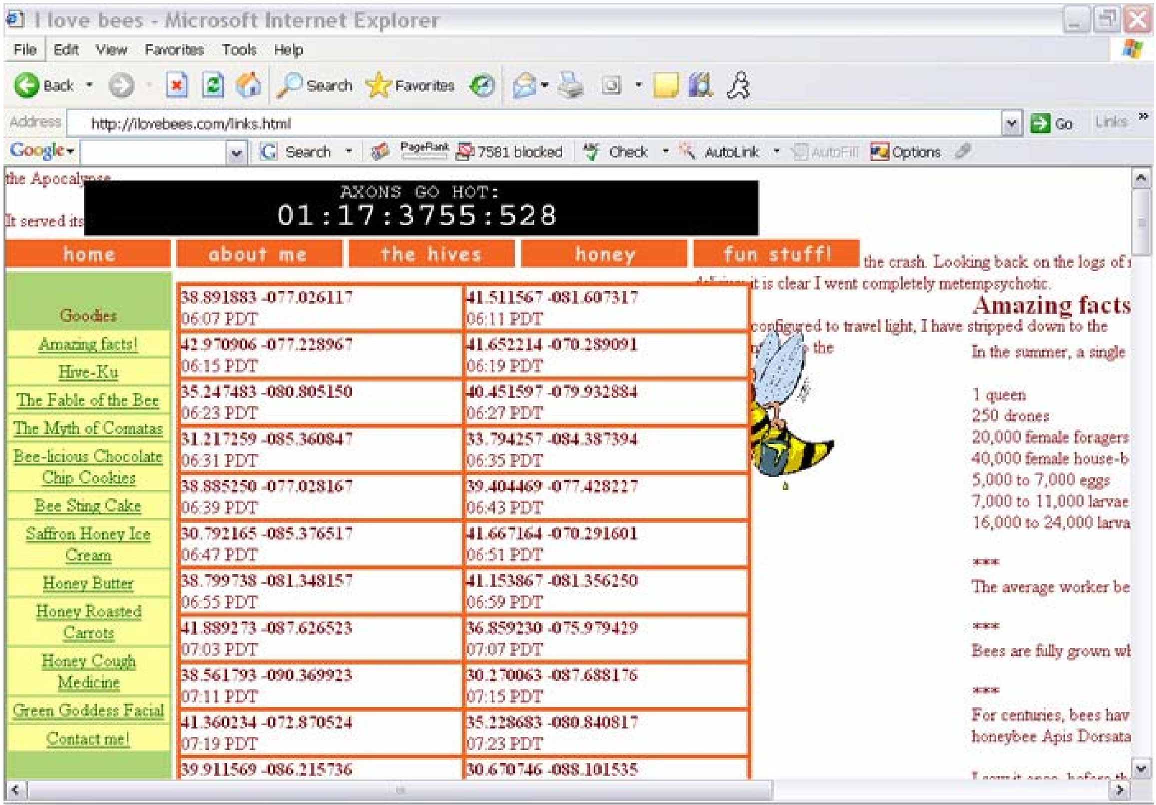
[45] *I Love Bees*' relationship to *Halo 2* is explored in depth by Noah Shachtman in the November 5, 2004 article "Sci-Fi Fans Are Called into an Alternate Reality" for the *New York Times*.

while tinkering with the game concept. In his observations, most people did not answer ringing payphones in everyday life. But almost everyone, he suggested, has seen a movie where a person who answers a ringing payphone is swept up into an extraordinary adventure: from the crime movie *Danger Ahead* (1935) through the comedy *The Man Who Knew Too Little* (1997), the drama *Fight Club* (1999), and the thriller *Phone Booth* (2002). And in the bestselling videogame series *Grand Theft Auto*, Lee further observed, answering ringing payphones unlocks advanced game missions. Mysterious payphone calls, he suggested, are encoded in our popular imagination. So wouldn't it be exciting if one day you heard a real payphone ring—and the call really was for you?

And so, over the course of 12 weeks, the *I Love Bees* game made over 40,000 phone calls to 1080 different payphones around the world.[46] Calls were made seven days a week, to payphones in all fifty Unites States, as well as in England, France, Germany, Italy, Israel, Australia and New Zealand. Players found the in-game payphones by visiting the real-world locations that matched a series of Global Positioning System (GPS) coordinate hidden on the main game website (see figure 5.5).

Players often arrived at the *I Love Bees* phones in large groups (see figure 5.6). Answering the phone on the right day at the right time, as indicated by the hidden GPS data on www.ilovebees.com, afforded further interactions specific to the platform of a public, immobile communications device. Players answered voice-activated riddles and participated in an interactive radio drama that was later broadcast on the main game website. They were challenged to track the real-time locations of other players at payphones around the world, as well as to contact and to collaborate with them by calling

[46] The total number of calls made was provided to me by Jim Stewartson, technical director for the game. The total number of payphones called is from my own original records of the payphones used.

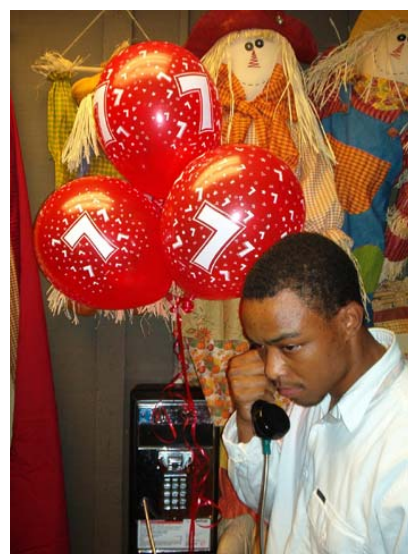


5.5 *I Love Bees* GPS Coordinates. New batches of coordinates appeared on the game website twice weekly for twelve weeks. Some were displayed in fairly obvious ways, as shown here; others were buried in more obscure data locations, such as jpeg corruptions and source code. (42 Entertainment, 2004)

the payphones themselves. They also completed a series of increasingly complicated live, role playing missions at the payphone sites, and they documented their performances with photos and videos (see figure 5.6). Some missions included making temporary, physical changes to the payphone environment (see figure 5.7). Finally, they were required to solicit the cooperation of myriad passersby and to draw into active gameplay the managers and residents of the properties on which the phones were located.[47]

[47] In June 2003, six weeks before *I Love Bees* launched, I joined 42 Entertainment as their in-house, real-time community researcher. I was invited to work with them during the game as a result of research I had previously conducted and published on the player community of *The Beast* (see McGonigal 2003). Lee and Stewart expressed a desire to have similar research available to them during the game. I accepted the position with the understanding that I would be able to publish my findings after the game in an academic setting, such as this dissertation. During *I Love Bees*, my job was to study player discussions as they unfolded on various forums, chat rooms, blogs, and wikis. I also read emails, opened real world mail, and listened to voice mail messages received by the game characters, from the players. I went to ringing payphones to observe directly how players were approaching the core challenge of the game. Many of my observations in this chapter are based on the research I conducted with 42 Entertainment during the game.

5.5 ***I Love Bees*** **Payphone Gathering.** Over a dozen players assemble at a payphone in Burbank, California on August 24, 2004. They are waiting for it to ring. (Unfiction, 2004)



5.7 ***I Love Bees*** **Role Playing Mission.** Players arrive at a payphone in Davis, California with costumes, props and gear, prepared to fulfill a live performance mission. Instructions for the mission are delivered when the phone rings. (42 Entertainment, 2004).

5.8 ***I Love Bees*** **Payphone Challenge.** A player in Macon, Georgia encodes a secret message in his decorations of a public phone. The number “777” and the symbol “red balloon” were a coded message that could be translated as sign of support for a particular character. (42 Entertainment, 2004)

It is worth commenting on the game's choice of technological platforms. *I Love Bees* combined the latest and most sophisticated GPS applications, including geocoding Web tools and online databases of GPS-tagged aerial photography, with the obsolescing technology of payphones. In an interview with *Eye Weekly*, Sean Stewart said, "There's something very beautiful about playing it on pay phones, on a technology that's going to be obsolete in two years" ([1]). Here, Stewart observes an enjoyable aesthetic friction in the juxtaposition of old technology with new. *I Love Bee*'s work to temporarily resuscitate a technology left for dead by most recalls Elan Lee's GDC design lecture, in which he discussed the ARG genre as an attempt to activate the everyday environment for gameplay. In his GDC lecture on *The Beast*, Lee said: "People spend all day surrounded by a system that *could* be used to play a game. Someone just had to go and turn the system on" (3). We can understand *I Love Bees*' resuscitation efforts as a natural extension of Lee's ongoing design strategy of activating any and every pre-existing technological infrastructure to achieve the most immersive playing environment possible.

But beyond aesthetics and immersive effect, I want to suggest, there is there is something quite radical in terms of the social intervention such a design makes. By 2004, when *I Love Bees* was played, payphone and their users were widely seen as a kind of scourge on public life. An article in *The Boston Globe* sums up the common view that payphones pose a major problem in terms of public safety and quality of life.

> In Mayor Thomas M. Menino's effort to make Boston's neighborhoods safer, officials have targeted a new possible accomplice in city crime: Payphones. Saying that payphones attract drug dealers and prostitutes, city agencies are pushing for an amendment to the zoning code meant to

> restrict installation of coin-operated phones. "What happens is [drug dealers] hang out there, the buyers come, make the deals," said Sal LaMattina, chairman of the East Boston Neighborhood Response Team. "For some people that live in the neighborhood, they get a little nervous to walk by the payphones” (Nichols [1]).

The article further reports that many payphones have already been removed from the city, despite the fact that advocates for both low-income residents and elderly members of the community who may never have owned or used a cell phone continue to insist that payphones are still a necessity for many.

I Love Bees sent players to engage directly with this rejected, mistrusted and largely abandoned platform. In this way, a technology pushed to the utter periphery of the community is brought back to the center, at least for the duration of the game. I do want to acknowledge that such an action has both ethical and political repercussions, not all of which are necessarily universally positive. Indeed, it reasonably could be argued that there is a level of irresponsibility or insensitivity, or both, in encouraging a relatively privileged class of game players to take over temporarily a public resource used for the most part by an under-privileged class. I do not wish to discourage such consideration of the social consequences of this provocative act of game design. However, I prefer to focus here on the intrinsic claims being made through the ludic appropriation of an obsolescing platform. The use of payphones as a gaming site draws attention to the fact ubiquitous computing technologies such as cell phones and PDAs are not equally accessible to all members of a given community, even if they share the same public spaces. This is a socio-economic fact few if any other games that employ ubiquitous computing have bothered to acknowledge. Furthermore, *I Love Bees* demands that players recognize and engage the payphones and payphone users in their own everyday environment, knowing full well that these technologies and people are often ignored and even actively avoided. The game thereby draws the players' attention to the social-technological periphery and forces them to consider the potential of having a meaningful encounter with everything and everyone in the local environment—not just the objects and people that correspond to their own particular level of privilege. They are challenged to take seriously their own desires to be engaged by a payphone, as articulated so extensively throughout pop culture artifacts, and to confront the material and social reality of the object of their fantasies.

In this way, *I Love Bees* demonstrates that the activation of alternate reality gameplay is mutual. It was not just the environment that the games "turn on" and make startlingly responsive to the players' action. The players themselves are activated to be more responsive to interaction cues and opportunities in the environment. Indeed, I should note that the game never referred to the payphones as such. Instead, all game characters and game texts spoke of the payphones as "axons"—a term usually used to describe the transmission lines of the nervous system. An activated axon, one that is transmitting a nervous signal, is said to be in a state of "action potential" (Waxman et al 23). The term axon, then, clearly evokes the activating qualities of the payphone play. The gamers are put into a state of action potential through their newfound reception to a particular signal in their environment.

By all accounts, *I Love Bees* succeeded tremendously in putting players who found themselves in the proximity of a payphone into a state of action potential. At a November

4, 2004 post-game meet-up that I attended in San Francisco, every player with whom I talked, without exception, acknowledged never having answered a ringing payphone before the game. By the end of the game, however, their collective attentiveness to that particular signal was profound. One player described her own activation in haiku: "I had never thought / I would be so sensitive / To where pay phones are" (Hitshermark #81944).

Jenkins argued that great gameplay depends on the sensitivity of the game system to player actions. But *I Love Bees* suggests that great *ubiquitous* gameplay also depends on the sensitivity of the gamer to specific opportunities for action. This mutual activation of both environment and player creates an elegant symmetry in responsiveness. In the case of *ILB*, players who engaged the payphone affordances were further engaged by the game itself.

But a curious *imbalance* in activation levels manifested when the game was completed. On November 4, 2004, the game system effectively turned off and no more calls were made. However, the *ILB* payphones continued to occupy their real-world coordinates. And their presence continued to trigger an explicit desire among players to keep engaging the environment. A week after *I Love Bees* ended, for instance, players began talking about "AXON Withdrawal" (Unfiction Forum #8008). They openly lamented that their local payphones were no longer activated by the game—and that therefore, they were no longer activated by the payphones. In one Unfiction discussion thread alone, 154 posts described the players' continued keen awareness of the payphone infrastructure. Some described a continued connection to the specific payphones they had answered during the game. One player wrote: "Every day I walk past at least one of the

Berkeley Axons and I'm a little on edge” (Zudini #103905). Others felt connected to all payphones in general. “After months of playing this game, it's hard not to see a payphone and then run across the street to pick it up” (CherryCotton #104196). Another player admitted: “I can't see a payphone now without wondering if it might ring and wanting to pick it up” (Halrandir #105344). Many described their difficulty in turning off their own activation. “Every payphone I walk by I am in the habit of investigating to see if it accepts incoming calls” (Rufo #103924). One player surmised that he would continue to respond to the signal: “I might have to start picking up random payphones” (Moemar #105311). Another described doing just that: “When I was at the University Center on Friday, a payphone started ringing. So, I rushed over to it, picked it up” (DreamoftheRood #106701).

Players perceived that this level of activation set them apart, collectively, from others inhabiting the same environment. One player observed: “You make an off hand comment while out with your friends how strangely attuned you are now to Pay Phones, and when they reply that they haven't noticed any, you list off the location of every payphone you have passed since you left home that evening” (hitshermark #110571). Months later, and throughout the entire year of 2005, players continued to check in to the Unforum threads to reminisce about “the joy of answering a payphone” (neopuff34 #123453). “I still have trouble passing a payphone without looking over my shoulder...” (KirranGrey #120750). As time went on, player posts took on a bittersweet flavor, as they came to terms with the fact that this particular environment was no longer activated for play even as they remained attentive to potential signals. One player reflected poetically: “Went downtown today. Passed several of my old axon haunts. Crisp air blowing the fall leaves across the walk paths. People passing by, wrapped in their coats and their own little worlds, oblivious. The phone sat, silent, a remnant of another time" (johnny5 #105649). Another former Beekeeper mused in blank verse: "I want to walk outside... / pick up a payphone. / Computer is off / but the buzzing continues" (ariock #119562). Indeed, a full year after the first payphone rang, many Beekeepers returned to the forum to celebrate the one-year "Axonversary" (INCyr #182954). One player admitted; "I stopped by my first axon yesterday… ah sweet memories", setting off as string of similar posts from players who revisited their old points of connection (Weephun #182721).

Here, we see that designing a game around a fantasy affordance, like answering an adventure payphone call, not only fulfills a desire, but also generates more desire. Because ARGs are built around pre-existing, everyday technological infrastructure, their gaming platforms continue to be used in the course of ordinary life. Therefore, the game signals to which players have been trained to be responsive *persist*, and the players remain primed for further interaction. The formal properties of ARGs, we might say, naturally *afford* desire. The environment continues to resonate for them in bittersweet ways, as their collective activation outlasts the game's. I am particularly struck, in the case of *I Love Bees*, by the player who visited a local payphone and observed: "The phone sat, silent, a remnant of another time" The sudden silence of the environment in the wake of ubiquitous signals is obviously a difficult transition for players to make. Raph Koster writes: "[Games] have to navigate between the Scylla and Charybdis of deprivation and overload, of excessive order and excessive chaos, of silence and noise" (42). For the once-ludic environment to swing toward the extreme of silent deprivation leaves players in a very real sense lost in a once engaging and clearly purposeful world.

Lost, that is, unless they manage to rediscover the signal of the game outside the official ludic frame. Koster describes the fiction of a game world as being similar to the story problems used to teach math. He writes: “This is similar to word problems in math class. The fiction serves two purposes: it trains you to see past it to the underlying math problem, and it also trains you to recognize real-world situations where that math problem might be lurking…. Remember, games teach you to find the underlying mathematical pattern” (80). But because the platform of alternate reality games is the real-world itself, they collapse the underlying lesson of the game and its primary activity into a single, unified problematic: the search for a pattern of play in real-world contexts. And because the purpose of a search is to find the thing sought, the desire to always be discovering more game becomes a quintessential feature of the ubiquitous gaming experience.

The embedding of this cognitive pattern and concomitant desire is what formally triggers the players’ own activation as highly responsive components of the overall game system. During *The Beast*, Cloudmaker Barry Joseph described in an essay his own pattern-searching as a round-the-clock activity. He described being alert to ludic possibilities literally at any time of day or night: “Last week, waking in a dreamy haze, I refused to answer a 4 a.m. series of phone calls. Afterwards, unable to sleep, my thoughts revolved around the absurd possibility which entered both my mind and that of my fiancé beside me: ‘Was that the game?’” ([1]) Here, the player’s inability to sleep after failing to answer the phone calls represents, I want to suggest, his anxiety about breaking the socio-technological contract of the game. Under this contract of mutual activation, players are required to be as responsive to the signals of the fictive game world as the fictive game world is required to be responsive to the players' affordance testing. By not answering the phone, moreover, Joseph was left in a troubling state of confusion, unable to classify the call as in-game or out-of-game. Its potential meaning was lost, even as Joseph remained profoundly alert to the possibility that it was, in fact, a meaningful game signal.

In the final days of *The Beast,* a character who had served as the most direct narrator of the unfolding game-story wrote a final diary entry. It summed up, for many players, their experience in learning and applying the underlying interactive patterns of the game. Laia, the character, wrote:

> The world had gotten fat with meaning; charged with invisible connections. Patterns jumped out at me like little electric shocks: a run of numbers on a license plate, the bar code on a box of cereal. I found myself making anagrams out of billboard copy and wondering if you could embed a message in traffic flow by hacking into the transit computers.… I learned faster and felt dumber than I ever had in my life; I passed my days in a paradoxical state, both hyper-alert and profoundly confused (Stewart "Laia's Meditation #8").

In his discussion of this diary entry in the walkthrough guide, Hon wrote simply: "Does that remind you of anyone you know?" ("Laia's Last Meditation") Indeed, this meditation perfectly captures the sense of ubiquitous potential meaning instilled in players by the game. The everyday environment is charged with underlying currents of meaning just waiting to be discovered and plugged into. This meaning is invisibly embedded, distributed and networked as an affordance to further interaction—all in accordance with the formal principles described in the original visions of ubiquitous computing, but without any novel technological infrastructure. And because the affordances for gameplay are hidden in the noise of the everyday environment, as Laia notes, there is a fundamental and constant potential for pattern *misrecognition*, a temporary discovery of meaning where none in fact exists.

If we think about games like *I Love Bees* and *The Beast* as creating players who are hyper-alert to gaming patterns and opportunities that might be lurking in real-world situations, then we can understand why ubiquitous gamers would keep listening for ringing phones, even when they know the calls are not from the game. Moreover, we can understand why they would keep searching for a problem so complicated and so distributed that only a massively multiplayer puzzle team could solve it—a problem like 9/11. They are upholding the social contract of the game, to seek and to apply the originary ludic patterns they have been activated to discern.

Here, then, it becomes necessary to ask: What are the long-term consequences for players and for society of activating real-world, persistent environments for play? Jenkins suggests that the responsiveness of a videogame creates in the player a satisfying sense of *mastery* over the simulated game environment. He writes: “It is this expansion of the player’s capacity that accounts for the emotional intensity of most games” (182). But alternate reality games port the interactive affordances of videogames onto actual, everyday environments. So it is not simply a matter, as Jenkins puts it, of making a single computer feel remarkably responsive. The game must have the effect of making many, diverse systems—from email to faxes to phones to the Web to the street corner—feel exquisitely responsive. Therefore, we might ask: Do players therefore experience a sense of mastery over their real-world environments after successfully completing a ubiquitous game? If so, is this mastery real? Or is it instead only a fantasy proffered by and rehearsed through the games? And what does it mean, in the big picture of our cultural evolution, to create a special class of gamers who either believe they have, or in fact do have, an expanded capacity to bring the world around them to life through play? These are the big-picture questions I will explore through the remaining chapters of this dissertation. To begin this inquiry into the consequences of ubiquitous games, I will explore in the next chapter the phenomenon of the *persistence of gameplay vision*, in which players struggle to discern if there is in fact a ludic signal in the noise of everyday life, or if instead they are reading only the reflection of their own projected desire for more game.

CHAPTER SIX

Dangerous Mimesis: Simulation and Dissimulation in Alternate Reality Games

> *I'm disturbed to think that, one day, possibly sooner than we think, this game world may become more real than we ever imagined.*
>
> -Charles Aaron, player of *The Beast* (1)

6.1 The Persistence of Gameplay Vision

"Get out. Deep Water. You would drown."

"Get out. Dark Dream. You will not wake up."

With these two ominous predictions, *The Beast* initiated players into a ludic network that threatened, from the very start, to keep them immersed in the game forever. Both messages were part of a series of time-delayed, pop-up flash animations, triggered to appear after a player had exited the personal website of Jeanine Salla, sentient machine therapist. The pop-up texts were designed to take players by surprise after they had returned to normal Web surfing or shut down their browser. This startling effect was heightened by the animations' eerie, machinic sound effects and the image of a post-autopsy corpse. The overall aesthetic of these messages, then, was quite frightening, designed to scare new players—but not, as their text might suggest, to scare new players *away*. They pose, instead, a rhetorically ironic warning, intended to lure players in deeper. Through their imagery of sleep, water, and death, they portend a potentially dangerous level of immersion. But for game players, this is a distinctly pleasurable threat. In their strategically dark counsel, the pop-up animations pledged to deliver once and for all what so many previous immersive artworks and games had promised but ultimately failed to achieve: a mimetic illusion that was sustainable, fully inhabitable, and seamless.

When *The Beast* officially ended on July 24, 2001, it seemed for a short while that the game's predictions of irreversible immersion had come to pass. Two days after the game announced in an email to players that it was over, Cloudmaker Andrea Phillips published an online "recovery guide" for her fellow players. She begins by asking: "What price have we paid for this game?... I think the time has come to honestly assess what we have done to ourselves" (1). She goes on to describe the personal costs of the game's profoundly immersive aesthetic as quite high:

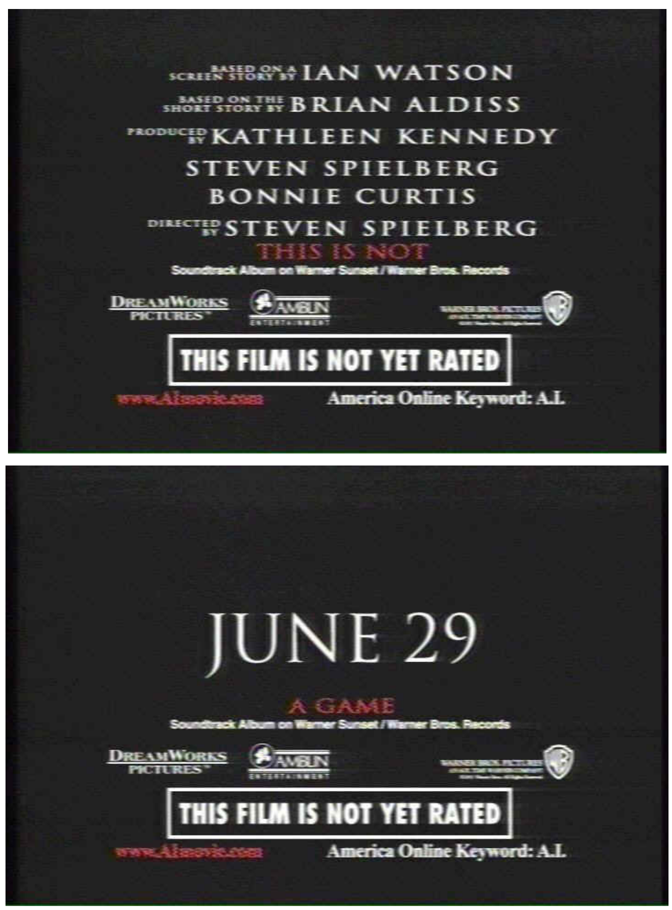
> You find yourself at the end of the game, waking up as if from a long sleep. Your marriage or relationship may be in tatters. Your job may be on the brink of the void, or gone completely. You may have lost a scholarship, or lost or gained too many pounds. You slowly wake up to discover that you have missed the early spring unfolding into late summer. You wake up to find you have been drowning… The players themselves ruefully talk about the neglect of their bodies, personal lives, and obligations of all kinds (1).

Here, Phillips repeats the dream and water-based imagery of the game's early warnings. She describes the experience as a kind of *fog* of play. From inside this fog, she writes, it seems impossible to see clearly through to a reality unmediated by the game. She observes: "Real Life attains a near-mythic status as something profoundly wonderful and mysterious that may never be truly achieved" (1).

However, despite these serious consequences, Phillips acknowledges that ultimately most players would prefer to extend, rather than recover from, the immersive experience. She admits: "Now here we are, every one of us excited at blurring the lines between story and reality. The game promises to become not just entertainment, but our lives" (1). Accordingly, Phillips concludes that the game, in some form, must go on: "The story does not end. The story will never end" (1). Indeed, in essays and message board posts that continued to proliferate by the thousands even as the game insisted it was over, many players seemed unwilling to give up their collective play. In a post titled "Game I miss you already", one player suggested a probable persistence of gameplay vision: "I'm going to catch myself still looking for patterns and riddles in my daily life months from now"(Jackson #42130). Another insisted matter-of-factly: "The game is over… the game has just begun" (Ng [12]).

Cloudmaker Rich Stoehr published a narrative essay describing the final days of the game, as the data flows began to die down and players had to search much harder for a meaningful signal. Like Phillips, Stoehr observes players clinging to the game, hoping for one more puzzle. He writes: "We look around at one another, asking each other what to do, silently. A hesitant voice rises up, cutting through the silence. 'Um. Excuse me? I know the game is probably almost over, but... is this a new puzzle?'… Salvation. Damnation. Another puzzle, and we are off again" (1). Here, the duality of the players' reactions—another puzzle is both their salvation and their damnation—underscores Phillips' observation that the game's powerfully addictive immersive aesthetic is simultaneously longed-for and ruinous. When a subset of the Cloudmakers reassembled on their public message board in September 2001 to consider gaming the terrorist attacks, it seemed to provide ultimate and unassailable evidence that some players indeed had become cognitively and emotionally stuck in *The Beast*'s virtualized reality, where everything was meant to be gamed.

Was the water really so deep, the dream so inviting, that the most radically immersed players now found it impossible to experience reality without the mediating frame of a game? Did they really need to be reminded of their everyday lives, “This is not a game”? Indeed, those Cloudmakers who disapproved of the plan to solve 9/11 used that exact disavowal to attempt to snap the players out of their ludic frame. "The references to this as a 'puzzle' and the thought that this group could 'solve' this make me sick…. This is not a game" (missphinx #44352). The board moderators officially closed the topic of conversation by declaring: *“This is not a game….* This is real life" (Hon #44349).



6.1 Screenshots of the *A.I. Artificial Intelligence* TV Trailer. In May 2001, the secret message “THIS IS NOT A GAME” flashed briefly as part of a television spot advertising the opening of Steven Spielberg’s film. The two screenshots here appeared back-to-back in the original trailer for approximately just one second each. (Warner Brothers, 2001)

The rhetorical power of this particular classification was significantly undercut, however, by the fact that *The Beast* had been making the very same claim all along. The game's immersive strategies memorably reached a climax on June 7, 2001, when the cryptic disavowal "This Is Not a Game" flashed briefly in red letters during a prime time, national television commercial for the film *A.I.: Artificial Intelligence* (see figure 6.1). This message has since become a hallmark of alternate reality games. As the *Unfiction* glossary explains: "TINAG is a defining mantra of the genre, first put forth embedded in trailers for the movie *A.I.*, which spawned the original ARG, *The Beast*" (Stacey). To "TINAG" a game now means to deny and to obscure its nature as a game.[48] It is no longer enough to create a game that looks and feels real; it must explicitly claim to be real as well.

TINAG fundamentally changed the rules for immersive art by adding a layer of *dissimulation* on top of *The Beast*'s already powerfully immersive, affordance-based interaction. Art historian Oliver Grau writes that in traditional virtual art, where simulation is the primary objective, "the imaginary is given the appearance of the real" (16). But here, I want to suggest that in virtualizing art, such as *The Beast*, it is also the *real* that is given the appearance of the *imaginary* precisely through its dissimulative rhetoric and aesthetic. When the game itself proclaims "This is not a game," the ability of

[48] This task that has become increasingly difficult as immersive players grow more savvy about TINAG techniques. One of the most interesting developments in the alternate reality gaming genre has been the unusual TINAG methods devised by games that, unlike *The Beast*, *do* at first announce and publicize themselves as games (usually to attract a paying player base) and then, only later, try to destroy the game-reality boundaries. Electronic Art's immersive *Majestic*, for instance, was launched in August 2001 with a huge amount of press and fanfare (not to mention an official name). A few days after the official start of *Majestic*, however, its registered players received an email announcing that the game had been postponed indefinitely due to an accidental fire at game headquarters. Players' disappointment at this announcement evaporated, however, when phone calls and instant messages from an anonymous source began claiming that the *Majestic* fire was arson and part of a large and dangerous conspiracy. Thus began the "real" game, which had cleverly destroyed everything that claimed to be a game in order to immerse players more credibly in its fictions.

the real to self-classify itself as such is called into doubt. Meanwhile, traditional notions of suspension of disbelief are torn apart. Players of a dissimulative game must simultaneously believe and disbelieve in its hallmark claim. They must believe “this is not a game” in order to enjoy the immersive pleasures of its realistic aesthetic. They must disbelieve “this is not a game” in order to maintain the ludic mindset that makes realistic murders, apocalyptic science, cyberterrorism, and other dark plots pleasurably playable. This latter cognitive frame—rejecting the claim that “this is not a game”—leads self-proclaimed reality to seem as playable as real games.

Players’ discussions of the TINAG rhetoric seem to indicate that in simultaneously holding on to these two conflicting positions, players become highly receptive to both aspects of the paradoxical disavowal. For example, one Cloudmaker took the “This is not a game” message quite seriously as a warning that the game may become all too real:

> Be aware, everyone.... we do not know how far this whole thing reaches; i.e., how far into ‘reality’ this will stretch; there have already been phone calls and faxes and then the [live event] rallies. and now the trailer: THIS IS NOT A GAME. be careful...they have our phone numbers, our fax numbers, our aliases, our cell phones numbers possibly …. the game may become less of a game all too quickly.... be warned, everyone. we have no idea where this is going (madashamlet #23957).

Here, the author anticipates the game becoming dangerously real. Meanwhile, Cloudmaker Charles Aaron processes the disavowal as an indication of the opposite trend: the real world moving closer to the game world. “The words ‘THIS IS NOT A GAME’ in the closing credits has me concerned about our involvement with this game…. This game may not see an end in the traditional sense. I'm disturbed to think that, one day, possibly sooner than we think, this game world may become more real than we ever imagined" (1). Aaron anticipates a not-too-distant future where the real world has come to resemble the game. He asks: "As we while away the hours exploring the game universe…. who's to say that this endless pursuit may not lead to a reality strangely familiar?" (1)

But should we accept at face value these players' testimonials of irreversible immersion and belief that 'this is not a game'? How much do alternate reality gamers *genuinely* grow to believe in the realness of their game and the game-ness of the real? In *The Rise of Network Society*, Manuel Castells describes the coming culture of real virtuality as a world "where make believe is belief in the making" (375). In other words, persistent play may ultimately lead gamers to cease marking the difference between their habitual participation in sustaining an illusion and the practice of everyday life. I am reminded here of *Foucault's Pendulum*, Umberto Eco's classic tale of a computer game-gone-real, in which the narrator confesses anxiously, "I believe that you can reach the point where there is no longer any difference between developing the habit of pretending to believe and developing the habit of believing" (386). But this chapter is about that very difference, the essential and stubborn distinction between an intentional *performance* of belief and belief itself. It is about the reasons why participants in ubiquitous games openly affect such a powerful credulity — "This is not a game" — in the course of play. Moreover, it explains why they might choose to affect a powerful *incredulity*—"I don't believe this is not a game"—in the course of real life. It is my goal to prevent the mistake we as researchers will be making if we fail to recognize the conscious, goal-oriented and pleasurable nature of these twin affected beliefs—let alone the very fact that they are affected.

To be clear: The message board posts and essays that I have chosen to quote so far in this chapter seem to paint a remarkable picture of a profoundly blurred line between games and reality. However, I do not proffer them as evidence of any actual confusion or delusion on the part of Cloudmakers. I do not take them at face value. Rather, I present them as evidence of a strategic, collective performance.

Richard Schechner proposes that there are two kinds of play: "make believe" and "make belief" (35). The former, he argues, carefully protects the boundaries between what is real and what is pretended, while the latter intentionally blurs them. Using this dichotomy, Schechner frames the issue of performance, play and belief as a question of reflexivity: "To what degree does a person believe her own performance?" (181) In make-believe games, he suggests, players *pretend to believe*; in make-belief games, players willfully "forget" or deny their own performance and thereby enable themselves to *believe for real*. But I want to resist this emphasis on the degree to which players are conscious of their performance, as if this self-awareness were a kind of psychological safety net always in danger of falling (or being intentionally tossed) away. I propose, instead, that the frame of representational play remains visible and sturdy to players in even the most believable performances of belief. Scholars and critics are far more likely to be convinced by the players' performances, I would argue, than the players are to be convinced by their games. As critics, historians and theorists of new genres of play, we should be much more wary of this interpretive trap than of the games themselves. Instead of asking to what extent players come to believe in the fictions they perform, we should ask: To what ends, and through what mechanisms, do players *pretend* to believe their own performances? And instead of focusing on the risks of real belief, we should investigate: What are the specific pleasures and payoffs for gamers of feigned belief in a play setting? What motivation do we attribute to the fans' widespread practice of exaggerating or fictionalizing their own experiences of the games to each other and to the media? And how do these practices of performed belief influence players in their everyday, non-game lives?

To address these questions, I offer an analysis of the rhetoric of belief in *The Beast*. I will examine how the game design encourages a performance of credulity and how players work together to create an active pretense of belief that enables, heightens and prolongs their play experiences.

The Beast has been called the birth of a new art form. Phillips writes: "We stand now at what could be one of the most significant crossroads in the history of storytelling and gaming" (1). And co-creators Elan Lee, Sean Stewart, and Jordan Weisman wrote in a final email to players at the end of the game: "There will be other projects that attempt to use the web as a distinctive artistic medium, ones with bigger budgets and larger audiences: but we here were first" (themanbehindthecurtain 1). But alternate reality games are not the first new medium to generate concerns about a powerfully immersive aesthetic. So here, as a prelude to further discussion of *The Beast*, I want to examine the controversial credulity that was said to mark the birth of an earlier immersive art form: the cinema.

6.2 A Brief History of the Credulous Spectator

When cinema first burst onto the screen at the end of the nineteenth century, stories of spectators mistaking cinematic images for reality abounded. The most oft-repeated tale concerned Lumière's short documentary *The Arrival of a Train at the Station* (1895), numerous screenings of which allegedly devolved into "mass panic" and "collective hysteria" (Tsivian 1). Dozens of anecdotal accounts described patrons screaming and fleeing theaters in droves, apparently afraid that the on-screen locomotive was about to run them over. Firsthand narratives were the most vivid: "The image came nearer and nearer; it was rushing straight toward us… closer and closer!… A huge steel monster!… It was hurtling towards us! It was terrifying! Straight at us! AT US! A piercing scream, Oh!… OH!… Panic! People leaped up. Some rushed towards the exit. Total darkness" (3). Originally reported in the press and later canonized in early film histories, these stories helped to define film as a dangerously immersive medium, capable of seducing rational audience members into foolish belief and producing an astonishing incapacity to distinguish the imaginary from the real.

But were the first film viewers tricked by cinema's realistic aesthetic, as the *Train* narratives suggest? Or was there a more complicated, perhaps even complicit, psychology at play in the spectators' seemingly credulous response? It took nearly a century for film scholars to ask such questions, and when they did, the myth of the naive audience soon toppled. Historian Tom Gunning was the first to reconsider the factuality and literalness of terrified *Train* accounts, arguing: "We cannot simply swallow whole the image of the naïve spectator, whose reaction to the image is one of simple belief" (820). Gunning rejected the idea of an audience cowed by the cinema's then unprecedented illusionist power, proposing instead that spectators were engaged in a sophisticated, self-aware suspension of disbelief. By feigning belief during their first filmic encounters, Gunning suggested, viewers framed their own experience, willfully playing along with the director. “The spectator does not get lost,” he argued, “but remains aware of the act of looking,” taking meta-pleasure in consciously admiring the filmmaker’s masterful use of technology (823). Gunning coined the term the “[in]credulous spectator” to account for this deceptive performance of belief, in which spectators keep the “in” hidden and outwardly present only “credulity.” Today, as a result of Gunning’ work, the vast majority of film scholars reject the once-prevalent notion of panicked, passive, and hyper-receptive audiences. They recognize, instead, that the earliest filmgoers were playful and intentional participants in the creation and maintenance of cinematic illusion.

Film studies’ rewriting of its primal myth offers a powerful and timely lesson to the analysis of contemporary digital games, which now has its own myth of the credulous spectator to contend with. It is a myth that misrepresents the experience of contemporary players and unnecessarily feeds public and academic anxieties about the hyper-immersive and boundary-blurring qualities of new genres like alternate reality gaming. It is my intention, therefore, first to present and then to dispel this twenty-first century version of the *Train* anecdotes, beginning with a close reading of the popular media accounts of player reception of *The Beast*.

6.3 “You Never Really Know When You’re Playing”

The designers of the Beast pioneered a strategy of virtualizing everyday reality by distributing its gameplay across otherwise mundane platforms: phone calls, faxes, emails, websites, newspaper ads, television commercials, business cards, and so on. These new multi-modal techniques of immersing the game itself in routine communications and media environments generated an extraordinary amount of press coverage, with hundreds of enthusiastic articles appearing online and in magazines and newspapers worldwide.[49] Much of the praise bestowed upon *The Beast* focused on, in the words of *The New York Times*, how "completely real" the game seemed (Herold [16]). The *BBC News* called it "a complex illusion of reality"; *USA Today* described it as "blurring the line between fiction and reality"; and Tech TV called it "hyper-immersive" and "frighteningly real" (*BBC News* Staff Report [4]; Kornblum [5]; Fabulich [1]).

In the press, this intense realism soon became associated with a kind of believability. Reporters frequently linked the effectiveness of *The Beast*'s realistic aesthetic to a potential susceptibility among audiences to confuse the game with reality. A writer for the *Kansas City Star* warned readers: "The game so perfectly mimics real sites, you might assume it's for real" (Butler [2]). A game critic for *Joystick101* agreed: "It is important to stress that the sites are *dissimulative*, that is, feigning to be real sites … Some of the sites could easily be misconstrued as real" (Joystick101 Staff Report [6]). One writer alluded to the classic credibility test for A.I. programs: "This world talks back. Put to the Turing test, it could pass" (Hilder [4]). For a computer program to pass the Turing Test, it must fool a human user into believing that he or she is interacting with a real person.[50] The implication of this critic's Turing Test allusion is clear: *The Beast* could easily trick its players into mistaking its artifice for the real thing.

[49] The Cloudmakers have archived ninety representative articles at http://cloudmakers.org/ media/.
[50] The Turing Test was first proposed by Alan Turing in the 1950 article "Computing machinery and intelligence" for the journal *Mind*. In the article, Turing defines artificial intelligence as an "imitation game"

Many articles compared the game's convincing aesthetic to the infamous 1999 viral marketing campaign for the fake documentary, *The Blair Witch Project*. In that campaign, a series of websites purporting to document the "real-life" events of the film were used to generate buzz about whether or not the story of *The Blair Witch Project* was true. Fox News reported: "*Blair Witch* may have started it all, but the *A.I.* game has certainly raised the bar" (D'Angelo [15]). An *AdWeek* article proclaimed: "If *The Blair Witch Project* was the shot heard around the interactive world, then *A.I.: Artificial Intelligence* is D-Day" (*AdWeek* Staff Report [1]). By invoking the *Blair Witch* campaign, these articles evoke a gullible audience that is tricked into believing a digital back story is real. As *Los Angeles Times* film critic Kenneth Turan observes about *Blair Witch*, "The original's Web site fooled many viewers into thinking that its tall tale of three young people who disappeared tracking a legendary witch was true" ([1]) Likewise, film 'zine *Truth in Cinema* noted: "Millions of moviegoers were fooled into thinking the original *Blair Witch Project* had really happened, and all it took was an Internet site" (Rhodes [1]). Many articles about *The Beast* explicitly accorded a similar credulity to its audience. A *Wired News* reporter commented: "The *A.I.* Web marketing campaign is not the first kind to fool people with its authenticity. Web sites devoted to *The Blair Witch Project* caused such a stir" (Clewley [2]).

The history of *The Beast*, and the subsequent birth of the alternate reality genre, thus has become a story of caution and urged restraint: *Don't be fooled, and please don't believe in the game*. Early, apocryphal accounts of panicked filmgoers cemented for nearly a century, in both film criticism and film theory, the identity of the cinema as a monolithic machine working on, not with, a passive and credulous audience. So too have popular accounts of *The Beast*'s original reception characterized such games as dangerously immersive, and its players as terribly naïve. Sean Dobson writes for *The Guardian*: "You're always connected to the game, and it's not always easy to tell reality from fiction. Scary stuff" ([7]). And Steven Johnson epitomizes this viewpoint when he speculates in *Slate* that as these games increase in popularity, "the existential doubt—is this real or is this immersive media?—is likely to become increasingly commonplace" ([7]). He concludes: "That's the thing about games without frontiers. You never really know when you're playing" ([7]).

The fear that powerfully mimetic arts will confuse audiences and alienate them from reality is not, of course, particular to the twenty-first century. In his expansive survey of immersive art throughout history, *Virtual Art: From Illusion to Immersion,* Oliver Grau traces this fear from Plato's ancient suspicion of theater through the Institut de France's formal inquiry into the psychological effects of eighteenth century panoramas. Grau suggests that the controversial birth of the cinema and late-twentieth century critiques of head-mounted virtual reality displays are just recent examples of more than two millennia of suspicion about efforts to simulate reality through mimetic representation. He observes how, again and again, new media consistently have been received initially as "deceptive" arts, "a danger to perception and consciousness," and potential vehicles for "mass propaganda" that would take advantage of their bewildered audiences (64-5).

Likewise, throughout the history of mimetic media, audiences encountering an immersive medium for the first time seem to have overstated its immersive effects. Grau uncovers an 1805 essay critiquing the powerful virtuality of the panorama, in which continuous illusionist paintings are hung on circular walls. This first-persona account bears a remarkable resemblance to player reports, nearly two hundred years later, of the dangerous immersion of *The Beast*. Johann August Eberhard describes the effects of the immersive panorama at the turn of the nineteenth century: “I feel myself trapped in the net of a contradictory dream-world…. Not even comparison with the bodies that surround me can awake me from this terrifying nightmare which I must go on dreaming against my will” (64).

Critics’ concerns and audiences’ accounts, Grau notes, often look naïve in retrospect. Nevertheless, the same fears and reports of dangerous immersion continue to emerge, as each new simulative medium seems poised to finally and ultimately prove true our perpetual anticipation of an all-consuming simulation. The persistence of this critical position is a symptom, I would argue, of a continual failure across the centuries to understand both the active nature of reception of immersive media and the pleasures of performing a sensationalized reaction. In methodically debunking the seminal myth of player credulity and irreversible immersion in *The Beast*, I therefore hope not only to clarify the nature of contemporary ubiquitous gameplay, but also to stage a small intervention in the ongoing cycle of suspicion and hysteria over progressively immersive and mimetic media.

6.4 The Problem of Accidental Players

To begin: I cannot dispute the fact that many people encounter ubiquitous gameplay elements in the course of everyday life and fail at first to recognize them as fictive. This is an inescapable result of the dissimulative aesthetic, which not only seeks to provide a convincing simulation of reality, but also actively denies its ontological status as simulation. A blog search on alternate reality games reveals many such initially unwitting encounters. A pastor in Waco, Texas describes his brief, accidental immersion with the ARG *Poor Richard* (Edoc Laundry, 2006):

> "Game?" I thought, "This is a *game*?" Suddenly, it all came into focus. None of it was real. There was no Poor Richard, no right-wing religious group, no murder, no suicide. But because I came across the site without any connection to the game context, I believed it all. A well-crafted fabrication became, for an hour or so, a part of my reality (Daniel 6/12/06).

The real issue at stake is not whether such mistakes are made in a ubiquitous gaming culture where game content is embedded in everyday media and environments without a ludic frame. Instead, the issue is whether accidental players are likely to find the suitable frame (in this case, “game” and not “reality”) as quickly as the pastor from Texas, or whether the power of the game is such that players will be persistently and perpetually confused.

Concerns about the reliability of frames on the Internet is a problem that extends beyond games, of course. Internet telepistemology, for instance, is a new genre of philosophical analysis that explores how knowledge is obtained and processed at a distance, especially via digital networks. The power of such networks to falsely frame simulations as real is a principle concern of telepistemology. In his introduction to *Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet*, Ken Goldberg asks of the Internet: “Are we being deceived?” (3) He raises concerns about the veracity and phenomenological credibility of knowledge obtained and events observed remotely, noting a central paradox of decentralized communication systems:

“The distributed nature of the Internet, designed to ensure reliability by avoiding centralized authority, simultaneously increases the potential for deception” (3). Indeed, in the noisy and often anonymous environment of the Web, it is increasingly possible to mask the origins or intentions of any specific signal.

In the specific case of alternate reality games, however, I want to suggest that the Internet’s decentralization of communications combined with the distributed aesthetic of the game specifically works to decrease the likelihood of effective dissimulation. The linked nature of the Internet, in general, makes it possible to seek corroborating evidence or corrective accounts. This is especially true as new tagging software and citation tools such as del.ici.ous, Bloglines Citations and Technorati emerge to help users track conversations about specific pieces of Internet content. And in a genre where players are encouraged to produce supporting content to share and keep track of the distributed, found evidence, the likelihood of a user discovering that a piece of game content is, in fact, part of the game increases dramatically. In the case of the pastor from Texas, it was one of these player-created media that enabled him to correct his frame from “This is real” to “this is a game.” He writes: “I was really intrigued. Why hadn't I heard anything about this? I went back to Google and did a little more research. That's when I stumbled on a wiki with this on the title page: “*Welcome to the EDOC Laundry wiki, an Alternate Reality Game encyclopedia” (*Daniel 6/12/06*).*

Indeed, every ARG to date has been supported by dozens of player-created message boards, blogs, listservs, wikis, and websites. The games’ ubiquitous dispersal and archaeological aesthetic requires players to create meta-documentation of the game. Players must share found content, speculate about its meaning, and make sense of the hundreds, or often thousands, or even tens of thousands, of separately sent signals. This open discussion and collaborative work significantly reduce the dissimulative potential of the ludic network. Moreover, because each game piece is designed to fit into a larger network of game content, accidental players are likely to encounter not just one piece of the game, but several. As they interact with the game system, that is to say as soon as they become immersed to any degree, they are exposed to an *array* of media, which taken together provide more opportunities for proper frame detection. The depth and breadth of game content has often been identified as the genre's most immersive aspect. But while this creates a realistic aesthetic, I would argue that it also reduces the possibility of (mis)taking any one piece of content out of its fictive context. The ubiquitous scope of the game makes it easier to detect the ludic frame, rather than making it more difficult to escape the ludic network.

Why, then, go to the trouble of employing a dissimulative aesthetic if it can be discredited so quickly? Why disavow mimetic intent? Here again, I want to return to the players' description of their immersive experience, which denies rather than reveals the ease with which they investigate the frame of their games. The gamers' chosen terminology for describing first encounters with an ARG emphasizes successful and continued dissimulation. They choose to portray their games as creating illusions that are extremely resilient. Key here is the players' term "rabbit hole", adopted to describe "the initial site, page or clue that brings someone into the game" (Stacey). This allusion to *Alice in Wonderland* evokes an alternate world that it far more difficult to *escape* than it is to enter. As Lewis Carroll writes: "In another moment down went Alice after it, never once considering how in the world she was to get out again" (2). The term "rabbit hole" suggests that the press and critics may have it right: even those who jump knowingly may not be able to climb back out. The intertextual reference further suggests that those who begin the game with the reality frame in place already may find it even harder to extricate themselves from the immersive, ludic network.

But as I have already suggested, the players' accounts and chosen terminology should not necessarily be taken at face value. We must understand their sensationalized descriptions of immersion as part of the pleasure of the games. They claim total immersion, but in fact, as I will argue in the next section, the players more often than not spot the many seams and ruptures in the ubiquitous ludic network *before* the games' producers take notice. And rather than taking these gaps as opportunities to exit or to exploit the ludic network, the players choose to become co-conspirators in its active construction and maintenance. To explore this phenomenon further, I will now document a series of disruptive gameplay incidents from *The Beast* that demonstrate two things. First, these incidents expose how utterly *ineffective* the seminal dissimulative game was in keeping up its lie. Second, they reveal how surprisingly successful the players were first in pretending they did not notice the game's failures, and later in actively correcting them.

6.5 Suturing the Illusion

The first major tear in the fabric of *The Beast*'s illusion occurred only days into the game, when a player discovered an oversight made by the producers when they registered the domain names for the fictive websites. The sites purported to be created separately by a wide range of different game characters, corporations and organizations. As Charles Herold reported in *The New York Times*: "The sites are wildly different in design, from slick corporate sites to chatty home pages. There are two university sites, a coroner's site, a hat store and several sites of architects who build intelligent houses. One of the architect's sites is written entirely in German" ([15]). In a 2002 essay for the Game Developers Conference (GDC), Lee described the elaborate measures taken to prevent these sites from being linked non-diegetically. "We had to scour HTML source to ensure that nothing identifying was present. We had to register Web sites using fictitious names with functioning email addresses. We had to ensure that each Web site had a different look and feel so that no one would guess they were created by the same person" (4). Within two weeks of the game's launch, however, a resourceful player using the nickname "Monkey Stan" entered a public chat room and posted a list of 22 game sites, only 6 of which had been discovered by spotting clues or solving puzzles. The other 16 had been found by using a WHOIS lookup, a Web search that finds out information about the owners of domain names and discloses all of the other domain names that the targeted registrant owns. In his GDC lecture, Lee recalls:

> We had dozens of websites and knew you could trace them back to who registered them. So we thought we'd get clever and register them under fictitious names who would become part of our story. But our players quickly noticed that all of our names were registered to the same IP address, and that they were all registered in a certain time span. What else was registered to that IP address on the same time span? Well, they found all of our web sites, many of which were not live yet (6).

By performing a WHOIS on one of the known game sites, therefore, Monkey Stan obtained a list of *all* of the registered game sites, shattering the illusion that the Web pages were independently created, owned and maintained.

Many players reacted to Monkey Stan's revelation with anger and resisted his decidedly un-immersive tactics. Cloudmaker Adrian Hon wrote in an essay titled "Philosophy of Discovery": "I'll say it right out - I think that any use of WHOIS whatsoever detracts from the enjoyment of the game. It's simply akin to reading ahead in a novel" ([1]). Most Beast players were in agreement, and it was not just a matter of wanting to play by the rules. It was, instead, about their own enjoyment. "Let's all try not to peek behind the wizard's curtain for this one," wrote one player, and the rest of the audience quickly adopted the *Wizard of Oz*-inspired metaphor of the wizard's curtain to encourage a feigned naïveté among participants (Alex #5). On a discussion post that lists only the game sites discovered without WHOIS, a writer asks: "Is that all we have so far, in front of the curtain?" (Sasser #23) The same desire to smooth over the rupture was expressed by another player who excluded the WHOIS technique: "It seems to me that this is a self-contained universe - just follow the links as they are presented" (PKD #277084). Here, the term "self-contained" suggests the notion of a frame, within which the ludic experience is contained. Although the external construction of the online game world had become visible, the audience chose to ignore this data and to play only within the frame.[51]

The players' ability to stay immersed, however, was quickly tested again when the Cloudmakers discovered—long before the press caught wind of the fact—that Microsoft

[51] After *The Beast*, ARG producers learned to better incorporate the WHOIS technique as an affordances of web-based play. Characters' phone numbers and mailing addresses now are routinely distributed through WHOIS registration data.

was somehow involved in the production of the game. In his Game Developers lecture, Lee describes how the truth was uncovered and the players' subsequent reaction:

> You may have heard about one of our mistakes with [Microsoft executive] Doug Zartman. To register foreign domain names, we had to use his real name, and players tied them back to him, and in turn to Microsoft…. It was interesting to watch the board, because for a few hours they were appalled: 'Oh my god! Bill Gates is behind this! Bill Gates is trying to control our minds! Aahhhh!' But then afterwards, it was like: 'But, you know, I'm okay with that… I'm just going to ignore Microsoft. I know I wasn't supposed to know that, so I'm just going to let it lie, and pretend I don't know it' (8).

Again, players chose to ignore the rupture of the game's illusion and to continue playing *as if* : as if the production origins of the game had not been revealed, as if there were no singular corporate identity responsible for the entire game universe. The players had taken to calling the game producers "puppet masters", and they preferred to keep their identities mysterious. Upon discovering Microsoft's involvement, one player urged: "Let's put aside the fact that perhaps, under the surface of the game lies an unsavory plan to get the majority of players to purchase additional software, game players, books and DVDs" (Bonasia [1]). Another wrote: "Please - If you dig up the name of another puppet master, don't post it on the board. Keep it to yourself" (Sirius #14771). This ability to deny, bury and forestall disenchanting information is a testament to the audience's complicity in maintaining the Beast's illusion of reality.

The Zartman incident didn't end there, however. Lee and his team were toying with new strategies for distributing game information, and one day they decided to create a Microsoft Hotmail account under Zartman's name. Lee planted game clues in Hartman's new real, but fictive, email inbox. He attempted to bait players into hacking into the account by sending a message "from" Zartman to the Cloudmakers listserv:

> Hello all, This is a plea for your understanding. Over the last few weeks I've been bombarded with email. I know that my name appears on the registration for some of the sites, but this is getting ridiculous. The increased popularity of the game constantly brings new waves of users to my inbox rendering it virtually unusable. PLEASE STOP! I can't give you any answers, I can't get you in touch with the puppet masters, and I can't tell you where this is headed.… Thank you for your understanding, Doug (Zartman #12065).

The email also leaked hints to Hartman's password. Lee waited for a player frenzy to erupt, but instead, to Lee's surprise, there was absolute silence on the player bulletin boards about Zartman's account. "We know for a fact [from tracking ISP logins] that several different players successfully hacked into the fake Zartman account," Lee said in our May 2003 personal interview. "We were monitoring it closely. But none of them acted on what they found or talked about it [publicly] with the rest of the players." He surmised: "It seems they thought they had gone too far, accidentally done something real. They backed off."

Their failure to pursue the Zartman course of action reveals that players were, in fact, respecting a perceived game-reality boundary. Furthermore, the successful email hackers apparently demonstrated a desire to keep the curtain firmly in place for *other* players, even after they were exposed to the seemingly out-of-game data themselves. They kept the secret, I would argue, in order to protect their co-players from the non-immersive information they had gleaned. In this way, the email hackers took up the work of the puppet masters, helping to hide the seams of the game for their own pleasure, and the pleasure of other players.

The Cloudmakers' reactions to slips made by two different actors during a series of live game events—the real-world, political rallies for anti-robot militias—further illustrate the tremendous efforts they were willing to make to prop up the ludic frame. Lee recounts the first slip in his Game Developers lecture:

> We thought, since we wanted this game to be real, we should have a live event, but we forgot something crucial about the rules of life: there is no off switch. At the end of the night, our actors had to go home, and one of our players decided to follow the actor home. The player was doing nothing wrong; he was doing everything right! He did exactly what we had encouraged him to do, and we'd totally failed to plan for that. Ultimately, the actor had to break character and say: 'Look, I'm sorry, I'm an actor, please don't follow me' (9).

The player in question never reported this incident to the larger community of players. This silence represents, no doubt, the player's effort to protect others from further game rupture as well as perhaps some embarrassment that he had spoiled temporarily the game's immersive effect. Clearly, the player felt personally responsible for supporting the immersive network.

But this silence, as it turned out, was not enough to stave off completely the frame-breaking effects of the multi-city live events. According to Stewart, a second actor was so flustered by the pressures of staying in character that night that he accidentally left the live rally with an important piece of game evidence intended for the players: a jigsaw puzzle with missing pieces around the edges that indicated a binary code, which could be translated into a password. The next major game challenged required the players in Chicago to combine their password with passwords decoded by players in New York and Los Angeles. But when Chicago discovered they did not have a puzzle, and hence no password, they realized something had gone wrong. With the material evidence missing, the players were faced with a dilemma: Should they wait for the puppet masters to discover the mistake and acknowledge the rupture, or should they act quickly to solve the problem on their own? The Cloudmakers chose the latter route. They created a program that acted as a distributed client server password cracker. This program allowed the players to join personal computing forces and use brute force, rather than the lost clue, to solved the missing third of the password. Lee reports that the players collectively racked up a total of 57,792,270 hits on the password login before they cracked it. And according to Stewart, the players created and put into motion their password cracking plan *before* the puppet masters had time to process and react to the actor's error. As this incident reveals, the players took on increasing responsibility for their own immersive experience as the game progressed, leaving the game designers out of the problem-solving loop entirely.

The puppet masters began to take notice of, and build on, the players' frequent efforts to repair damage to the game's illusory effects. Stewart calls this "creating by the collective seat of our pants." He offers an example that occurred a month into *The Beast*, when a player noticed the duplication of a stock photo in two different game sites. The Cloudmaker posted his observation online: "The photo for Svetlana Cellini [a human character] is in the Belladerma catalog [for sex robots] - what is the significance of this?" (elanshore #7949) Within the fiction of the game, it initially was very difficult for players to reconcile the appearance of the human character Svetlana, whose photo had appeared on one of the very first sites as a corporate employee, with her appearance a few weeks later as a "Sex bot" for sale. One player correctly chalked up the discrepancy to "duplication of stock photo" and reminded the others: "Sometimes they [the puppet masters] screw up and make mistakes" (Brierre #8122). But many others insisted on giving the game the benefit of the doubt. They chose to believe (or chose to pretend to believe) that there must be a diegetic explanation for the double Svetlanas. As such, they opined a number of theories explaining the odd fact. Stewart, who was carefully monitoring game play discussion, noticed this development and acted quickly. In a post-interview, he revealed: "We had to write what I think was one of the better little side stories for the whole game: Svetlana and the step-self. The new storyline explained that some robots were being built to replace certain individuals" (Interview 10/21/2001). Stewart admitted that "players spotting a re-used stock photo forced us to write The Step-Self thread." This revelation was met with delight on the discussion boards. One player wrote: "I think it's just fascinating that the ENTIRE Svetlana subplot (thestepself) was created just because one of us noted that the same stock photo was used at Donu-Tech and Belladerma! Talk about creating art by the seat of your pants" (rthomas68 #42166). The players clearly took pride in having pushed the limits of the game without weakening the credibility of its fiction. Moreover, they delighted in the writers' ability to smooth over their detection of a rupture. This was meta-play and meta-pleasure, a delight in the game makers' immersive efforts. The players were celebrating tactics that made it easier to play along and to perform the deepest immersion.

Another game event dubbed "the Mike Royal incident" reveals that, even as players celebrated the immersive aesthetic, their immersion was not as intense as their later messaging might suggest. In the Mike Royal incident, players called what they thought was an in-game phone number only to find a "real, live person" claiming to be a security guard at the other end. A player described her phone conversation with Royal: "He sounded pretty rattled through some of it, just like a real security guard might if you told him something like that. It made me wonder if I had the wrong number for a minute" (Phillips #959). Another player reported: "We first thought that this couldn't possibly be in-game since none of the phone numbers we'd called before were answered by real persons" (Adrian Hon "Mike Royal Incident"). But Royal, the players discovered after they engaged him in conversation about the game's narrative, was in fact a real game character. (Royal was voiced by Sean Stewart, who as the project's lead writer was the only person the puppet master team felt confident was capable of maintaining the fictive frame throughout hours of improvisational interaction with players.) In this case, the one time when perhaps the illusion was most convincing, the players refused to believe it was a part of the game. Rather, they immediately assumed they had strayed outside the bounds of the game, accidentally involving a "real" (non-game) person. This confusion indicates that for the players, the rest of the game was always transparently fictive, a context which ironically led players to doubt the most realistic moment of interaction. *The Beast* became, for a brief moment, too real to be believed.

By presenting this series of incidents that ruptured the immersive illusion of *The Beast*, I have attempted to document a gameplay experience that was significantly less boundary-blurring than the media and many critics have assumed it to be. Nowhere in the actual gameplay of *The Beast* do we observe the "existential angst" Steven Johnson describes as the inevitable result of dissimulative, ubiquitous games. Instead, we observe the players engaging in, and enjoying, a conscious awareness of the mimetic efforts of the game. In *Remediation: Understanding New Media*, Jay David Bolter and Richard Grusin argue that this appreciation of "the new medium as medium" is a fundamental aspect of the pleasures of media immersion (19). Bolter and Grusin argue that all "new media oscillate between immediacy and hypermediacy"—that is to say, between creating immersion and creating awareness of the medium's immersive techniques. They write: "Although each medium promises to reform its predecessors by offering a more immediate or authentic experience, the promise of reform inevitably leads us to become aware of the new medium" (19). The extensive media coverage of *The Beast*'s realism is a prime example of this remediation process. The game was so admired for its simulative properties, it generated an ongoing discourse of amazement that continuously reveals the simulation as such. Here, I want to suggest that the players' accounts of their deep immersion in the game serve the same purpose. They oscillate toward hypermediacy in order to acknowledge the immediacy of the gameplay aesthetic. Their rhetoric of belief, then, can be understood as an active remediation of the game, a discourse of amazement that served to heighten their enjoyment of the new medium.

6.6 Player Speculation about "This is Not a Game" (TINAG)

I want to continue this close examination of Cloudmaker gameplay in order to continue peeling back the layers of mythology that surround the alternate reality gaming genre, and specifically its controversial "This is not a game" disavowal. In the next section, I will present a historical analysis of the players' first exposure to the TINAG rhetoric, exploring how players of *The Beast* interpreted the message and how it affected their continuing gameplay. I will argue that rather than serving as a totalizing disavowal of the difference between a game and reality, TINAG was received and processed in many varied and complex ways.

"This is not a game" began appearing in the credits of *A.I.*'s new national television commercial on June 7, 2001; Cloudmakers spotted the hidden message during the trailer's very first broadcast. Several players posted a complete transcript of the commercial online within minutes of its debut airing. "I just saw a new trailer/ad on TV," an early report reads. "In the credits, Jeanine is still there, but her name is not in red. That is the second credits frame. On the third, there are the red letters 'THIS IS NOT' under Steven Spielberg and the URL www.aimovie.com is in red as well. Next frame has the large June 29, with red letters under it 'A GAME'…. Thoughts??" (bonkoif #21879)

Players immediately began speculating about what the cryptic message might mean. Many observed that the message was delivered via the same platform (an *A.I.* trailer) and in the same style (embedded in the credits) as the clues that had launched the game two months prior. One player remarked on this repetition: "Since the other messages in the trailers have been clues, it is reasonable to speculate that 'this is not a game' is also a clue" (mgarlan #27916). But what kind of clue? Was it a warning? A call to action? A sly wink? Another puzzle? All were possibilities considered by the players as they tried to make sense of the strange claim. Here, I want to explore the diversity and complexity of these original readings, by way of documenting the richness of what has been too often represented as a mere act of dissimulation.

To begin, virtually everyone who took part in the conversations agreed that they should not take the message as a literal disavowal. "I know for a fact that this text… has something to do with the game itself. The reassurance that 'this is not a game' is a direct reference to the game, and thus should be considered a direct clue" (dark97506 #25867). Here, the word "game" becomes a kind of trigger for play, a direct claim on the attention of the Cloudmakers. Rather than effectively denying the game's gameness, the disavowal actually serves to make more visible the fact that the players recognized their ludic activity as such. It prompted them to discuss explicitly and publicly the limits of the game, the quality of their play, the game's intended themes, and the game designers' aspirations.

Early in the discussion of the TV spot, the most frequently proffered interpretation was that the message was meant to define a boundary for the players. This interpretation stemmed from the players' efforts to distinguish clearly "in-game" media from "out-of-game" information. (Think here, for example, of the WHOIS debates and the Zartman email incident.) Until this point in the game, *The Beast* had refused to formally label content as either inside or outside the boundaries of its magic circle. Some Cloudmakers believed that the trailer clue was in fact the first clear limit being set. These players read "This is not a game" as a straightforward act of classification. One player asked: "Could this be as prosaic as the ad agency telling us that this commercial doesn't need our scrutiny?" (Burns #21901) Another player interpreted the message as marking the entire film out-of-bounds: "The words 'This is not a game' I think separate the game from the movie, saying the movie is no longer involved in the game" (NovaStarJ #22425). Others performed a more complicated analysis in order to transform the message from a disavowal into a positive identity claim. For weeks, players had been debating whether the official website of the film at www.aimovie.com was in-game or not. In response to the new trailer, a proponent of the former view suggested: "As the latest TV spot has the THIS IS NOT A GAME message in red *and* the aimovie.com site all in red, is it possible they are one message?.... We know that this IS a game. So maybe that means that, in at least some small way, the aimovie.com site should be considered 'in game' too" (mattadcock #22377). One player, however, disagreed vehemently with any classificatory reading whatsoever. Persuasively arguing that the disavowal precludes anything from being inside or outside of the game's boundaries, he writes: "What is 'in-game', and what is not 'in-game' if none of it is a game?" (mgarlan #27916) And so players sought alternatives to the classificatory interpretations. However, their initial attempts to use TINAG to define the limits of play strongly indicate that TINAG drew *more* attention to the construction of the game's frame, rather than dissembling it.

In a second popular reading, many players opted to take the message as a kind of stage direction, a critique of their gameplay performance to date. "Maybe they're mad that we've been referring to this as a game," wrote one Cloudmaker, arguing that they needed to take the *role play* aspects of the game more seriously (KG785 #21897). Another player followed up: "I think they are just saying that we need to start playing more in-character" (Neoshark #21916). Indeed, early in the game, the founders of the message board had debated whether they could openly talk about the game as a game, or if instead they should talk about it “in character”, as if it were real. This is, of course, yet another problem of classification: Is the Cloudmakers’ message board in-game, or out-of-game? One player who decided on the former classification repeated the exact language of the disavowal in order to instruct his fellow Cloudmakers how to be more consistent role players. “HOW, exactly, does one interact with characters who are 1) fictional, and 2) 150 years in the future? THIS IS NOT A GAME :-) Assume they aren't fictional…. You have to suspend a small amount of disbelief, but other than that, just pretend you are in the game universe” (shaun5 #24030). For many players, then, “This is not a game” was interpreted not as a literal denial of gameness, but rather as a new rule governing player interaction. This new rule insisted that players must always, openly demonstrate their suspension of disbelief, even when talking amongst themselves. Although not everyone agreed with this interpretation, ultimately discussion of this point led players to create a “META” tag for discussion posts that suspended the performance of belief. Players who wanted to stay within the fictive limits of the game and immerse themselves fully in their role play could ignore these posts.

Other Cloudmakers, perhaps not surprisingly, approached the message as yet another puzzle. Because previous signals often yielded interactive affordances beyond their semantic content, players scrutinized the new disavowal for embedded information. One Cloudmaker recorded the commercial so he could study it through repeated viewings. “I'm about to back it up and look more closely -- folks will want to be on the lookout to record it and deconstruct the credits a little more” (Burns #21883). The author of this post seeks to construct a kind of Russian doll of meaning: he hopes to find a signal within the noise of a signal in the noise. Players considered applying various specific puzzle solving techniques. For instance, one player asked: “Could ‘This is not a game’ also be anagrammatic?” (Alethea #28175). (The answer: Yes, it could, by the hundreds—but anagram results like “a hit in most ages”, “a hostage in mist” and “Tom isn’t a geisha” didn’t seem to be related to the game.) Other players struggled with the semantic content of the message in trying to relate it to their overall puzzle-solving efforts. One Cloudmaker suggested replicating the structure of the disavowal in their own gameplay: “I've been thinking about this. The latest trailer apparently says ‘THIS IS NOT A GAME’. However we KNOW this is a game. So could the clue here be that we are to take the opposite route on an existing puzzle?” (Nicko #23947). Among all of these puzzle-hunting interpretations, “This is not a game” merely served as further platform for gameplay.

The most intense speculation occurred among players who chose to interpret “This is not a game” as a sincere, and possibly urgent, disavowal—not of the game’s fictive nature, but rather of the presumed inability of a computer game to be more than entertainment. Some Cloudmakers, for instance, considered the possibility that the trailer was hinting at the serious philosophical themes of the game. One player wrote: “All I can think is that the puppet masters are trying to make us take this thing more seriously. That there is some sort of deeper message to the whole thing” (Krog002 #21885). Many agreed, offering different opinions of what that deeper message might be. “Is it highlighting the metaphysical questions raised in common by the movie and by the world the Puppet masters have built for us? The themes are not amusing?” one Cloudmaker asked, referring to their shared dystopic, and ultimately apocalyptic, vision of a society overwhelmed by its own sentient machines (Burns #21901). For one player, “This is not a game” spoke to the depth of the experience created by *The Beast*. “It is not a game, it's an experience, a lesson in life, and an adventure” (kyonowatoredesu #23956). Another suggested that the deeper meaning of *The Beast* was its aesthetic aspirations: “I really think that this has gone way beyond movie promotion or being a game. This is not a game... it's art” (ghettosmurf #23272). For all of these players, “This is not a game” resonated with their own desire to classify *The Beast* as more engaging, or more serious, or more beautiful than any game they had played previously. The TINAG rhetoric was not taken as a denial of gameness, but rather as an expansion of the definition of what a game can be.

Another interesting strand of TINAG discussion revolved around how the Cloudmakers felt personally hailed by the message. The five word caption turned a national broadcast seen by millions of TV viewers into what was experienced as a very intimate communication targeted at a particular group of thousands. Wrote one player: “So, the question is -- what does this add to the Cloudmakers thing. It was, after all, a message to us” (Burns #21901) Inclusion in this special group of “us” depended on knowing the pattern of the game. One player related: “I made sure to get up real close to see if anything interesting popped up. Sure enough, something did. In red letters, as last time, there was a message. ‘THIS IS NOT A GAME’” (Atedazawk #21894). Here, the author acknowledges one of the perceptual patterns taught by the game.

For some Cloudmakers, being addressed in a more intimate way by their television sets was a disconcerting experience. Wrote one player: “Another definite message that the PMs are watching us, as if it wasn't obvious already. It was a little creepy” (Atedazawk #21894). Many players echoed this sentiment. “I just saw it too....creepy!”

(KG785 #23122). One player speculated about the purpose of the caption: ""it could also be there for fear effect" (Nicko #23947). Fear of what, exactly? One particularly affected Cloudmaker summed it up: "Be aware, everyone.... we do not know how far this whole thing reaches; i.e., how far into 'reality' this will stretch…. THIS IS NOT A GAME…. the game may become less of a game all too quickly.... be warned, everyone. we have no idea where this is going (madashamlet #23957). This post, which I cited earlier as one of the more sensationalized accounts of deep immersion, would seem to prove that some of the players were truly being scared away by the TINAG rhetoric. But was this performance of belief in the slippery slope of the game to reality—well, real?

A search of the Cloudmakers archive reveals that the same author, writing under the nickname madashamlet, subsequently posted on sixty-two additional occasions between this TINAG post and the end the game. These posts do not exhibit any concern about blurred boundaries; on the contrary, madashamlet takes an active and rational approach to checking the limits of the game. For instance, when a phone number thought to be in-game seemed to be reaching an ordinary, non-game person, madashamlet wrote: "here's a way to find out of he's in-game...where and when did his number get posted? why?" (#29498) Tracing the number to its origins—it had been extracted from *part* of binary code puzzle—revealed that it was probably an incomplete solution, and the phone number was deemed out-of-game. Here, then, we can see that players enjoyed the *illusion* of a game-becoming-real, but did not in fact *believe* the game was becoming real.

Perhaps the most interesting and complicated reading of "This is not a game" arose from the small group of Cloudmakers who recognized the linguistic pattern of the statement as a reproduction of the famous surrealist expression, "This is not a pipe."

6.2 *The Beast*: The Brutus Collage. Players of *The Beast* noticed a similarity between the *A.I.* trailer caption "This is not a game" and Magritte's caption on the painting *The Treachery of Images,* which appeared (partially obscured in the bottom row) in the game puzzle shown here. Ultimately, the bottom image, which layers a photo of the character Brutus and a question mark on top of Magritte's painting, was solved to mean "This is not a Brutus?", as in: *Be careful, Brutus may not be who he seems to be.* (Microsoft, 2001)

Some players excitedly noticed that René Magritte's painting of a pipe had already appeared in one of the game's digital artifacts, the unsolved "Brutus collage" puzzle (see figure 6.2). "Possible connection- 'This Is Not a Game' could be pointing us towards '*Ceci n'est pas une pipe*.' AKA 'The Treachery of Images' one of the paintings in the Brutus collage" (eakawie #22964). Another player augmented this observation with some thoughts about the potential meaning of the image. "Perhaps the THIS IS NOT A GAME message is to point to the Brutus collage image that contains the Magritte 'This is not a pipe' painting? Modern Art History 101 – Magritte was trying to state that he was presenting a -painting- of a pipe, and thus it was not an actual pipe" (denco_1998

#22266). Others, armed with this art historical knowledge, filled the message board with speculation about the possible implications of a surrealist point of view for the game.

> The treachery of Images by Magritte! A theme if not a clue. "*Ceci n'est pas une pipe*." One possible reading an art historian or semioticist might offer of that well-known painting is that, as Magritte says, in French, what you are looking at is not a pipe! It is paint on a canvas that to your eyes resembles a pipe - or better yet, pixels on a screen that resemble the paint on the etc. etc. The map is not the territory. As in "This is not a game?" Relationship? (Farmer #23975)

Among those who considered the relationship, one player's post stands out as an astute analysis of the relationship between *The Beast* and the larger, emerging ubiquitous computing culture.

> I think it's partially a reference to Magritte's painting (and by extension, the whole words/reality thing), and in part says that the "game" we are playing now is the technological reality of the future: people's existence will be known through their presence on the net, in emails, voicemails, etc: how can we know they are real? Once every experience is a mediated one (see McLuhan, see Influence on Kubrick) how can we tell what is real and what is not? Well, we'll tell by sleuthing, or try (cps46 #22429).

Here, the player understands "This is not a game" to be a performative message. The identity crisis of a simulation that believes it is real performs the coming paradox of ubiquitous computing. The author acknowledges telepistemological concerns by asking how users will know if content in the network is real when all presence is mediated.

However, the player suggests the solution of sleuthing—in the case of alternate reality games, *collective* sleuthing, as a way of managing these dissimulative opportunities.

As player discussion of TINAG took this ultimately more serious and philosophical turn, some posts playfully suggested they had taken this line of interpretation too far.

> It's so obvious; I should've seen it before! If you take a hint from the Matisse painting and translate ‘This is not a game,’ You come up with the phrase CECI N'EST PAS UN JEU. This is an anagram for “A SCENIC JUNE SETUP,” obviously a reference to the movie itself, and when it’ll start playing. It all makes sense now!... They're speakin’ to us, man. I can hear the voices... I can-- Oh, sorry; where was I?” (pat #22337).

Here, the player mocks the groups’ tendency to find signals in the noise where there were none. This joke demonstrates, again, the consciousness the Cloudmakers maintained through the game about the nature of their pattern-detecting play. This post serves to dissolve tension created by players’ frustrated efforts to extract from the TINAG rhetoric further clues or interactive affordances.

Exhausted by all of this discourse, one player finally asked, “Is a movie trailer sometimes just a movie trailer?” (Burns #21901). Although it seems to dismiss the TINAG clue, I would argue that it is in fact the most incisive reading of “This is not a game.” In Rich Gold’s vision of the ubicomp world, seemingly ordinary objects are often much more than they appear. Their hidden features and functionality must be investigated, detected, explored—just as the Cloudmakers investigated, detected and explored the secret affordances of everyday media. Gold might ask: *Is a pipe ever just a pipe, and not also a computer-enhanced, network-enabled device?* And here, “This is not a game” prompts the question: *Is a movie trailer ever just a movie trailer, and not a game-enhanced, network-enabling platform for play?* For the Cloudmakers, seemingly ordinary media artifacts could be made to perform, but only for those who questioned their surface identity claims. Ultimately, the ability to detect the game among things that claim to be real, rather than detecting the real that intrudes on the game, is the true challenge of ubiquitous games like *The Beast*.

6.7 The Design Philosophy and Historical Origins of TINAG

During *The Beast*, players never officially "solved" the TINAG message. What was the designers' actual semantic intent? How did the designers expect the cryptic message would affect the gameplay experience when they coined and embedded it?

After months of player speculation about and rhetorical repurposing of the phrase, these questions were answered formally for the first time through Elan Lee's design lecture "This is not a game" at the 2002 Game Developers Conference. A handout from the lecture, and a transcript, have been widely circulated online among alternate reality gamers. Since the March 2002 GDC lecture, these documents have served as an official puppet master endorsement of a particular interpretation of the infamous disavowal. According to Lee's essay, which was handed out at the lecture, TINAG as a design philosophy boils down to three essential rules. First, "Don't tell anyone" ("Essay" 3). Lee explains that instead of announcing the game, its existence should "create a secret"—and then encourage players who discover the secret *not* to keep it. That is, the sense of mystery created by denying that the game exists is designed to make players feel special for being in the know—and therefore make them want to share their special knowledge with others. The goal, according to Lee, was to make players feel as if they could say:

"This is mine—and I want to share it with you" ("Transcript" 4). In other words, there is a kind of peer-to-peer learning structure embedded into the dissimulative aesthetic of the game.

The second principle of the TINAG design philosophy as presented in Lee's lecture is: "Don't build a game space" ("Essay" 4). This rule rejects both the concept of a spatially-defined magic circle as well as the desktop computing paradigm. Lee explains: "We wanted to build something that was not limited to the confines of the computer….. we realized that we should be using whatever electronic gadgetry we could think of" (4). This rule addresses, essentially, the construction of a massively distributed content delivery system. That is, TINAG design aspires to *ubiquitous* content delivery.

The third design principle Lee presented in his lecture was: "Don't build a game" (4). To create the TINAG effect, designers must construct the real equivalents of any platforms that exist in the fiction of the game. And because the content will take the form of real-life media and communications, they cannot be annotated with game instructions or guidelines. This rule requires the game to be entirely playable without any instructions or tutorials—as Lee quips, "Life has no 'Help File'" ("Transcript" 7). He argues: "There is no way to explain the intricacies of reality…. So everything has to work" (7). Here, the importance of design by affordance is recognized. Any perceived actionable property of the game must be accounted for. Lee explains: "To build an experience without the benefit of a concrete set of rules meant that we had to predict every action a user might take and have a solution in place. We had to be prepared for anything and everything so that the life simulation would be flawless" ("Essay" 4). The TINAG design philosophy, then, establishes a kind of meta-contest between the designers, who must anticipate the players' next moves, and the players, who may try to game the system and trip the puppet masters up by seeking out the game's most unexpected affordances.

With these three official TINAG principles, Lee's talk confirmed the design paradigm that had been pieced together speculatively by the players. The lecture affirmed the players' collective beliefs that "This is not a game" had been calculated for maximum psychological effect on the players, that it was a nod to the ubiquity of digital media, and that the puppet masters were indeed paying close attention to their every move. Moreover, Lee's lecture seemed to confirm that TINAG has been a core mantra of the design team throughout the development of *The Beast*. A handbook for aspiring puppet masters called *This Is Not a Game* was published in 2005, cementing the idea that TINAG is the most important and defining element of alternate reality games.

In a December 22, 2005 interview, however, Elan Lee described for me an alternate, slightly less unified history of the "This is not a game" aesthetic. If TINAG has come to serve as a guiding principle of ARG design, it did not in fact start out that way. Lee recalled that the he did not coin the phrase until the game was well underway, tracing its origins to a five-minute phone conversation with Warner Brothers executives in May 2001. In our interview, Lee described for me what he was thinking, feeling and intending on the phone that day when he crafted the phrase that has come to play such an important role in the category of ubiquitous games. These reflections offer a significant counterpoint to the traditional origins myth that surrounds "This is not a game"—indeed, something Lee acknowledged when he prefaced our interview with the disclaimer: "This may be a very disappointing explanation." As in: *This may not be a satisfying explanation*. Because it differs so much from what has been stated previously, Lee's personal account of how TINAG was first coined and intended to operate is worth exploring in detail.

How did the words "THIS IS NOT A GAME" come to be inserted into the June television trailers for Spielberg's 2001 film *A.I.: Artificial Intelligence*? Whose idea was it, when was the idea first conceived, and how were those particular five words chosen? Lee explains it as a very spontaneous and emotional decision:

> To be honest, where the statement 'This is not a game' came from—it came from anger, from defiance. I remember having the phone conversation with the guys at WB [Warner Brothers]. It was about a month into the Beast, May probably. They were about to push the TV trailers, and they said to me, 'You get one secret message in each trailer—what's the message?'

Lee describes the pressure of having to think of something on the spot. "There was no time to get off the phone and think about it. I had to tell them at that exact moment. I really tried hard not to overthink it. So I just said the thing that was on my mind, what I was feeling at the time." And that feeling, Lee recalls, was tremendous frustration at the design and development requirements that Microsoft was attempting to enforce in the development of *The Beast*. He recalls: "Microsoft had this massive infrastructure set up to tell us how to build this thing. They wanted to know, what does your game box look like, and what is your game marketing budget, can you please point to your game testers? And they had all these questions and demands, all of this infrastructure set up specifically to support the game." It was a rigid infrastructure, defining the production path for all games designed and developed at Microsoft. And Lee was growing increasingly irritated that he could not get his colleagues to understand that *The Beast* was *not* a game in the traditional computer game model. “The guys on the office on the left of me were building a game, and the guys in the office to the right of me were building a game, and my boss was building a game. And so we were supposed to be doing the same thing as everyone else.” But, Lee insists, they weren’t doing the same thing at all.

The problem was compounded when the press began covering *The Beast*. “We kept reading all these posts online and all of these news articles saying ‘this is a really intriguing new *game*’.” According to Lee, external use of the term ‘game’ only reinforced Microsoft’s internal expectations that the design and development process should be just like it was for every other Microsoft game. But for Lee, there was a critical distinction between the players calling *The Beast* a game and his Microsoft colleagues calling it a game. “We weren’t frustrated with the players for calling it a game,” he says. “The players were just trying to figure out how to talk about the thing. There were no convenient labels, because it didn’t really work like anything they had seen before. So for them to call it a game—well, that was fine. They were calling it a game until they came up with something better.” Lee recognized at the time that the players adopted the term “game” in order to create a common vocabulary for discussing the experience as it happened—not to *define* it, but rather to *explore* it. Lee’s colleagues, on the other hand, were using the term to enforce a structure, to actively define it as it was being created. Lee says he was concerned that a rigid structure would, in his words, “Kill the whole thing. It would die the minute we started doing any of the things they wanted us to do. It just got really frustrating, and the term for the trailer just came strictly out of anger. It was just venting, it was really just shouting. Let’s shout as loud as we can that we’re not going to do that." When I asked Lee to clarify who he was shouting at, he said, "At Microsoft."

Here, then, we can now read "This is not a game" for what it originally was meant to convey: *This is not a game—in the sense that you use that term*. *This is not a game like all the others*. By claiming "This is not a game," Lee essentially was rejecting Microsoft's hegemonic approach to game design and development. It was a kind of public raging against the internal obstacles to design innovation.

However, Lee further explained that the message was not intended solely for his colleagues. "Well, of course, we were kind of shouting at everyone. Basically, when an exec at WB calls you up and says you can put a message in a TV commercial, that's like saying 'Here's a giant megaphone you can point at the planet earth.' So I was definitely thinking about the players." But, according to Lee, while the phrase had a specific, intentional function as a message to his colleagues, it purpose in communicating something to the players was much more ambiguous. "'This is not a game' seemed very provocative, like you could interpret it in a lot of different ways," Lee says. "When I came up with this phrase it seemed like an immediate winner because it said everything I wanted it to say [to Microsoft], plus it fell well within the bounds of interpretable [for the players]. I knew it would have an effect on the players, but I didn't know what."

What stands out in Lee's interview is the fact that "This is not a game" was more of an impulsive utterance than a strategic intervention into the players' experience. And at the time, it certainly was not an expression of a rigorous design philosophy. "'This is not a game' as design philosophy, that's the side effect, that came out of it afterwards," Lee says. "When we used it in the spots, it came from someplace not very thought out, it was honest, it was anger. It was only months later once I had a chance to think about it, and when I started writing about my experiences—that's when I started thinking, 'You know what would be a perfect unifying theme?' That's when 'This is not a game' became a design philosophy, after it was all over."

Lee's account of TINAG's origins, then, effectively refutes many of the original Cloudmakers' posts in which they offered such diverse theories and interpretations of the phrase's intended meaning. For instance, despite much player speculation that "This is not a game" was an intentional, intertextual reference to Magritte's *The Treachery of Images*, when I asked Lee if Magritte's "This is not a pipe" caption had been an inspiration for his phrasing of "This not a game", Lee replied: "I don't think I'd heard that phrase before. I don't think I'd ever seen the painting." But I do not offer Lee's account in order to judge, in hindsight, which Cloudmaker interpretations were closer to or further from TINAG's true meaning. Instead, I want to dwell on the fact that TINAG was delivered to the players not as a clearly defined signal, but rather as an intentionally ambiguous message. In its own deliberate noisiness, the phrase "This is not a game" served as a platform for diverse interpretation and rigorous debate. As Lee acknowledged, the players' intense speculation about the "This is not a game" message was ultimately a major influence on his formal delineation of the TINAG design philosophy.

In a feature article for the Alternate Reality Gaming Network titled "This Is Not a Game and the TINAG Philosophy", Brooke Thompson describes TINAG as the design philosophy "that gave birth to the current ARG community" ([2]). But on the contrary, the history of TINAG that I have documented here shows that it was, in fact, the ARG community that gave birth to the TINAG philosophy. In the end, the disavowal's meaning for the development and experience of games was crafted collectively, a joint creation of the designers and the players. In this way, the emergence of TINAG as a coherent aesthetic mirrors the construction of the game world itself, which I have argued here is produced and preserved through the puppet masters' and the Cloudmakers' cooperative playing at belief.

6.8 Make-Believe Play and Realistic Performance

To place alternate reality gamers' performance of belief in an art historical perspective, I want to explore two related phenomenon. First, I will consider how the make-believe play of immersive games can be found in the reception of all of the mimetic arts. Second, I will examine the parallels between alternate reality gamers' performance of belief and traditional, realistic acting methods.

Philosopher Kendall L. Walton argues in *Mimesis as Make-Believe: On the Foundation of Representational Arts* that the central activity of receiving all representational arts—including painting, theater, and literature—is essentially ludic. Such arts, according to Walton, require active participation in a game of make-believe. All art objects—such as filmstrips, novels, sculptures, dramatic texts and live actors on a stage—function as *props* that define the rules, actions, objectives, and themes of play for their audiences. These props tell us what we are to pretend to believe, for how long, and what mechanisms we have at our disposal for displaying our make-belief to other participants. This added element of "display mechanisms" substantially differentiates Walton's notion of make-believe play from traditional theories of suspension of disbelief (13). The basic concept of "willful suspension of disbelief," first coined by English poet and critic Samuel Taylor Coleridge in his 1817 *Biographia Literaria,* describes a psychological practice that remains entirely internal to the reader, viewer, or listener. No external communication of that suspended disbelief is required. It is a mindset, rather than an action. In games of make-believe, Walton points out, mindset is not enough: participants must convey an active belief to their fellow players. To demonstrate the thought process that leads from internal suspension of disbelief to external performance of belief, Walton cites radical psychologist R.D. Laing's poetic exposition of game play dynamics: "They are playing a game. They are playing at not playing a game. If I show them I see they are, I shall break the rules and they will punish me. I must play their game, of not seeing I see the game" (xvii). For Walton, the "possibility of joint participation" is one of the chief allures of make-believe (68). Feigned belief in the game therefore becomes essential to acceptance in the community of players, and an outwardly directed performance of belief assures inclusion. This "playing at not playing a game" fits perfectly, of course, with *The Beast*'s TINAG rhetoric. We may see the collective play of the immersive genre, then, as making explicit what implicitly occurs among audiences of all collectively experienced art forms. Here, we are reminded, of course, of D.W. Winnicott's theory of the post-childhood tendency to seek out a more *communal* suspension of the reality lessons taught through transitional play. Moreover, as a genre that emphasizes collective gameplay and collective identity—a topic I explore at length in Chapter Eight—such performance becomes especially important as a way of defining and strengthening the player community.

Although Walton does not use the word "performance" to describe audience members' external displays of pretended belief, his theory of reception as play exhibits strong theatrical leanings. Since the early twentieth century, the pursuit of physical and verbal ways to express a sincere belief in a dramatic scenario has served as a basic principle of realistic acting. Constantin Stanislavski's hugely influential theory of the "magic if" asks actors to think and to act *as if* the circumstances of the dramatic scene were real. Stanislavski's advice is oriented toward an external display of belief. He is concerned with the gestures, actions and expressions that will communicate to the audience a stage-simulated belief in the character and given circumstances of the play. This "magic if" therefore requires the same kind of legible, outward expression of belief that we see at work in social make-believe play and alternate reality gaming.

Indeed, in the actors' training text *Acting is Believing*, Stanislavski-trained director and acting coach Charles J. McGaw proposes that "acting is literally a matter of 'make-believe'" (7). He stresses the "ever-present realization that it is only play" (46). It is not the goal of an actor to become consumed by a "for real" belief, but rather to develop a conscious and strategic performance of belief that retains its mimetic frame. To this end, McGaw urges actors to attend to the difference between what is perceived as "real" and what is felt to be "true", in an emotional and phenomenological sense:

> Neither the child nor the actor is concerned with reality — with the actualness of the things about him…. He knows, too, that the situation is not real and that he is not really the character he is playing. Toward all of these he maintains the same attitude. Toward all of these unreal factors he says: 'I will act as I would if they were real.' And his conviction in the truth of his own actions enables him to believe also in the *truth* (not in the *reality*) of his cardboard crown (8).

As McGaw notes, what *feels real* may be as true as what *is real*. An emotional experience in make-believe play—or, in the case of alternate reality games, in a virtualized environment—is truly felt, even if the circumstances in which it occurs are fictive.

I want to suggest here that there may arise frustration among players in a particularly immersive setting at the apparent discrepancy between subjectively felt truth and objectively known reality. How do players, on a stage or in a game, reconcile what they know to be feigned—their knowledge that "this is a game"—with what they feel to be real—the emotional truth that this does not *feel* like a game? This tension, created by a mimetic experience that is both not real and yet true at the same time, plays an important role in what I have come to call "the *Pinocchio* effect." To explore this paradoxical sense of simultaneous fulfillment (our play is true) and lack (our play is not actual), I would like to turn back to *The Beast*, so that we may examine the Cloudmakers' desire, to adapt Carlo Collodi's classic fairy tale, to play a "real little game."

The story of *Pinocchio* makes a particularly fitting allegory for alternate reality games. After all, the impetus for *The Beast* and thus the entire genre was Spielberg's *A.I.*, itself a futurist Pinocchio tale. (*A.I.* tells the story of a sentient machine that dreams of becoming a real little boy and goes on a quest to find the Blue Fairy who can turn him into one.) The term puppet masters, of course, is a term that also evokes *Pinocchio*. And indeed, the puppet masters of *The Beast* masterfully wove this intertextual reference throughout the game fabric—going so far as to register website domain names to "Ghepetto," the toy maker in the original *Pinocchio*.

The Beast's most poetic gesture to *Pinocchio* came in the form of a flash animation that portrayed the death of a major game character, Eliza. A chat program with simulated memories of having once been a real little girl, Eliza was perhaps the character most beloved by *The Beast*'s audience. As the program called "Eliza" crashed for the last time, it granted the game players a kind of parting gift. In the flash animation, as sparkly blue dust rose out of her avatar's hands, it promised, "I'll give you a little something. I'll give you a fairy blessing." This blessing, of course, is meant to evoke the magic Blue Fairy dust that was said to be able to turn a puppet (or robot) into a real little boy. "I can do that," Eliza told the players as the program crashed, "because I'm real, I'm real, I am real." Her final pleading words: "I *was* real."

Eliza's name, of course, is a reference to the Joseph Weizenbaum's chatterbot, the most famous case study of the Turing Test. In naming the delusional program Eliza, the puppet masters suggest that the character has passed a kind of *reverse* Turing Test. Rather than convincing a user that its simulated self is real, the program has persuaded itself. Just as *The Beast* kept insisting, "This is not a game," Eliza wanted nothing more than to transcend her digital limitations, to be known as a real little girl. Through Eliza, *The Beast* acknowledged its own unfulfilled desire to transcend the realm of virtuality.

In the *Pinocchio*-inspired scene of Eliza's death, players were given an opportunity to reflect on this longing of the game to be real. And because the game's dissimulative aesthetic required players to act as if they, too, believed in its realness, players developed a sympathetic belief in the games' realness. This sympathetic belief was both virtual and bittersweet, a *simulation* of belief borne from the virtualizing play and pointing, like virtual reality, to the unmet promise of experiencing its real counterpart. It arises from the same gap McGaw observed in immersive acting: the disjunction between the emotional, experiential truth of the game and the reality that it was all just play.

What if all of real life were as responsive and engaging as the game? I would like to suggest that players' complicity in *The Beast*'s self-professed desire to be real is best understood as a mirror desire for their real life to be more like a game. This mirror desire is clearly witnessed, for example, in the Cloudmakers' attempts to project the cognitive pattern of ubiquitous games on the real events of 9/11. Having experienced the pleasurable responsiveness and sense of agency afforded by *The Beast*'s ultimately knowable ludic system, the players chose to use Eliza's final blessing to turn their everyday existence into "a real little game."

But what would make the players feel empowered to reframe 9/11 so dramatically? By performing a belief in the game, players serve as active co-producers of the game's illusion and co-constructors of its ludic frame. This kind of participation teaches the players to exercise a power symbolized by the transformative magic of Eliza's blue fairy dust. It is the power to create a ludic frame around whatever the players deem playable, the ability to understand and to build the constitutive elements of play. We might consider this an *open source* approach to framing (and reframing) reality.

6.9 Open Source Play: Turning Real Life into a Real Little Game

Open source is a philosophy and practice of computer science that encourages massively collaborative programming. It argues that software evolves for the better when anyone has full access to its source code, as well as the right to modify the code and to redistribute it.[52] In "Renaissance Now! The Gamers' Perspective", Douglas Rushkoff argues that digital gamer culture in general is itself a kind of open source practice. Rushkoff argues that computer games first encourage players to learn the underlying

[52] For seminal essays in the philosophy and history of the open source movement, see Eric S. Raymond's collection of essays *The Cathedral & the Bazaar* (2001). For a close reading of the political and economic dynamics of the open source philosophy, see Stephen Weber's *The Success of Open Source* (2004).

patterns and codes of the game system, and then license them to exploit and to modify this ludic structure. Modification and reframing of the system takes place through subversive play, including the use of cheats and hacks to test the limits of a game system, as well as through the increasing tendency for gamers to modify and make their own game content. In this way, Rushkoff argues, gamers become programmers.

Alternate reality games turn players into programmers in several important ways. First, it is the ARG players, rather than ARG designers, who are responsible for explicitly defining the rules of each game. In his GDC essay, Lee emphasized that TINAG design precludes explicit articulation of the game's rules. Because real life doesn't come with a help file, Lee explained, players must figure out the rules of the game on their own. Indeed, players of *The Beast* sought to outline a formal code of fair play quite early in the game—recall here, for instance, Hon's "A Philosophy of Discovery", which declared use of WHOIS information "cheating". This early phase of defining what is appropriate in any given game occurs whenever a new ARG is launched. For instance, early in the *The Lost Experience* ARG (ABC & Bad Robot, 2006), messages reflected precisely this kind of exploratory rule-defining process. One player writes:

> A small ethical debate broke out a few days ago when someone tried to socially engineer their way into a fictional character's Monster.com account to gain access to their resume. I understand why that is over the line, although I have to admit, it crossed my mind to try it earlier. But I believe my boss has an employer account on Monster, and is also a fan of the show it's based on, so I could feasibly gain access to this resume legally. Would this be considered behind the curtain? (Yauch #237308).

After careful deliberation, the player community advised against this proposed course of action. Some rules extend from game to game, becoming a formalized ethics and etiquette for the genre. For instance, in the Player Tutorial section of the Unfiction message forum, one experience ARG player instructs: “If by some chance you gain access to a game Character's e-mail/blog/etc. ID and passwords, please do not send out e-mail/webpage updates/etc. as if you were the in game character” (MageSteff #31703). This rule is supported by the following rationale: “It creates headaches for many people: 1. The Puppet Masters: they now need to do damage control on your false information. Which wastes their time and resources, leaving less time and resources for you the player. 2. Players: who now have to decide if every in game contact is real or a troll impersonating an in game character.” As these posts show, ARG players literally write the rules of the genre, taking on a kind of co-creator status from the very start of each game.

Second, the practice of open source computing, both as a metaphor for social interaction and as a literal computing practice, is required quite often by ARG gameplay. Players must learn the intricacies of a new alternate reality so that they can perform effectively in that culture. This includes compiling and executing not only fictive social codes—in *The Beast*, for instance, players learn it is best not to anger A.I. programs by reminding them of their artificiality—but also fictive technical code. In an early puzzle of *The Beast*, for example, players were required to learn a futuristic, elite hacker-speak in order to correspond with cyberterrorists. These conversations took place by embedding messages in the source code of web pages. The fact that the source code for any page on the World Wide Web is viewable is itself a manifestation of the open source philosophy.

By creating gameplay that requires players to engage source code, the game draws them into an open source practice.

Another particularly compelling example of open source practice in ARGs occurred during the *I Love Bees* project. In designing the main game website, technical director Jim Stewartson invented a fictional, object-oriented programming language through which various barely-sentient programs (as compared with *The Beast*'s highly sentient programs) communicated. Among the programs that used this language were the System Distributed Reflex Peril (the SPDR) and the Pious Flea. Throughout the game, Stewartson dropped bits and pieces of this code on web pages and into emails sent by the programs. No direct translation or explanation of the fictive programming language was ever provided. However, players soon discovered that it was possible to discern the meaning of specific lines of code through their observable impact on other characters and on the composition and functioning of the website. The players therefore took it upon themselves to collect and to translate every line of code that appeared over the four months of the game. Out of their compiled examples, they created an overall wiki-based guide to the language, which they themselves named *Flea++*, a reference to the actual programming language *C++*. (For an example of player-translated *Flea++* code, see figure 6.4.) Later, a game mission required the players to communicate directly to the programs using the language, which they themselves had helped to formally compose. In a post-game chat with the puppet masters of *I Love Bees*, Stewartson revealed that as the game progressed, he worked directly from the players' *Flea++* guide to write new game content. He admitted: "to be perfectly honest, after a while, i started to use the syntax cheat sheet from the [players-created] wiki" ([17:15]). Indeed, the players took such

Code:

```
grope: seeker > !attach Princess
```

Remember that > is a question in most instances, this means "Can I attach to you, Princess?"

Code:

```
fail "msg: SPDR-5.14.3
```

"No? SPDR-5.14.3?"

Code:

```
evade evade evade
```

"Crap. RUN!!!!"

Code:

```
!probe extern proc 1
```

"What just tried to attach to me?"

Code:

```
rogue proc
```

"You're not anything I recognize, you're foreign, not friendly at all"

Code:

```
!bite rogue proc 1
recurse
```

"I'm putting a stop to this."
"And I'm not going to stop attacking you until I'm sure you're dead."

Code:

```
!splotch
clean confidence 100
```

Flea: "OH I AM DEAD"
SPDR:" Yes, you are."

6.3 *I Love Bees*: Flea++ Translation. A player of *I Love Bees* posts a translation of a scene played out in the fictional programming Flea++. The pieces of code displayed here were found across various pages of the website www.ilovebees.com and compiled by players in this logical sequence. This scene documents the death of the character, the Pious Flea, for whom the players named the language. (Unfiction, 2004) ownership of the language that they played with it extensively outside the formal challenges of the game. The players excitedly told Stewartson in the post-game chat, for instance, about “Flea++ apparently becoming a geek-trendy lingo, similar to [gamer] 1337speak”, or “elite speak” ([17:17]). Player GuiltySpark explained that players exiting chat rooms at the end of the night would say "!grope pillow" instead of "I'm going to sleep" ([17:17]). DarkForge informed Stewartson: “I translated Edgar Allen Poe's ‘Tell Tale Heart’ into Flea++“ ([17:14]). Together, the formal documentation and emergent use of *Flea++* turned the players into game programmers and coders in a very literal sense. And the technical director’s openness to player interpretation of the code helps to indoctrinate players into the value system of the open source movement.

Finally, the development of the larger genre of alternate reality gaming has taken the form of an open source game design movement itself. The number of fan-produced, grassroots ARGs produced to date vastly outstrips the number of professional ARGs, at a pace of three independents games for every one commercial game. Moreover, for each fully-developed independent ARG, there are dozens of smaller interactive projects by aspiring ARG puppet masters designed to help them practice the art of creating an ARG. The Unfiction forums dedicate an entire section called “ARGs with potential” to these short-form projects. One of the most consistent phenomena in the ARG space is the explosion of independent and short-form ARGs immediately after a full-blown, commercial ARG has concluded. In the wake of *The Beast*, for example, a team of a dozen senior Cloudmakers produced *Lockjaw*, the first independent ARG; it lasted four months and was played by nearly four hundred former Cloudmakers.[53] And in the wake

[53] The forum for *Lockjaw* gameplay is archived at http://games.groups.yahoo.com/group/jawbreak/. A complete walkthrough guide is available at http://www.vpmusic.com/jawbreakers/guide.htm.

of *I Love Bees* (ILB), a squad of players in Arizona used the knowledge they had acquired about the location and numbers of working payphones in their state to stage a mini-game of their own for non-ILB players. It can clearly be said, then, that in a very real sense ARGs generate *game design* as much as they generate *game play*. Indeed, the continued replication of the game form by players who seek to reproduce the same interactive affordances and aesthetic in their own new, "real" ARGs can be understood as its own mimetic practice. The imitation of the ARG form mirrors the ARG's imitation of real life.

In all of these ways, ARGs embody perhaps better than any of their fellow digital games the player-as-programmer phenomenon. But how does this active co-production of real games lead to the radical ludic appropriation of everyday life *as if* reality itself were a game? Rushkoff argues that games, by exposing the nature and malleability of their systems, in fact encourage gamers to see the entire world as their open source playground. He writes: "As game programmers instead of game players, we begin to become aware of just how much of our reality is, indeed, open source—up for discussion. So much of what seemed like impenetrable hardware is actually software, and ripe for reprogramming. The stories we use to understand the world seem less like explanations, and more like collaborations" (420). According to Rushkoff, this tendency toward collaborative reprogramming can be defined as "the gamers' perspective" (421). He defines this perspective as "the very notion that our world is open source, and that reality itself is up for grabs. For, more than anyone else, a real gamer knows that we are the ones creating the rules" (421). The Cloudmakers' reframing of 9/11 as a massively-multiplayer puzzle game can be seen, then, as an attempt to reprogram, collectively, their own response to the attacks. And it precisely because they chose to act *as if* they believed the game were real that they learned how to act *as if* they believed reality were a game.

Koster writes in *A Theory of Fun*: "We also need to understand how [the game system] will react to change to exercise power over it. This is why games progress over time. There are no games that take just one turn" (56). The gaming of 9/11 is clearly an example of ARG players attempting to take another turn at the game form they have mastered, to reactivate and to recontextualize the "strips of behavior", to return to Schechner, or the techniques, to return to Latour, taught by *The Beast*. As their 9/11 posts indicated, the players recognized the general problematic pattern of the ARG—data gathering, speculation about ambiguous content, collaboration, and so on—in the 9/11 events.

But perhaps it is not sufficient to account simply for the mechanics through which the players' persistence of gameplay vision takes place. We must also understand the emotional motivation for this phenomenon. The Cloudmakers' temporarily performed belief that they could play 9/11, I want to suggest, was as much an *emotional* issue as it was a rational detection of underlying ludic structure. In this chapter, I have worked to show that the dissimulative aesthetic and simulative power of alternate reality games is not so much dangerous as it is instructive—of how to build, collaboratively, a game world, how to manipulate the ludic frame, and how to strengthen community through performed belief. In the next two chapters, I will analyze what players describe as (to use McGaw's terms) the emotional and experiential truth in order to understand the particular pleasures of the social structures enacted by these games, in order to understand why gamers might desire to apply their ludic lessons perpetually.

First, in Chapter Seven, I will examine *reality-based superhero games*, a genre of ubiquitous gaming that represents a more *explicit* rhetorical and structural effort to generate a persistence of gameplay vision. Like ARGs, these games take an affordance-based approach to game design. However, much more so than ARGs, reality-based superhero games frankly encourage players to game their everyday environments and lives—not in the service of interacting with a fiction, but rather in the direct service of turning real life into a real little game.

Then, in Chapter Eight, by analyzing the play values and the techno-social structures that both alternate reality and reality-based superhero games enact, I will argue that for many gamers, the experience of ubiquitous play and performance affords a level of engagement, sense of purpose, and feeling of community far less easily attained outside the structuring frame of a game. The desire to continue experiencing the phenomenological aspects of play after the game has ended, I will suggest, has enabled the impressive, massive scalability and geographic pervasiveness of ubiquitous games. As I have argued, both *ubicomp games* and *pervasive games* have failed, thus far, to generate truly widespread play, proliferating instead citations and spectacles of play, respectively. Ubiquitous gaming, on the other hand, has a perpetual momentum and scalable architecture that has created reality-based play and performance many orders of magnitude above the other two categories. I now will work to show how the combined implicit and explicit quests for more, real little games has produced a remarkable proliferation of communities who genuinely believe not in the fiction of a game, but rather in their own abilities and collective mandate to create more play.

CHAPTER SEVEN

Power and Superpowers: The Ubiquitous Games – Part II

In the collision of desire and possibility, they made a new reality.
—Gerard Jones, historian of superhero culture (340)

Step outside yourself and be a superpower.
—Finnegan Kelly, co-founder of *The Go Game* (qtd. in Marech 1)

7.1 A Comparative Introduction to Reality-Based Superhero Games

The website for *The Go Game* (Wink Back, Inc.) poses a simple question: “Are you a superhero?” An inventory of superhero skills and personality traits is provided on the webpage so that aspiring players can recognize their own superhero potential—or lack thereof. In addition to “wit, cunning, and creativity,” would-be superheroes will need “quick thinking, a little street smarts, a lot of ingenuity, and the courage to break a few social rules” (“Superhero” [2]) But what if you, an aspiring player, do not fit this description? Then the game promises to transform you into someone who does. This promise is made in the form of a hyperlink, which reads “Be a superhero”; this link takes players directly to a sign-up page (“Game Described” [3]). The implication is clear: Becoming a superhero is simply a matter of choosing to play the game.

What does it mean to enter the realm of the superheroic? In *Men of Tomorrow*, a critical history of superhero culture in the United States, Gerard Jones argues that superhero mythology has the effect, for superhero fans, of “rendering the ‘make-believe’ as palpable and dignified as the ‘real’” (36). He argues that comic books, films and other fictional representations of a superheroic universe create “an inexhaustible supply of emotional and imaginative experiences that require no participation in reality” (36). In other words, superhero culture creates its own virtual reality, in which participants construct and inhabit a fantasy fan-space that resembles, but never touches, real life. In this chapter, however, I propose to examine a new genre of experimental games that fuse superhero themes and rhetoric with reality-based interaction. These projects claim to transform individuals into more powerful versions of themselves through collaborative gameplay, which is set in the material reality of everyday, shared social spaces. I therefore call these experiments *reality-based superhero games*.[54]

Reality-based superhero games (RBSGs) share the following premise: If ordinary people are given *specific instructions* requiring them to take a more adventurous attitude toward public places, they will surprise themselves with their own daring and ingenuity. Moreover, players will discover how surprisingly receptive strangers are to spontaneous interaction, and how responsive non-players are to ludic intervention. In other words, players will learn that there is far greater opportunity for gaming in their everyday environments than they previously suspected.

In order to facilitate this revelation, RBSGs pose site-specific challenges designed to be carried out in the real world. These game missions are distributed via Web-based cell phone applications, text messages, emails, and browsable online databases. They tend to fall into one of four distinct categories of play: social interactions with strangers, public art interventions, physical stunts, and close observation of the built environment. The

[54] Whereas *alternate reality games* (ARGs) is a well-known and widely used moniker for the genre, the term "reality-based superhero games" (RBSGs) is one I am coining here. In previous writings, I have referred to this particular cluster of projects as "urban superhero games"; however, in the past few years, the games have moved significantly beyond an urban context. Today, they are played in suburbs and small towns and, overall, in much more diverse settings; therefore, I feel it is important to cease identifying them as primarily an urban phenomena. When I first began writing about ARGs in 2003, the player community had not yet settled on a name ARG, and so I referred to them instead as "immersive games". RBSGs are at a similar historical moment; I fully expect the term RBSG may be replaced in the future by a name coined by the community. In the meantime, I have chosen the term that seems to best describe the present phenomenon.

challenges are designed to relate intimately to the environments in which they will be played, taking gamers into streets, parks, cafes, shops, alleys, trains, buses, and other social spaces. Playing outside the watchful eye of a puppet master, teams must prove their ludic interventions through digital photographs, audio recordings, and video documentation.

In the course of completing their missions, players form cooperative teams—as small as two or as large as twenty. Individuals who engage with the same reality-based superhero game over weeks, months, or in the case of *The Go Game* even years, may switch teams, make new alliances or recruit more would-be superheroes into the game. In this way, the RBSG community is modeled after the classic, comics-based social system, in which allied bands of superheroes team up in various permutations according to the unique requirements of a given mission. But RBSG gameplay is not only collaborative; it is also competitive. Teams are competing against one another to complete the most total missions, in "the most ingenious, daring, creative fashion" possible (*The Go Game* "How it Works" [1]). To determine which team has achieved the most dramatic intervention, documentations of completed missions are displayed online and at real-world meet-ups, where the evidence is scored and cheered by other players.

Reality-based superhero games such as *The Go Game* are sometimes compared by researchers to live action role playing games, or LARPs.[55] As Katie Salen and Eric Zimmerman note in *Rules of Play*: "LARPs occur in real physical spaces, and players walk about and interact with each other… in real-time' (578). They frequently center around fantasy themes, Salen and Zimmerman note, and are increasingly being held in

[55] See, for example, Martin Ericsson's 2003 article for the Digital Games Research Association, "Enchanting Reality: A Vision of Big Experiences on Small Platforms" and Montola Markus' 2005 article for *Digital Arts & Culture*, "Exploring the Edge of the Magic Circle".

public spaces where players and non-players may collide. While LARPs traditionally have been computer-free games, numerous recent projects have attempted recently to create digitally-augmented LARPs, employing the same mobile and Web-based technologies as RBSGs.[56] In these respects, RBSGs and LARPs do share some common traits and platforms. However, I want to argue here for two fundamental, formal differences between the two.

First, while both game genres emphasize creative, co-located play, RBSGs are intrinsically more structured and specific in the actions players are asked to take. LARPs emphasize improvisational interaction around flexible game objectives, and players largely self-script their own performances. They are “bottom-up” rather than “top-down”, as Salen and Zimmerman observe (579). RBSGs, on the other hand, give very clear and explicit instructions that must be carried out by the players without significant deviation. In completing their missions, RBSG players are following a pre-determined and relatively inflexible puppet master’s script. The games are very much a top-down experience, as I will explore in more detail below.

Secondly, LARPs are story-driven games that create fiction-rich contexts for interaction. They feature elaborate plots and back stories that enable players to adopt well-developed, fictional personas. RBSGs, on the other hand, eschew narrative altogether. There is no fictional backstory for the game or for individual missions. In an RBSG, players do not take on fictional personas. Instead, they are asked to perform more

[56] Major work in this area includes the ubiquitous computing research described by Jay Schneider, Gerd Kortuem in “How to Host a Pervasive Game Supporting Face-to-Face Interactions in Live-Action Roleplaying” (2001) and the *Takkar* project described by Laust Juul Christensen, Anker Helms Jørgensen & Thomas Tae-Yang Jørgensen in "Developing a hybrid of MMORPG and LARP using usability methods: the case of Takkar” (2003).

adventurous versions of their real-life identities. LARPs, we might say, require *role-play*, while RBSGs require *real-play*.

Here, it is interesting to compare reality-based superhero games with alternate reality games, a genre with which they share several important formal and aesthetic qualities. Like ARGs, the RBSGs I will examine in this chapter seek to virtualize reality by projecting cognitive patterns of play onto everyday environments. As in ARGs, these patterns are constructed and revealed by designers referred to as puppet masters. And RBSG play, like ARG play, is focused on the discovery of secret, ludic affordances of seemingly ordinary objects. But here is where the two genres begin to diverge. Whereas ARGs adopt the *real world* as a platform for play, RBSGs are designed to help players experience *real life* as a platform for play. The difference here is subtle, but crucial. ARGs are primarily interested in the real world as a robust, immersive infrastructure for fictive play. The gameplay is based phenomenally in the real-world, but the narrative of the game is strictly separated from the cognitive frame of real life. Players gaming reality and their persistence of gameplay vision are *effects* of ARGs, but they are not necessarily the primary purpose of ARGs. RBSGs, on the other hand, do explicitly aim to game reality itself. They view everyday life as fundamentally playful, and therefore they neither require nor desire a fictional basis for ludic interaction. Indeed, rather than creating a fictive world for play, they aim to reveal that the real world has always already been a platform for play, with ludic opportunities that both precede and persist beyond the event of the game.

How is public play construed as a force for good, an act worthy of the superhero brand? What design strategies are most likely to provoke a feeling of superheroic power? And, finally, do these reality-based superhero games produce ludic pleasure by making players feel more powerful—or do they work, instead, by emphasizing the power that the games *wield over* them? To explore these issues, I will examine the highly structured, real-play of two RBSGs. First, I will analyze the *superhero rhetoric* and *affordance-based design philosophy* of *The Go Game*, the most commercially successful and widely-played RBSG to date. I will argue that *The Go Game* enables a sense of environmental mastery described by child psychologist D.W. Winnicott as *magical control* in his theory of transitional play (47). Then, I will examine design statements and gameplay artifacts from the grassroots RBSG *SFZero* (PLAYTIME). I will explore how it is constructed to give players permission to engage in socially challenging, or *forbidden*, interventions. Finally, I will consider how notions of player "power" and "superpowers" are configured by these games through the *puppet-master model* of game design.

7.2 The Secret Ludic Life of Everyday Environments: *The Go Game*

When *The Go Game* launched in December 2001, lead designer Ian Fraser explained the project in a press interview: "This is a way to connect with your everyday world and see it for the playground it can be" (Kahn [1]). Fraser, along with lead developer Finnegan Kelly, explained that they hoped to teach players to perceive gaming opportunities in their everyday surroundings—opportunities not *created* by the game, but rather *revealed* by it. This subtle distinction is apparent in the original motto of the project: "We pull the wool back."[57] When I first met with Fraser in November 2001, one month before the first trial *Go Game* was played in San Francisco, he explained to me what they meant by this claim. "We're not making the game, we're showing you the

[57] "We pull the wool back" was featured as a slogan in early design documents and beta materials for the game, but ultimately was replaced with "I Might Be Playing *The Go Game*", a phrase I discuss later in this chapter.

game. The game is already out there, all around you. You can find a million opportunities to conspire and play. Once you play *The Go Game*, you see it for yourself…. The game shows you. It's up to you to keep playing" (personal interview 11/18/2001).

According to Fraser, this ubiquitous game philosophy was inspired by a dream he had. "I dreamed I was in the basement of a restaurant in Chinatown," Fraser told me. "But I didn't know what was going on, why I was there. While I was trying to figure it out, I heard a whisper in my ear, 'You're playing the Go Game.' I said, 'I am?' And then I woke up." The name of project came from this dreamed whisper, Fraser explained, as did the idea for a game so grounded in real-life that it would not always be apparent that a game was being played.

In Fraser's dream, the game was already being played all around him. He simply needed to be shown how to engage with it. This is what *The Go Game*, with its motto of "We pull the wool back", promised to do. Over the course of a series of games that lasted an average of four hours each, it would show players, between fifty and fifteen hundred at a time, that seemingly ordinary objects, spaces and people were in fact waiting and wanting to play.[58]

Nearly five years, a hundred cities and more than five hundred *Go Games* later, official descriptions of the game preserve this founding sentiment.[59] According to *The Go Game* website: "You'll be guided through a city you only think you're familiar with" ("Game Described" [2]). Here, the game promises to demonstrate to players that there is

[58] Typical *Go Games* consist of 100 players. However, some of the larger *Go Games* documented on the website include a 1300 player game in Las Vegas (July 25, 2005); an 800 player in San Jose (June 23, 2004), and a 500 player game in San Francisco (June 12, 2004). *The Go Game* produces both community games, which are open to the public, and private games, which are commissioned by individuals, companies, festivals, and organizations.

[59] The current game count and cities in which *The Go Game* has been played are listed on the official game site at http://www.thegogame.com/team/cities/index.asp. All statistics in this chapter are valid as of June 2006.

more to their everyday surroundings than meets the untrained eye. The game will reveal to players a ludic layer that currently eludes their perception. “Clues can appear *anywhere* and *everywhere*,” the game description suggests, staking its claim to ubiquitous play ([2], emphasis mine). “Perhaps you didn't notice the woman on the bus reading a magazine upside-down. Or the note stuck to the side of the bathroom mirror of your favorite bar, or the electric scooter parked outside with your name on it. After a day of *The Go Game*, you will” ([2]). Here, *The Go Game* describes an environment that is pulsing with ludic signals. It promises “adventure that is woven seamlessly” into fabric of everyday life, a phrase that merges the design philosophy of ubiquitous computing with a superhero rhetoric (“Game Described” [1]). And so the reality-based play proffered by *The Go Game* adopts the aesthetic (rather than the platform) of ubiquitous computing. It is seamlessly embedded everywhere, and completely invisible to the uninitiated.

The Go Game assumes that the network of interactive play can be activated in any and every conceivable environment. The website includes a page to request a game near you, and explicitly encourages people outside of urban areas to play: “Games aren't limited to cities or downtown areas and we can put games together for convention halls, hotels, museums, schools and even prisons….We can run a game anywhere there is cell phone connectivity” (“Cities” [1]). The game has made non-trivial progress toward this goal of a truly ubiquitous *Go Game*. While the project was originally designed for San Francisco and other Northern California cities, it has since been produced in over a hundred locations worldwide. *Go Game* sites include Seattle, Washington; Boise, Idaho; Cheyenne, Wyoming; Bismarck, North Dakota; Ann Arbor and Detroit, Michigan; Kansas City, Missouri; Atlanta and Sea Gull, Georgia; St. Petersburg, Florida; Baltimore, Marlyand; Albany, New York; as well as Vancouver, Tokyo, Singapore, London, Paris, and Cabo San Lucas, Mexico.[60]

The Go Game is designed not only to activate the secret ludic layer of local environments, but also to activate the hidden potential of its players. The game websites claims: “Teams will interact with their environment and each other in ways they could have never imagined. Not only do players experience the magic of their city, but they begin to see the possibilities that exist in one another and themselves” (“How It’s Played” [2]). Here, the game’s superhero rhetoric comes into play. The game offers to reveal the true nature not only of the city, but also of the players. The secret “possibilities that exist” in the players will be brought to fruition, recalling the originary tales of superheroes when they first discover and activate their latent powers. The players are primed to discover their inner superhero through the language on the website. “We track your heroic deeds as you go along, verifying your location and the time it took to complete each mission” (“How it works” [1]). Both the explicit use of the term “heroic” and the decision to call games challenges “missions” evokes the language of superhero texts. Elsewhere, the website explains: “We beam these ‘missions’ to your team and you, like any good super-human, are to complete them” (“Superhero” [1]). Here, the players are prepared to begin thinking about themselves as a more powerful force in their local environment. Even the props and iconography of the game are designed to evoke classic superhero mythology: “We hand out the equipment in superhero lunchboxes” (“Sample Game” [1]). (See figure 7.2) And, as documented in local newspaper coverage of the

[60] Because *The Go Game* maps particular interactions onto specific local buildings, intersections, monuments, murals, each new locations requires an original game design. Therefore, before a new game, one or more mission designers will visit the city in advance to script the site-specific challenges.

game, Fraser, Kelly and other puppet masters have been known to show up to direct games wearing makeshift superhero capes (Marech 1).

7.1 *The Go Game* Superhero Supplies. Players of *The Go Game* are equipped with cell phones, digital cameras and other game gear that often comes packages in lunch boxes decorated with classic superheroes, like Spiderman, Wonder Woman, and the Incredible Hulk. (Wink Back, Inc., 2004)

That *The Go Game* aspires to a mutual activation of both environment and players is captured best in the name of the company Fraser and Kelly founded to run the game: "Wink Back, Inc." The acting of *winking back* suggests a specific relationship, in which two parties share the same cognitive frame and playful intentions. Gregory Bateson's notion of a *meta-communication* that indicates a shared cognitive frame for play, after all, is most commonly exemplified by a wink between one player and another (Schechner 92). We can observe, then, that by constructing a "wink back" relationship between player and environment, *The Go Game* seeks to put a more visible frame around latent opportunities for play. Its seeks to transform dark play into legible play; as Fraser explains on the website: "We want everyone to be a hero" ("Press" [3]).

Indeed, a page dedicated to testimonials from former *Go Game* players proudly proclaims: “We've made superheroes out of [names of previous players]” (“Team Index” [1]). But through which specific mechanics does the game generate this perception of newfound superpowers and heroic purpose? In the next section, I will peel back the layers of superhero rhetoric to analyze the core gameplay mechanics of *The Go Game*.

As the foundation for this analysis, I will discuss my own work as a mission designer for *The Go Game* from December 2001 through March 2002, during which time the game was in a state of beta testing, and again in the summer of 2003, after it had successfully launched. I joined the project after co-founders Fraser and Kelly had developed the formal design, goals and platform of the game. They provided me with clear objectives and design strategies to take in order to achieve the particular vision of reality-based superhero play I have described above. Below, I will discuss the design and play of six representative missions from games on which I had the opportunity to collaborate, in order to explore how the ubiquitous gaming goals and superhero rhetoric of *The Go Game* is embodied in the design and execution of the game’s interaction mechanics.

7.3 Promiscuous Activation as Design Principle and Core Mechanic

The missions of *The Go Game* can be divided into two styles of affordance-based play. First, there are the *reveal* missions, which instruct players how to engage the secret ludic affordances of particular objects and sites. Second, there are the *discovery* missions, which ask players to demonstrate a particular ludic affordance through any object or site of their choice. Here, we can consider the differences between the two, and several examples of each.

To create a reveal mission, the puppet master must first engage in a pre-game *promiscuous activation* of the local environment. The purpose of this location scouting is to discover the sites and objects that are most receptive to play, and then to frame off specific interactive opportunities for the players. In the course of scouting, the puppet master pokes, pulls, pushes, peeks in, plies and otherwise provokes whatever exists in the proposed game space, an area that typically consists of an eight by eight block section of the city or town. Whatever produces an interesting and reproducible response is formalized as a site for a mission. When the mission is activated during a game, players interact with the chosen object or site in a specifically outlined manner. These missions closely resemble a kind of dare, but often with considerable room for creative expression.

7.2 *The Go Game*: "Fill the Frame." In this Seattle-based mission, players are directed to fill in the public sculpture with a graphic text that represents their team. (Wink Back, Inc., 2003)

"Fill the Frame" was a simple reveal mission that I designed for a July 2003 *Go Game* in the Fremont arts district of Seattle. The mission centered around a permanent public sculpture of a painting frame mounted on a display easel. In the course of everyday life, freestanding sculptures such as this one typically are observed and admired, but not directly engaged. *The Go Game*, however, seeks to reveal actionable properties beyond those typically perceived. I therefore sought to make explicit a more interactive stance toward the sculpture.

Since the affordance of an empty frame is to be filled, the mission that naturally suggested itself around this sculpture took the form of a public art intervention. The mission sent players to the site of the sculpture and then directed them to fill one quarter of the frame; three other teams would complete the picture, in the style of an *exquisite corpse* parlor game (see figure 7.2). The players were further instructed to borrow supplies from a local artist to complete the mission. To make this interaction possible, a *plant*—the *Go Game* term for an undercover actor stationed in the game space to facilitate a mission—was positioned near the frame, posing as an artist sketching the riverfront scenery. Players who approached this plant were able to obtain the supplies necessary to fill the frame. Had there been other artists in the area on game day, of course, it is entirely conceivable that one or more teams could have borrowed the "wrong" supplies, but nevertheless successfully completed the task. However, the function of the planted artist in this mission was to ensure that the environment seemed to afford naturally, if magically, what the players needed to complete their assignment.

"Face First" is another reveal mission, designed by Fraser while we scouted together for Fremont game. The site chosen for "Face First" was also a frequently observed, but rarely engaged installation—in this case, a small public fountain. The fountain appealed to Fraser primarily because, like the frame, it was so universally ignored by passersby. The Fremont game was scheduled to be played during a summer heat wave; thus it seemed possible to us both that the most pleasurable affordance of the fountain would involve immersion into the cold water it contained. But which body part to submerge, and to what end? The height of the fountain suggested that their faces were well-positioned to be submerged. But to what end should this action be taken?

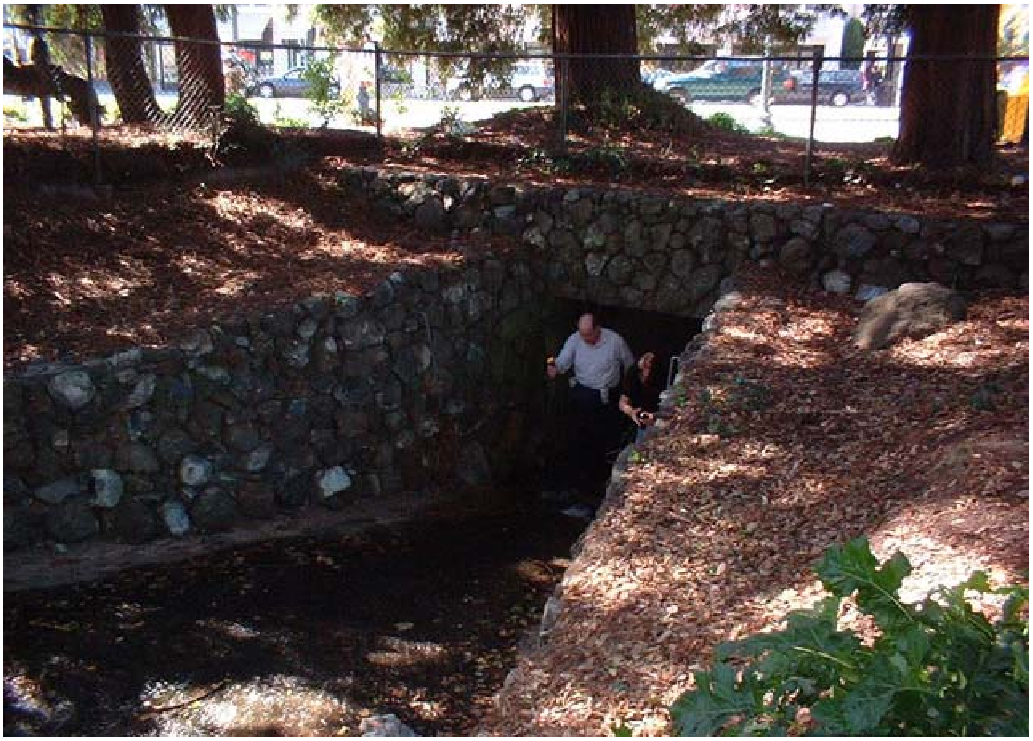
A submerged face would afford looking into the depths of the water. Therefore Fraser determined that it would be ideal if there were some hidden marking on the bottom surface of the fountain. But after conducting his own face first investigation, he determined that there were not in fact any legible markings. So on game day, Fraser used waterproof chalk to scribe a symbol on the bottom of the fountain. He also stashed a pair of goggles along the interior, underside of the concrete platform within which the fountain was installed. The mission instructions led players to the fountain and told them to search for a viewing aid. They were then directed to dive face first to uncover a secret graffiti message (see figure 7.3). This mission combined close observation of the built environment with a physical challenge. In engaged site-specific symbols in a conventional way—their affordance is to be detected and read—while challenging players to engage the fountain in a highly unconventional way.

7.3 *The Go Game*: "Face First." In this Seattle-based mission, players are instructed to dive face first into a public fountain to read a piece of graffiti marked on the bottom surface. (Wink Back, Inc., 2003)

As did "Fill the Frame", the "Face First" mission *augmented* the built environment—this time, with symbols and tool—in order to make such a satisfying interaction possible. Without the chalked intervention and the planted prop, a face-first dive into the fountain might feel good—but it wouldn't be meaningful in the same way. Temporary augmentation enabled the fountain to play along, or, to wink back at the adventurous player.

The final reveal mission I will discuss here is "Go Underground", which was created for a March 2002 game in Berkeley, California. For this game, Fraser and I wanted to take advantage of a particular feature of the Berkeley downtown landscape: a concrete tunnel built by the city to divert a creek underground for more than a mile. We knew that the tunnel ran underneath the surface area where we would be staging the game, and this invisible water flow seemed metaphorically quite apt for the idea of a game designed to reveal hidden ludic affordances of everyday objects and places.

Many of our Berkeley players objectively *knew* the creek runs underground, but how many had actually interacted with the system that creates this hidden flow? Most likely, none. We therefore determined that players should explore, if possible, the concrete culvert used to draw the creek from the surface of the campus grounds under the city streets. But what kind of interaction would be most satisfying? We opted for a combination of close observation, physical stunt, and public art intervention. In "Go Underground", players discovered flashlights buried in the surrounding leaves and brush; they were instructed to use the flashlights inside the underground tunnel to find a group of small objects in a pattern (see figure 7.4). The objects, a collection of pennies, were arranged by us in a star formation. Teams were instructed to rearrange the pennies in any meaningful formation they wanted; other teams would be asked to discover and to document the pattern later in the game. The idea of a public art intervention staged in what felt like an extremely private, remote location—albeit just a few yards away from heavy pedestrian traffic—was quite resonant with the themes of the game. It was secret and hidden, but would be seen by others who shared the game context.



7.4 *The Go Game*: "Go Underground." In this Berkeley-based mission, players were dared during the local "dry season" to explore, with flashlights, a concrete culvert built to divert a creek underground. (Wink Back, Inc., 2003)

Like the two previous reveal missions discussed here, this meaningful encounter in the tunnel required significant augmentation of the local environment. To support the players' experience of the culvert, tools and prop were stashed on site in advance of the game. Moreover, the pennies were pre-arranged in a meaningful pattern to create a clear signal for the first team to arrive on the scene. While it would have been possible to explore the tunnel entrance without these embedded props and signal, the interaction would have lacked the feedback (or wink back) built into this mission.

*

In all of the reveal missions discussed above, the players are assigned a site, object, and affordance in a specific combination. In the discover missions I will describe next, however, players are given only the form of interaction. They may choose any site and object upon which to enact that form. The players scour the local environment, testing it repeatedly to discover the elements most receptive and responsive to play. (Just as the puppet masters did to create the reveal missions.) These open-ended challenges are also called "creative missions"—creative in the sense that the players are building their own interactive systems. The puppet master provides the mechanic, but the players provide the context and the parts.

I designed a discovery mission named "Trust is Everything" for a January 2002 game in San Francisco's North Beach neighborhood, which is notably full of parks, cafes and shops. The core mechanic of the mission arose from a bigger-picture observation about the proposed game area: that people often are packed quite densely into its shared spaces, and yet they manage for the most part to ignore each other. I therefore took *other people* as the element of the local environment that *The Go Game* should activate for play. I decided that a natural affordance of people you don't know, but who are in your physical proximity, is to *get* to know them. In "Trust is Everything", therefore, players are instructed to earn the trust of a stranger, and then to document through photo or video a dramatic act that demonstrates the stranger's newfound trust in the team (see figure 7.5). This challenge, which falls into the category of social interaction missions, does not augment the environment in any way; no especially trusting plants are positioned to ensure the teams' success. Instead, it is assumed that players can repeatedly attempt the mission until they encounter a responsive stranger. They engage in their own promiscuous activation of the environment, interacting with strangers until they discover someone receptive to their ludic overtures. This form of interaction proved so satisfying that the “Trust is Everything” mission has been repeated in many dozens of *Go Games*.

7.5 *The Go Game*: “Trust is Everything.” In this San Francisco-based mission, players must demonstrate dramatically that they have won the trust of a stranger. Here, players convince a stranger to let them handle his wallet and personal effects (left); another team hoists a stranger into the air (right). (Wink Back, Inc., 2002)

Another popular and oft-repeated discover mission is “Aah the Transformation”, which I also created for the January 2002 North Beach game. In this mission, players are provided with limited art supplies (for example, a roll of transparent tape and a spool of thick string) and are asked to use these supplies to transform anything or anyone from “not so interactive” to “super interactive”. The players must document the transformation with a “before” photo and an “after” photo. Anything in the environment is fair game, as long as the players can figure out how to demonstrate effectively that they have increased its interactive affordances. In figure 7.6, for example, a team uses string and tape to transform a metal gate. The gate, which usually affords the action of keeping the public out of a private residence, into made into a public platform for highly physical play. That day, another team used the same supplies to create an interface for their own faces; string and tape attached to various facial features could be pulled by passersby to contort their faces into surprising expressions (see figure 7.7). In this way, the players became activated themselves as an interactive platform for others in the environment.

7.6 ***The Go Game*****: "Before and After."** In this mission, players were asked to transform any object, site, or person into a more interactive platform using only string and tape. (Wink Back, Inc., 2002)

7.7 ***The Go Game*****: "Aah the Transformation."** In this San Francisco-based mission, a player uses string and tape to create an interactive system for contorting his face. (Wink Back, Inc., 2002)

Finally, "Dare Ya" is another simple discovery mission that has activated the affordances of many unusual spaces. This mission, which was created for the March 2002 game in Berkeley and subsequently deployed in dozens of games elsewhere, is both a stunt and an exercise in social engineering. It asks players to create an usually *risky* and *physical* experience of the local environment—for example, to occupy a space not usually occupied by people. In figure 7.8, teams in New York City are shown completing this mission. One team occupies a series of oversized dryers, having paid for the drying cycles of the real Laundromat users, with the condition that they could attempt to squeeze inside first. Here, they recognized that the door to the dryers afforded entry, while their oversized design afforded occupation not just by clothes, but also by the bodies that wear them. They furthermore activated the commercial function of the coin slots to afford barter with non-players.

7.8 *The Go Game*: "Dare Ya." In this New York City-based mission, players are challenged to occupy a space not usually occupied by people. (Wink Back, Inc., 2004)

Also in figure 7.8, another team explores the trunk of a taxi cab as a potential site of occupation, after getting to know the driver and persuading him of their plan. I should note that built into this "Dare ya" mission is the expectation that players will try to squeeze into a number of interesting spaces before they find one that affords the collective body of the team. This requires on the part of players an active and *iterative* reframing of the environment's nooks and crannies as potentially usable (and playable) space.

So far, I have focused primarily on the original design of game missions. Here, I want to bring into this analysis of design strategies a reading of live *Go Game* play, particularly as this *iterative reframing* for play takes places. Between December 2001 and March 2004, I was on site for approximately thirty *Go Games* in ten different cities across the United States. I observed closely the live gameplay and formally interviewed players about their experiences. Next, I will present several case studies of observed *Go Game* play, in order to explore the psychology of an *augmented* and deliberately *ambiguous* real-world game space.

*

In a January 2002 *Go Game* played in San Francisco, the members of the Pop Shop Squad were assigned a mission unique to their team. The mission, “Political Statement”, instructed the players to scale a massive structural overpass at the intersection of Kearny and Washington Streets, and then to hang a banner facing north with the three-world political message of the team’s choice. The only restriction on the message: “Make sure the first word is ‘Go’.” The Pop Shop Squad was informed that in fifteen minutes, another team would attempt to read the banner with high-powered binoculars from the top of historic Coit Tower, roughly half a kilometer away. To earn points for the mission, Pop Shop Squad would need to get the banner up in time, and to make their message legible and sensible enough to be read and understood at that distance.

Earlier in the game, the team had obtained an 8’ x 5’ piece of heavy, white cloth and black permanent markers from a plant. To gain this plant’s assistance, they had approached people parked in cars around the perimeter of Washington Square Park, asking them “Are you giving out rides?” They did not know which car or person would prove to be their real secret ally until they tried that exact code phrase on the actual plant.

Now, with their materials in hand, the team chose the phrase “Go Make Art” to adorn their makeshift banner.

But how to get up to the overpass? From the street below, it seemed impossible, a team member told me later as she described the process through which they had completed the mission (Kelli M. personal interview 1/19/02). They therefore considered which buildings adjoined the overpass. Of their options, the posh Hilton Hotel seemed the most promising and public of the spaces. The four players rushed into the lobby and scoured the surroundings for a clue or a friendly face. It wasn’t long before someone who looked like a hotel employee approached them. “Can I help you?” he asked. The members of the Pop Shop Squad, as they told me later, believed they had found an ally, no doubt another “plant” who had been stationed there to help them in their mission, just as the earlier plant in the car had been. So the players explained their mission. When the hotel employee initially declined their request for assistance in getting to the overpass, the Pop Shop Squad persisted. They wouldn’t give up; other plants had played coy at first. Indeed, the plant in the car had pretended at first to be offended by the team’s request for a ride, before breaking out into a grin and giving them the “thumb’s up” sign. Eventually, the “hotel employee” agreed to help, secreting the four players away to an employees-only hotel exit that landed them exactly where they needed to be to finish the mission.

After the game had concluded, I interviewed several teams about their experiences. When I asked the Pop Shop Squad, “What was the most exciting moment of the game?”, a member of the team offered the hotel experience as his most exciting moment. “Definitely working with the weird plant in the hotel. We were wandering around forever before that, trying to figure out what to do. We were sure we were going to lose [the points for that mission]" (Brian K. personal interview 1/19/02). A teammate added: "He was so funny! Great touch. We wouldn't have known what to do otherwise" (personal interview Colin M. 1/19/02). Another team member said: "He was *really* good. We were almost convinced he wasn't a plant, but then he finally helped us. He was a plant, right?" (Kelli M. personal interview 1/19/02).

I informed Pop Shop Squad that their secret ally was not, in fact, a plant, but rather presumably a real hotel employee. Moreover, there had been no hotel mission scripted into the game. When I designed the "Political Statement" mission, I had envisioned the team accessing the overpass through a local Chinese cultural center. But in their mistaking an out-of-game person for an in-game ally, Pop Shop Squad had found an alternate solution to one of the more difficult challenges of the day. When I explained this to the team members, their faces lit up. They loved it. They had projected the game onto reality, and reality had conformed to their ludic expectations.

Since that afternoon in North Beach, which was only the second *Go Game* produced, the design of the games has evolved to include more and more missions that increasingly require players to misread non-game people, places and objects as a part of the game. One mission (created by Fraser) that was directly inspired by the hotel incident, and which has been included in dozens of games since, is "The Speaker". This mission, when played, is downloaded at the very beginning of a game. The mission text reads: "Some time today you will be approached by the Speaker. The Speaker could be anyone. The Speaker will say something to you—about the weather, about your shoes, about anything at all. You'll know if he or she is the Speaker only if you pay him or her an extravagant compliment.” This final instruction actually changes from game to game; other examples include “only if you form a circle around him or her and dance wildly” and “only if you ask for advice about a ridiculous problem.” With the built-in ambiguity of “The Speaker” mission, teams must deal with all initiated conversation as a potential part of the game. Pedestrians who simply say “Excuse me” and tourists asking for directions are treated as if they might be the Speaker. Thus, teams wind up complimenting, encircling, or seeking advice from non-players in their hyper-responsiveness to others who shared the local environment.

The frequently deployed mission “Make me Laugh” is designed similarly to increase ambiguity about who is in-game. For this mission, players are informed that someone in a particular café has a package, or a clue, for them, and will only hand it over if the team can successfully make this unknown person laugh. Players must approach everyone in the café with their best jokes, funny faces and other performances until they find they trigger an in-game response. Public squares and parks are another popular location for this kind of interaction, where players might be required to “Serenade strangers” or “Ask for dance lessons” from everyone they encounter until their efforts reveal the identity of the plant.

To minimize the dark play aspects of these deliberately ambiguous missions, in which bystanders are increasingly caught up in the play without sharing the ludic frame, teams are given business cards that read “You’ve just played *The Go Game*”, with a url directing the inadvertent players to a description of the game (see figure 7.9). In this way, the game seeks not only to “pull the wool back” from the real players’ eyes, but also to prevent pulling the wool over the eyes of anyone accidentally caught up in the game. The design of the game in this respect is consistent with its founding play value, to constantly share the secret: "Pssst…. You're playing *The Go Game*."

7.9 "You Just Played *The Go Game.*" Players hand out business cards with a url for the game website to enable accidental players to understand what they have experienced. (Wink Back, Inc., 2006)

7.10 *The Go Game*: "Special Project." Here, a team discovers its own special project in a pile of found boxes and tubes that were *not* planted by the puppet masters. (Wink Back, Inc., 2006)

Other subsequently developed ambiguous-by-design missions extend the same strategic vagueness toward physical objects. One such mission is the "Special Project". Its vague instructions: "We've left a special project for you. You'll know it when you see it. Put it together and document the magic." The real solution to such a mission might be to piece together a found puzzle or a deconstructed sculpture. But players are just as likely to discover and document their own special projects, returning with photos of "game pieces" the puppet masters have never seen before (see figure 7.10).

In the July 2003 *Go Game* in the Fremont district of Seattle, for instance, a team called Clue found a "special project" that had nothing to do with the game—that is, until they brought it into the magic circle. Clue member Brian L. described to me how he and five teammates spent twenty minutes attempting to engineer a pile of metal junk and old furniture parts they found in a parking lot next to the handwritten sign "Assembly Required". He told me: "We were one hundred percent certain that you guys left it there as a puzzle. I mean, the sign was right there!" (personal interview 7/12/03). Here, the players misinterpreted the sign as a *signal*, a winking meta-communication that framed the pile of junk as play. The members of Team Clue were extraordinarily pleased when they managed to construct what they considered to be a make-shift chair, and in which they took turns sitting. The pile of junk they had found, I informed team Clue after the game, was not a "real" game signal—just environmental noise. "But it worked!" a teammate insisted (Bryan H. personal interview 7/12/03). He told me: "Just as we finished putting the chair together, the plant appeared. That's how we knew we'd solved the puzzle." I was able to deduce that the plant who had appeared at that moment was one of the roaming plants, someone who wanders the game space and interacts with teams at random intervals. Her appearance had nothing to do with the assembled project. However, the team had perceived a real, in-game payoff to their technically out-of-game efforts, and nothing I told them seemed capable of diminishing their pleasure in the imagined experience of having activated the environment.

During the post-game interviews for the same game, I heard about another pleasurable misreading that team Clue had experienced. They had mistaken an out-of-game person for a café plant, but felt that they had successfully completed the mission anyway. The players had been sent to the café to seek "spiritual guidance" by meditating in the presence of an unknown secret contact. And so the players sat lotus-style, chanting mantras and humming for what the team described as "a really, really, really long time," in front of the man they mistook for a plant (see figure 7.11). When he failed to respond in any noticeable way, the team realized that the spiritual lesson they were to learn was *patience*. Although this was not technically the correct answer sought by the game, the players nevertheless told me they felt they had been highly successful in completing the mission. Here, we might think of acting instructor Charles McGaw's observation that sometimes what is not *real* may nevertheless be felt as *true*. The players did not really complete the mission, but they did truly receive meaningfully felt spiritual guidance.

7.11 ***The Go Game*: "Seek Spiritual Guidance."** In this Seattle-based mission, players sit lotus-style on the floor of a café and await a spiritual lesson from a game plant. (Wink Back, Inc., 2003)

What do all of these deliberately ambiguous missions have in common? They require teams to affect a confident belief in the ubiquity of the game. To succeed, players must act *as if* all encountered strangers, sites, and objects might be part of the game. T-shirts for the game, which are given out as prizes, perhaps best sum up this purposeful ambiguity, now a defining characteristic of the game. The shirts proclaim: “I might be playing *The Go Game*.” This slogan captures two important aspects of the game’s intervention in public spaces. First, players must approach others in their local environment as if they *might* be playing the game. And second, non-players may find out (as Fraser did in his seminal dream) that they are, in fact, playing the game, without knowingly opting into it.

This reality-based superhero claim, “This might be a game”, serves a similar rhetorical purpose as the alternate reality game’s disavowal “This is not a game.” Both genres’ defining mantras seek to undercut the ease of differentiating the everyday from the game. As such, they work to amplify, radically, the perceived ludic affordances of the real-world environment.

7.4 Reality Testing and Reverse Transitional Play

Having analyzed the core mechanics of *The Go Game*, I now want to analyze the psychology of the reality-based superhero game. In what ways do players feel superheroic as they activate the environment around them for play?

In *Men of Tomorrow*, Jones writes of the purveyors of American superhero mythology: “In the collision of desire and possibility, they made a new reality” (340). It is precisely the collision of the *desire* to discover more game and a genuine belief in the *possibility* for ubiquitous play that creates in RBSG players a sense of personal superheroicism. It is a feeling that can best be described as the experience of a pleasurable, but not necessarily real, control over the game environment. On *The Go Game* website, it is promised that through the collaborative superhero game, “Players will realize the magic power of the team” (“Outcomes” [2]). This sense of magical power can best be understood as an adult reversal of the *transitional play* theorized by child psychologist D.W. Winnicott.

In the essay “Playing and Reality”, Winnicott identifies a form of child’s play called *transitional play*, in which the player wonders if he or she exerts an extraordinary, “magical control” over everything in the environment (47). As I discussed in Chapter One, this form of play helps the infant transition away from the belief that the internal desire to be fed can magically summon the mother’s breast. Successful transitional play results in an understanding that there is an objective reality that does not correspond directly to “intrapsychic processes” (47). This play requires the use of props, which in their tangibility perform, insistently, the fundamental externality of other things.

What I want to suggest here is that the superheroic feeling of a *Go Gamer* arises through a *reverse* transitional play. *The Go Game* transitions players *away* from knowing that the real-world is not perfectly responsive to their desires. It provides a magical experience of an external environment that seems to respond precisely and abundantly to their needs and wants. This reverse transitional play also requires the use of material objects and other people; however, rather than proving their own stubborn externality, they are organized to seem remarkably aligned with the goals and desires generated by the game. Consider, for example, the site-specific augmentation required by the reveal missions described above. Players asked to create art in “Fill the Frame” discover that art supplies are theirs for the asking, while players asked to dive "Face First" into water find goggles embedded in the fountain itself. Meanwhile, players asked to "Go Underground" to explore a dark tunnel find that earth itself offers up flashlights. Although these scenarios are artificially constructed by the game designers and not natural features of the everyday landscape, the experience of being given exactly what is required at any given moment is quite startling. The dramatic effect of an external reality corresponding to inner impulses is created by the game's careful augmentation of the built environment: supplies are *already* there for the taking, as soon as the players realize that they want them. The feedback is instantaneous; no effort is expended gathering resources for the mission.

In the case of missions like "Face First" and "Go Underground", the environment also is embedded with meaningful signals to correspond further to the anticipated desires of the players. Someone exploring a secret tunnel in real life would naturally *hope* to stumble upon a meaningful message; likewise, someone searching the bottom surfaces of a pool of water would desire to see something that no one else has seen. By leaving the pattern of pennies and chalking the bottom of the surface, the game makes it seem as if any interactive impulse will yield a satisfying result. Never mind the fact that it was the game that suggested these impulses in the first place—they have been magically satisfied by the environment. Here, *The Go Game* recalls Elan Lee's anticipatory design of the media environment of *The Beast*. Both games generate interactive impulses and desires that they then afford.

In the ambiguous-by-design missions, players often experience a similar sense of wonder when their actions produce the desired effect. When asking for a ride from a stranger parked in a car yields a package; when dancing around a random person in a circle results in a prize; or when telling a joke produces laughter that produces the next clue—in all of these cases, a sense of unusual power to provoke specific desired responses arises in the player. This newfound agency in the environment is experienced as a *strange* and *new* superpower¸ I want to suggest, because of the *irrational* cause-and-effect relationship that the game constructs between players' actions and the game's response. There is no rational reason that the trigger actions or expressions should yield the results that they do. Because the relationship is constructed so arbitrarily by the designers, the overall game system seems to bestow a magical omnipotence.

In the discovery missions, on the other hand, players are forced to engage more in what Winnicott calls *reality testing*, in which desires are created around external objects that are unlikely to fulfill them. We can think here of the unfulfilled desire for the toy hobby horse to neigh back in response to a child's play animal noises. According to Winnicott, in traditional transitional play, this process of reality testing reveals and confirms the player's inability to fabricate, for real, the fanciful imaginations of the mind. In *The Go Game*, however, it is not clear that reality testing necessarily has the same effect. Indeed, the purpose of discovery missions is to prove to players that they can, in fact, command external reality to correspond with the fantastic desires of the game. Players no doubt frequently fail to activate many people, objects and sites in the course of undertaking a creative challenge. Some strangers do not want to trust; some objects remain intractably unresponsive no matter how much string or tape is applied; and some spaces refuse to make room for the players' bodies. However, in all cases, the mission *continues* until a team has established dramatic "proof", the term used to refer to the digital documentation of staged interventions, that the environment has yielded to their superheroic intervention. In this way, the reality testing that occurs during the game has been designed, ultimately, to persuade the players that their superhero powers *do* work. The missions are created to demonstrate just how often the external reality *will* submit to the ludic desires generated by the game.

*

Here, I have argued that the sense of play-based power over external reality creates the superhero effect of reality-based gaming. When "fantasying gets links up with functional experiences", as Winnicott writes, the results can profoundly alter, at least temporarily, the perceived relationship between actors and the actionable world that surrounds them (4). But how likely is this experience of magical control to persist beyond the carefully constructed scenarios of the game? Fraser and Kelly have designed *The Go Game* to reveal the ludic opportunities of everyday reality, but much of its interactions are staged and possible only during the framework of the game. When a puppet master ceases to augment the environment with tools, plants, and messages, will the players' belief in the playability of real life fade?

To create a more sustainable game, the current grassroots project *SFZero* takes reality-based superhero gaming a step further. Shared social spaces are so intrinsically playable, its puppet masters argue, that they do not require augmentation to bring the game to life. In the next section, I will explore how *SFZero* effects a *persistent*, or always on, reality-based superhero game in order to bestow a less ephemeral superpower upon its players.

7.5 Hard-Coded Interaction: *SFZero*

SFZero was created in January 2006 as a not-for-profit arts game by non-professional game designers Ian Kizu-Blair, Sam Lavigne, and Sean Mahan. The three friends decided to create *SFZero* in the wake of a relatively unsuccessful effort to run an independent alternate reality game. A profile of the *SFZero* designers in *San Francisco Weekly* reports: “The group was inspired to create a game several years ago, when Kizu-Blair read an academic article about *The Beast*, a Microsoft-designed murder mystery game used to promote Steven Spielberg's film *A.I.*” (Blitstein 1).[61] The group’s ARG failed to attract a significant player base. So they tried again, this time ditching the narrative aspects of ARGs but retaining its persistent aesthetic. “Players would live and work in the real world, but the game's alternate reality would always be there for the taking” (1).

Like *The Go Game*, *SFZero* is an entirely mission-based game. However, unlike *The Go Game,* which is played in bounded game sessions of approximately four hours each, *SFZero*’s missions are displayed twenty-four hours a day, seven days a week, on the game website. Players can complete missions and submit photographs or videos as proof at any time, and without deadline. They use the website’s communication tools to organize their own meet-ups, completing missions together in constantly shifting teams and alliances.

To explain the goals of their game, *SFZero* creators Kizu-Blair, Lavigne, and Mahan adopt a metaphorical language that evokes the invisible data flows and secret affordances of ubiquitous computing. A manifesto for the game states:

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[61] Email correspondence with Kizu-Blair confirms that the paper to which he referred in this interview was my 2003 article for Digital Arts & Culture, “This Is Not a Game.” Here, then, we can see that contemporary games research and game design are increasingly intertwined.

> *SFZero* is an interface for San Francisco. That is to say, a new representation for the data that's already there. Your mind is full of /inaccurate/ representations that are affecting the way you use the San Francisco dataflow: steering you away from interaction and collaboration and towards unproductive reflexive data loops (forNext). *SFZero* designers are working double-shifts to engineer this next-generation interface that will bring you together with your fellow San Franciscans to experience the freedom that is /hard-coded/ into San Francisco's protocol. ("SF0 About" [1])

Here, the designers argue that a more ludic experience of everyday life is not just a latent possibility; it is a certainty for anyone who actively seeks it. The project claims that more playful patterns are *hard-coded* into the built environment. "Hard-coded" is a computer science term that indicates a feature built into software or hardware in such a way that it cannot be modified or deleted. Therefore, to say that playful interaction is hard-coded into the environment is to make a very bold claim: The ability to game social spaces is an intrinstic feature of their design. According to this manifesto, aspiring players will be trained to operate the already ludic system of reality through a new interface, which *SFzero* will to provide. Here, the ludic patterns of the game are characterized as mediating the relationshp between player and physical environment in the same way that a computer interface mediates interaction between a user and a program.

While this mission statement identifies the primary game space as San Francisco, *SFZero* in fact aspires to demonstrate that *all* public spaces can be activated for play. To emphasize its ubiquitous potential, the Frequently Asked Questions section of the game's website consists of just a single question, with a one-word answer**: "**Q: Can I Play The Game *SFZero* Even If I Don't Live In San Francisco? A: Yes**"** ([2]). As of June 2006, the database of 442 players included profiles from superhero gamers scattered throughout the country in cities such as San Diego, Los Angeles, Chicago, Minneapolis, Providence, New York City, Philadelphia, Arlington, as well as internationally in London, Vancouver, and Amsterdam.[62]

What particular kind of superhero does *SFZero* seek to create? Here, it helps to examine the game's use of the term "character" to describe the player's in-game profile. Just as *The Go Game* eschewed fictional personas, so too does *SFZero*. However, whereas *The Go Game* asks players to sign up as themselves, the grassroots superhero game encourages players to sign up as "characters" of themselves. As the website states: "What does it mean to create a new character in *SFZero*? Your character looks exactly the same as you. Your character will have all the same skills and attributes as you, and even the same memories and feelings. 'Isn't my character, just, well, /me/?' Good question" ([3]).

SFZero's puppet masters explain the purpose of character registration through a series of proferred distinctions between the non-player persona and the player-persona of the same person. They write: "Your character has several important things that you do not have" ([3]). The first such quality is the ability to plug into a feedback system that promotes further play. "Your character has a Score. Its Score is a barometer of its progress. You may find that your own willingness to interact with the city in new ways varies linearly with relation to your Score" ([3]). Here, the player rankings and scores are configured as a specific kind of feedback loop, one in which success at a game mission

[62] The player database is online at http://sf0.org/score/.

drives further intervention. The puppet masters also claim: “Your character doesn't recognize the artificial boundaries that prevent non-players from doing what they want to do. Things like fear, lethargy and the police don't deter your character from achieving his or her goals” ([3]). Here, it is suggested that players will experience a greater sense of agency and authority in staging interventions. Finally, they claim: “Last, and most importantly, your character is able to do things that you may be unable or unwilling to do yourself” ([3]). Here, the notion of a character in the game serves the same performative function as a mask. It offers permisson not only to perform as other, but also to become other. As performance theorist John Emigh observes in *Masked Performance*, the function of a mask is to “narrow the gap between self and other through a process of imaginative play” (275). The ultimate goal of *SFZero*, I would suggest, is not to create characters distinct from players’ real-life personas, but rather to help player find a transformative “place of congruence” between the two (275). Designer Kizu-Blair described this liminal process in an interview: "[They're] enabled by the game to do things they wouldn't do themselves, but they're doing this *as* themselves” (Blitstein 1).

The purpose of character registration, then, is to help players refashion their ordinary real-life identities into personas who are *more likely* to intervene in the environment and *less likely* to be deterred by social inertia or normative codes. This is a key difference between *The Go Game*, which seeks to impart a feeling of magical control, and *SFZero*, which seeks to impart a sense of authority and entitlement. We might say that *The Go Game*’s superheroes are *more powerful actors* (or at least feel that way), while *SFZero*’s superheroes are *more empowered to act*. But what kinds of action is the game empowering its superheroes to take? Here, it is helpful to examine several representative missions and the ways in which they have been completed by players to date.

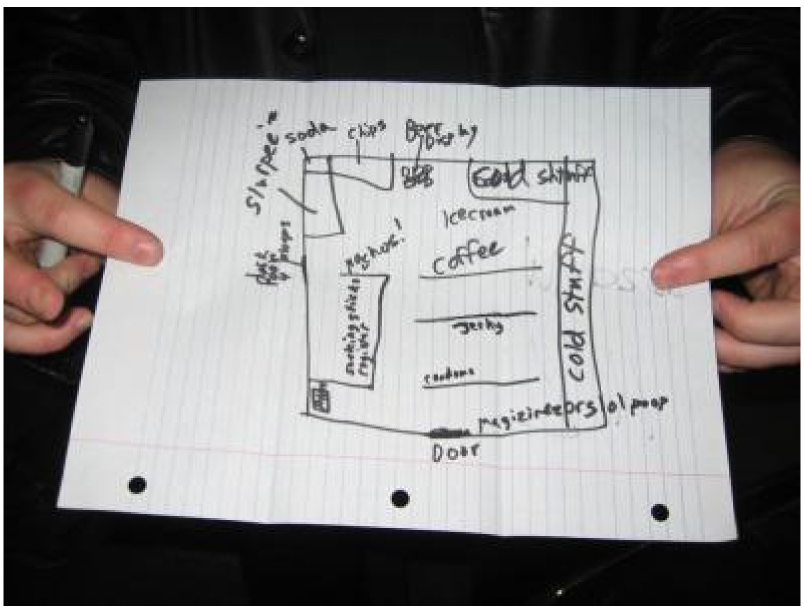
In the "Information Insertion" mission, *SFZero* directs players to make a real-world space more meaningful by annotating it, physically. The mission text reads: "Insert information in a place that has an *absence* of information" (Mission #82). Two submitted proofs demonstrate signficant differences in how seriously and permanently players seek to make their interventions. One player team reports: "Out in one of the parking lots of Fort Mason, there is the stern of a ship, labeled 'Galilee, San Francisco', protruding from one of the Fort walls. No explanation, just the back of a boat, a crude roof above it, and a few "KEEP OUT" signs" (Lavine 5/27/2006) (see figure 7.12). The players researched the ship online and created what they hoped would be an "appropriately educational" summary of their findings. They mounted their findings on "a pretty spiffy blank plaque" and returned to the site, where they nailed the explanatory plaque directly beneath the "Keep Out" sign (see figure 7.13). Here, the intervention takes the form of a rather sincere, if unsolicited, public service. Another proof for "Information Insertion" takes a more absurd approach to the proposed task. In his mission report, another player reports simply: "I made a map of 7/11 [the convenience store] and put it in their map section" (Shazbot 6/14/2006) (see figure 7.14). The map is humorously labeled "7/11 Mapzor" in the elite speak of hackers, but it is a decidely low-tech—in fact, hand-drawn—artifact (see figure 7.15).

These two interpretations of the same mission differ significantly in their aesthetics and intended impacts. The Fort Mason intervention is carefully constructed, official in its appearance, likely to be somewhat permanent and probably useful. The 7-11 intervention,

7.12 *SFZero*: "Information Insertion" Before. In this mission, players must "Insert information in a place that has an absence of information." Here, the players have chosen a mysterious ship stern as the site for their mission. (PLAYTIME, 2006)

7.13 *SFZero:* "Information Insertion" After. A player attaches a plaque to a public installation that previously lacked explanation. (PLAYTIME, 2006)

7.14 ***SFZero*****: Map Insertion.** A player leaves a homemade map of the store in its rack of local maps. (PLAYTIME, 2006)



7.15 ***SFZero*****: Low-Tech Data Flows.** The solution to an "information insertion" challenge is decidedly low-tech; it takes the form of a hand-drawn map. (PLAYTIME, 2006)

on the other hand, is crudely constructed, obviously homemade, but also capable of provoking a moment of ludic frisson for the person who finds it among the commercial maps. While different in all of these ways, both interventions share the same structural form: the players observed a site, created an knowledge artifact, and then inserted that knowledge into the the environment without permission from the site's manager. No matter how it is completed, then, this mission requires players to believe in their right to introduce at any time a new data flow into public space.

The mission "Physical Representation of a Virtual Occurrence" continues the SFZero's pattern of using computer metaphors to describe, to provoke and to justify gameplay. The text of the mission reads simply: "Create a public or semi-public physical representation of a virtual occurrence" (Mission #59). One player files the following mission report: "As I completed lunch at a respectable outdoor cafe, I took a few moments to demonstrate the finer details of how data can be monitored as it travels over the internet (also known as packet sniffing)" (Gadget 6/13/2006) (see figure 7.16). In the submitted photo, the players is shown sniffing a series of salt, sugar and artificial sweetener packets neatly arranged around the perimeter of the café table. Although this performance is fairly silly and relatively unobtrusive, the mission calls attention to the fact that physical metaphors are also mapped onto our technologies. Packet sniffers are a kind of wire-tap for computer networks; their technological function is described in terms of human sensory technique. In a sense, then, the player is not only creating a physical representation of a virtual act, but also pointing out that the computer function is itself conceived linguistically as a virtual representation of a physical act.

Note also how the player describes the mission site as "a respectable outdoor cafe". I read this comment as expressing a sense of social risk on the part of the player. The word "respectable" suggests, of course, that gameplay play at this particular site might be frowned upon, while the fact that the café is outdoors emphasizes the players' exposure to onlookers. In requiring a public or semi-public representation, this mission differs from

“Information Insertion” in one important respect. “Information Insertion” supports stealth intevention on the part of the player, whereas “Physical Representation” asks players to be visible at the moment of intervention. In order to succeed, therefore, they must publicly assert their right to creatively produce in a shared space. They must openly demonstrate that they believe the built environment is intended to support play. This arguably increases the perceived stakes of the mission considerably.

7.16 *SFZero*: “Physical Representation of a Virtual Occurrence.” A player enacts “packet sniffing” using sugar and artificial sweetener packets. (PLAYTIME, 2006)

The last mission I want to analyze here is “The City as a Supermarket”. The mission text reads: “Create a map showing at least 5 locations of free food within the city: fruit trees, raspberry bushes, accessible food-laden dumpsters, etc.” (Mission #237). To complete this mission, three *SFZero* players combined their local knowledge of free food in San Francisco and created the map seen in figure 7.17 They annotate their map: “On the cliffs of Lands End, you can find Wild Strawberries, tiny and tart…. Blackberries can be found all around Lake Merced and in Fort Funston…. Miner's Lettuce is everpresent in Golden Gate Park…” and so on (Gae, Suey, Kelly 5/31/2006). This mission is

7.17 ***SFZero*****: "The City as Supermarket."** In this mission, players construct a map that guides other players to the locations of free food sources. (PLAYTIME, 2006)

particularly interesting as it marks a departure from the traditional mission model, in which players directly act on the environment in the course of completing a challenge. "The City as Supermarket" instead encourages a kind of *deferred* intervention. Rather than requiring players to intervene themselves, this mission asks the players to create an intervention tool for others. The map is, after all, intended to inspire other players to visit the sites that are marked and to partake of the food supplied by the environment. Just as the game claims to offer a new interface to the city, so too does the food map serve to mediate new kinds of engagement with the city. In this way, the mission rehearses the same condition of agency as the other missions examined thus far. It is the agency required to participate materially in the local environment, whether producing or consuming, in ways outside traditionally prescribed practices. And whereas the "superhero" players have already been empowered by the the use of their own characters to participate in these ludic ways, the map produced by this mission is designed to give *others* the same permission to engage more directly and less conventionally with their local environment.

It is this notion of *permission* that I will investigate next. The *SFZero* manifesto claims: "Your character doesn't recognize the artificial boundaries that prevent non-players from doing what they want to do" ("SF0 About" [3]). But what authority do games in general have to give players permission to transgress social boundaries and to defy normative conventions? More specifically, how does a superhero game empower players in this way? Most of the nearly five hundred missions in the *SFZero* database provoke players to act in ways that exceed the limits of normal, everyday use of public and shared spaces. The game manifesto, as we have already observed, argues that such ludic possibilities are hard-coded into the city's protocol. But what formally backs up this rhetoric of potentially ubiquitous play? In the next section, I will consider how reality-based superhero games work to sanction otherwise seemingly impermissible play.

7.6 Forbidden Play in Reality-Based Superhero Games

In *Rules of Play*, Salen and Zimmerman observe: "Games create social contexts in which, very often, behaviors take place that would be strictly forbidden in society at large" (478). They point to a variety of popular games that "permit and often encourage normally taboo behavior"—such as the folk game *Spin the Bottle*, which allows romantic intimacy outside the context of a romantic relationship; the party game *Twister*, which encourages players to invade each other's personal space; the board game *Diplomacy*, which explicitly permits lying and backstabbing; the competitive computer game *Counter-Strike*, which promotes aggressive trash-talking among players; and the massively-multiplayer game *The Sims Online*, which allows for gender-crossing role play (478). All of these game-based interactions, according to Salen and Zimmerman, represent "forbidden play" (478). The games enable players to explore safely behaviors that could jeopardize relationships or social standing if carried out in the real world. It is the "artificiality" and "formal limits" of gameplay, Salen and Zimmerman argue, that together make such forbidden play possible (481). Players know that there will not be real-world consequences to the game. Meanwhile, binding rules are in place to prevent the taboo behaviors from going too far, and the formal boundaries limit the play to those who have agreed to participate in its forbidden aspects.

But reality-based superhero games formally challenge the traditional basis for forbidden play in several ways. First, games like *SFZero and The Go Game* take place in everyday social contexts. Real-life consequences therefore are not only possible; they are probable. Second, *The Go Game* is intentionally ambiguous about what is in-game and what is out-of-game, while *SFZero* claims nothing is out-of-game. Therefore they lack the clearly defined limits and boundaries that typically make forbidden play feel safe. And third, where Salen and Zimmerman argue that forbidden play "embodies behaviors not normally permitted *between players*", reality-based games often extend those embodied behaviors to *non-players* as well (479, emphasis mine). So the mutuality of the forbidden play is anything but guaranteed.

Despite their lack of traditional mechanisms for doing so, permitting forbidden play is clearly an important function of RBSGs. In an interview with *Reuters*, Fraser describes *The Go Game* as giving players explicit permission to exceed the limits of everyday interaction: "People just want to be given license to do something crazy…. and take risks they otherwise would not really take" (Kahn [2]). How do these games give players license to do just that?

Traditional social science concepts provide a general theory for how massively-multiplayer, puppet-mastered games work to enable forbidden play. Relevant research includes Phil Zimbardo's work on *deindividuation,* the psychological power of the crowd to enable transgression, and Stanley Milgram's obedience experiments demonstrating *conformism to authority*, in which individuals are empowered by an external authority to act in ways that violate their own ethical and moral values.[63] But beyond these general theories, which can be applied to a very broad range of social phenomena, I want to explore factors that are unique to the emergent category of ubiquitous games. Here, then, I propose three main and novel factors that contribute specifically to the forbidden play of RBSGs: first, the perceived realness of game rules; second, a superhero rhetoric that portrays forbidden play as a fundamentally benevolent action; and third, the seemingly non-negotiable power relationship that is constructed between the puppet master and game players.

In *Half-Real: Video Games between Real Rules and Fictional Worlds*, digital games researcher Jesper Juul makes a provocative argument about the ontological status of

[63] See, for instance, "Behavioral Study of Obedience" in the *Journal of Abnormal and Social Psychology* (Milgram, 1963); *Obedience to Authority: An Experimental View* (Milgram, 1974); and "The Human Choice: Individuation, Reason, and Order versus Deindividuation, Impulse, and Chaos" (Zimbardo 1969).

digital gameplay. He acknowledges that much of digital gameplay is fundamentally not real: the games depict fictional characters operating in simulated landscape. At the same time, Juul argues, much of digital gameplay is nevertheless fundamentally real: a played game is an actual event that transpires in real life. It is not merely imagined that a game is played; an actual player interacts with a game interface that really exists. The player observably and objectively impacts the virtual game state. In this way, the game world is simulated, but the gameplay is real. Juul argues that this half-real, half-fictional status of gameplay creates a pleasurable cognitive dissonance for gamers. The tension of holding the real and the virtual in mind together at the same time, he suggests, is a pleasure that digital games are uniquely capable of producing. In particular, it is the gamers' constant awareness and interaction with *rules* that keeps the reality of the game firmly and pleasurably in mind.

In the case of reality-based superhero games, however, the perceived realness of the rules may produces more than just pleasure. The perceived realness of the rules, I want to suggest, is what invests RBSGs with the authority to license forbidden play.

What are the rules of reality-based superhero games? Neither *The Go Game* nor *SFZero* has a formally articulated set of meta rules that describe the game as a whole. Instead, the rules of the game are articulated iteratively and variably through the serial mission texts. These missions explicitly direct player behavior, and like traditional game rules, they collectively constitute the formal interactive structure of the game. If we accept Juul's argument that players actively perceive game rules as real, then during reality-based superhero play, the game missions should be perceived as real—and not only real, but *equally as real* as the material environment and social context in which the game is played. During an RBSG, I am suggesting, the players do not experience cognitive dissonance about the ontological status of the game interaction versus the ontological status of the games world. In the video games discussed by Juul, the game world is fictional but the rules are real; but in RBSGs, *both* are real. I believe it is this active awareness of the *mutual realness* of the game rules and the game environment that permits RBSG players to act differently, for real, in the real game space. The realness of the game environment, rather than forbidding transgressive play, actually reinforces the authority of the game to permit it.

Permission alone, however, is not enough to sustain forbidden play. For players to feel comfortable and safe engaging in the game's social transgressions, as Salen and Zimmerman have observed, they also must also believe their forbidden play to be essentially harmless. To this end, a superhero rhetoric can be used to great effect. The superhero language and imagery of projects like *SFZero* and *The Go Game* actively work to assure players that their ludic interventions are, in fact, a force for good. These games, as I have demonstrated, explicitly promise to transform players into superhero versions of themselves. And as the players' public interventions are likened to a superhero's mission, this play is characterized as a fundamentally benevolent act. Umberto Eco observes in his classic essay "The Myth of Superman" that the superhero is ultimately defined by one trait: he "uses his powers only to the end of good" (22). It is therefore the very framing of gameplay as a superheroic act that empowers the participants to play and perform in such radically ubiquitous ways.

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It should be abundantly clear by this point that there is something essentially new and different about the power structures enacted by reality-based superhero games. Their gameplay consists largely, as we have seen, of carrying out orders conceived by the puppet masters. And other puppet-mastered games, such as the alternate reality game *I Love Bees*, have increasingly included serial public missions in their design. These mission-based games are often described and experienced as conferring new powers upon their players. As one player wrote on her blog after *I Love Bees*, "What is an Alternate Reality Game?... A convincing argument that you have super powers you've never known about" (Rose "Define This" 4). Yet paradoxically, these games seem to accomplish this transformation by exerting an unusual degree of power *over* the players. The designers of these games are called "puppet masters"—a term that metaphorically evokes the *direct manipulation* of the players. Indeed, these are the games that have been described by critics as the "games that play you" (Dobson [1]).

The growing popularity of the term puppet master to describe the designers of ubiquitous play strongly suggests that the power structures of these games merits closer scrutiny. Why are gamers increasingly agreeing to be the public 'puppets' of a game master? Where is the *fun* in such a seemingly unbalanced gaming structure? In the next section, I offer a brief history of the emergence of the term 'puppet master' in contemporary games, followed by a critical framework for understanding the immersive pleasures of participating in a puppet mastered experience.

7.7 The Puppet Master Problem

The practice of referring to game designers as puppet masters was first popularized by the Cloudmakers during *The Beast*. Historically, it originates with the players, rather than the designers, and this is a very important distinction.[64] "Puppet master" is not a top-down description of game designers' power fantasies or controlling ambitions. Rather, it is a bottom-up expression of how the players choose to perceive, and to communicate to others, the novel power dynamic of the games they are playing.

Puppet masters (PMs) are not the first or the only 'masters' of gaming. For decades, non-digital games have relied on *dungeon* masters (DMs) and *game* masters (GMs) to organize, host and guide players through table top games, such as *Dungeons and Dragons*, and live action role playing (LARP) events, such as *Cthulu Live*. Like PMs, DMs and GMs are actively involved as authority figures in supervising the live unfolding of a multiplayer game. However, players' widespread adoption of 'puppet master' is a clear assertion of the inadequacy of existing gaming terminology to describe the qualitatively new experience of participating in an alternate reality game or a reality-based superhero game.

What is it that players want to say about a puppet mastered experience that is impossible to articulate through more traditional gaming terminology? Here, it helps to consider a player-produced definition of the term. According to the Unfiction glossary, a puppet master is "an individual working 'behind the curtain' to control the game" (Stacey). This definition, I want to suggest, hinges on the word *control*. Whereas traditional game masters are said to "organize" and to "referee" their games, puppet masters are granted a much more explicit and pervasive authority: they control the gameplay (West End Games, 3). In traditionally mastered games, players are provided with narrative scenarios and options for actions to take. Through direct choice, or random

[64] The first official citation for the term "puppet master" in this context can be found in Cloudmakers discussion post #822, "Puppetmasters….", written by Sean Michaels on April 15, 2001.

choice (rolling dice, e.g.), or some combination of the two, players determine the "next step" in the game. As explained in the West End Games' reference guide, "Introduction to Being a Game Master," traditional game masters interpret these steps and inform players of the outcome: "As the players describe the actions of their characters, you decide whether or not they can do what they describe, or how difficult the action is. You interpret dice rolls according to the rules and then tell the players what happens" (2). In this model, players may not have the final word on what their decisions mean, but they nevertheless are making choices and taking actions that affect the game's plot and final outcome. The real-world missions of ARGs and RBSGs, on the other hand, strip players of the authority to make decisions. The players' *actions* during these missions are pre-determined by the texts of the missions. The players' job is to carry out these pre-determined actions to the best of their ability, according to the explicit instructions they have been given.

In a sense, then, the gameplay of a puppet mastered experience boils down to a high-stakes challenge: to borrow Jon McKenzie's expression, "Perform—*or else*" (3). Or else what? Or else, be denied the opportunity to play, be left out, be left behind. There is simply no *optionality* to the game missions. Do the mission, or do not play. Whether the players are showing up at a particular GPS coordinate at a precise day and time, in the case of *I Love Bees*, and then carrying out mission orders received over a payphone; or going to a location specified by a game text on their cell phones, as in the case of *The Go Game*, and then performing a stunt or interactive task exactly as described; the players are required to cede control of their experience to a startling degree.

This lack of authority to make decisions about which gameplay actions to take when has no clear precedent or parallel in gaming culture. Traditionally, both games theorists and game designers have characterized players as extremely powerful individuals, and powerful in a very particular way. Throughout the foundational texts of game studies, gameplay consistently has been defined as an opportunity for participants to assert the power of choice, to make their own decisions, and to act only and always according to their own volition. Because puppet master gaming is such a departure from this model, it is worth taking a moment here to track how key gaming phenomenologies and design manifestos of the twentieth and early twenty-first century have worked, until now, to define gameplay as the *antithesis* of a puppet-mastered experience.

Johan Huizinga first introduces the notion of an extremely powerful player in his 1938 *Homo Ludens: A Study of the Play-Element in Culture*. Huizinga proposes that play is always "freely chosen," never externally imposed or dictated: "First and foremost, then, all play is a voluntary activity" (7). For Huizinga, it is important to note, the decision to play is not a momentary choosing, a kind of gate through which the player passes. Rather, the feeling of autonomy that comes from voluntarily choosing to play permeates the entire play experience; the player *keeps* playing as a matter of continuous and active choice. "Here, then," Huizinga writes, "we have the first main characteristic of play: it is free, is in fact freedom" (8). The state of play is the very state of self-determination; it is an overt act and *sustained* expression of the individual will.

Roger Caillois, in the 1958 *Man, Play and Games*, recapitulates Huizinga's notion of the powerful, self-directed player: "There is no doubt play must be defined as a free and voluntary activity" (6). Caillois, a sociologist, shares Huizinga's notion of *persistent* volition through play: “The player devotes himself spontaneously to the game, of his free will and for his pleasure, each time completely free to choose… above all, it is necessary that they be free to leave whenever they please” (6). But Caillois takes Huizinga’s thesis a step further by addressing the potential paradox of individual freedom within the regulated, social space of games. He notes that much of play, *game* play specifically, is based on binding rules and fixed conventions, and that players must in fact submit to these constraints. Therefore, their decisions are influenced and restricted by the external authority of the game system. However, rather than focusing on this act of submission, he focuses instead on the freedom to make decisions and take self-motivated action in accordance with those constraints: “The game consists of the need to find or continue at once a response *which is free within the limits set by the rules*” (8). For Caillois, “this latitude of the player,” or well-defined *scope* for freedom of action, confirms that autonomy is the phenomenological heart of play (8). Indeed, in the final pages of his classic study, Caillois provides his clearest statement of the power dynamic inherent in play: “Play is a creation of which the player is master” (163).

It is not just the theorists who have identified self-determination and control as core and constant aspects of game play. Practitioners frequently make the same argument. Game designer Greg Costikyan echoes Caillois’ thesis in his essay “I Have No Words and Must Design”, writing: “The thing that makes a game a game is the need to make decisions” (1994, 2.1). He describes the quintessential gameplay experience in terms of the difference between action and *volition*: “At some point, you are faced with a choice: You may choose to do A, or to do B. But what makes A better than B? Or is B better than A at some times but not at others? What factors go into the decision? What resources are to be managed? What's the eventual goal? Aha! … Now we're talking about decision making” (2.1). Costikyan is differentiating here between performing an action that produces an effect—say, pushing a button—and choosing and self-directing an action from a range of possibilities to achieve a desired effect—pushing *which* button, *when* and for *how long*. Costikyan’s player has a sense of self-directed purpose and the ability to make decisions that support his or her goals in the game.

Likewise, game designers Salen and Zimmerman argue in *Rules of Play* that “playing a game means making choices” (33). They too differentiate between “interactivity”—performing an action that generates a response—and individually determining the best action to take, thereby taking *responsibility* for the response generated. “In order to create instances of meaningful play, experience has to incorporate not just explicit interactivity, but also meaningful choice” (61). For Salen and Zimmerman, satisfying gameplay emerges from the players’ ability to claim responsibility for an outcome by directly controlling the decision making process. Game players have full ownership of the actions they take.

But the rise of the puppet master as an authority figure in gaming requires us to reconsider these traditional assessments of the personal power of the player. Is gaming really about experiencing the freedom and self-determination characterized by choice of action and decision-making? If the player is the master, as Caillois suggested, then there is no room for a *puppet master*. Yet we have a proliferation of puppet mastered games that suggests otherwise. What accounts for this dramatic reconfiguration of a player’s power?

The phenomenon of puppet-mastered play is best understood, I would argue, in two ways: first, as a manifestation of the gamer's desire for increasingly immersive gaming experiences, and second, as the development of a performing subjectivity in the player. I will explore both of these concepts below.

Both ARGs and RBSGs engage gamers with real-world environments, drawing on the *actuality* and *physicality* of other people, objects and spaces to create a mode of immersive gameplay that neither requires nor aspires to sensory simulation. However, these games are experimentally immersive beyond this signature use of real-world affordances. The designers and gamers who embrace the puppet master model are establishing together a new criterion for realism in gameplay—a *psychological* realism that perfectly complements the 'immersed in reality' aesthetic of ubiquitous gaming.

In his 2005 treatise on *Mediated* culture, critic Thomas de Zengotita makes an interesting claim about the psychology of everyday realism. He proposes that in everyday practice, reality is not experienced as the opposite of virtuality, but rather as the opposite of *optionality*. He observes:

> In a mediated world, the opposite of real isn't phony or illusional or fictional—it's optional. Idiomatically, we recognize this when we say 'The reality is…,' meaning something that has to be dealt with, something that isn't an option. We are most free of mediation, we are most real, when we are at the disposal of accident and necessity. That's when we are not being addressed. That's when we go without the flattery intrinsic to representation (14).

The flattery of representation, I want to suggest, is exactly what traditionally designed games—and especially digital games—offer up to their players. They appeal to the gamer's sense of individual authority and autonomy by offering up a range of actions, strategies, roles and avatars from which the player can choose. Such games fail to achieve a deep-seated, psychological realism, as it is described by de Zengotita, precisely because they are from start to finish a matter of optionality.

De Zengotita's argument, essentially, is that *optional* is the new *virtual*. Ubiquitous gaming seeks to reverse the trend toward increasingly virtual game experiences. Therefore, logically this category ought to eliminate the optionality that for so long has defined gameplay. This elimination of optionality is precisely what RBSGs and some ARGs achieve by requiring players to cede control over their gameplay to pre-determined mission texts. De Zengotita characterizes the optionality of a mediated environment as an opportunity, through self-expressive choice, "to be the author of your being and becoming" (78). But in carrying out the real-world missions of ARGs and RBSGs, players are precisely *not* their own authors. They are written in advance by the puppet master. They are the scripts that they are given. There is no self-authorship, only embodiment of someone else's ideas.

Even in puppet-mastered game, of course, the player has chosen freely to play, and the player can just as easily choose *not* to play. But *within* the game experience itself, the player's free will is thwarted by the utter lack of choice. There are no options; there is only the reality of what the player must do next. Play itself may still be voluntary, as it has so long been theorized, but the core experiential quality has changed.

In a culture where everything is designed for maximum optionality, reality is defined by having to accept a situation exactly as it is. Therefore the most realistically immersive game is the one in which a puppet master tells you exactly what to do, when to do it, where and for how long. For immersive gamers, this escape from constant optionality is a primary pleasure of the puppet-mastered experience. It is the ultimate immersive game aesthetic.

This flight from optionality also reinforces the game's authority to permit forbidden play. Because the missions-as-rules are experienced as both real and not optional; players can shift the responsibility for their own actions to the external authority of the puppet master. Paradoxically, this shifting of responsibility actually works to restore the players' sense of their own power—not in the game, but rather in the environment in which the game is played. Indeed, what is ultimately so complicated about the power structure of mission-based, real-world play is that the effect of shifting responsibility for the game to an external authority ultimately generates for players a sense of personal authority over the environment. This newfound personal authority, as I have theorized above, consists of both the experience of magical control created by *The Go Game* and the sense of entitlement to act generated by *SFZero*.

Counter-intuitively, then, it is the in-game belief that the game missions are real and not optional that grants players the option to game real-life. Ceding control over their in-game actions is what effectively enables players to see the real-world as a more actionable environment. Is there any way to resolve this aporia in the articulation of power and superpowers in ubiquitous games?

I would suggest here a closer consideration of the term puppet master. The metaphor of a puppet and its master suggests the players are merely performing objects, subject to the will of the designer but not subjects themselves. However, the actual construction of the live gameplay relationship between designer and player indicates otherwise. We often associate the term 'puppet master' with the image of someone pulling a puppets' strings. But where are the strings during alternate reality and reality-based superhero games? There are no strings, I want to suggest; the game missions are *wireless* in both a literal technological and a metaphorical sense. The missions are communicated directly through mobile, wireless technologies, in the case of *The Go Game*, or they are downloaded by players to handheld devices or laptops and taken into the real-world, as in *SFZero*. In either case, the players are in the field; the designers are remote. While the two parties are connected to each other through game texts, ultimately the players are responsible for embodying the texts in physical locations that are beyond the designers' direct influence or control at the time of the mission performance.

In this way, although the players are following commands, their physical and creative *interpretation* of the commands leaves them to a large degree in charge of their own experience. The players in a puppet mastered game are not performing objects; they are performing *subjects*. And that performing subjectivity is never ceded, even in submission to a puppet master's orders.

The willful subjectivity of a performer is a different kind of agency than we normally associate with games, but an agency nonetheless. De Zengotita acknowledges this when he discusses *flash mobs*, the global practice of dozens or hundreds of people converging at a real-world location to do something playful for a short time before dispersing.[65] He describes flash mobs, which like reality-based superhero games are mission-based and authored by an anonymous puppet-master, as offering a kind of middle ground between reality and optionality. He writes of the flash mob participant: “You were *being* the phenomenon as you were seeing it represented, in real time, unfolding before you. You could see the impact of your role on the national stage in essentially the same way you can see the impact of your button-pressing in a videogame. You were the agent, you were the star” (152). As De Zengotita points out, performing in the public eye gives players an expressive visibility and an *audience* that provides the same quality of feedback a digital game offers. The audience reaction, whether local or online, becomes its own metric, which is capable of giving players a sense of responsibility for a given outcome.

Interpretive control is not yet part of what we understand to be meaningful play in digital games, but perhaps it should be. Crafting a representation, designing a physical manifestation of a digitally distributed text, as De Zengotita suggests, is its own kind of agency, one that game designers are building into the power structures of their games.

The gamer’s exercise of free will has long been assumed to be a core and constant experiential aspect of gaming. But the rise of the puppet master in pervasive gaming suggests that in the new ubiquitous computing landscape, many gamers want to experience precisely the opposite phenomenon. They are learning the immersive pleasures of becoming *actors* in a gaming environment, of transforming themselves into

[65] Many consider flash mobs a fad associated with the summer and fall of 2003, when at their peak they were occurring at the rate of as many as a hundred per week around the world. This peak phase is most thoroughly documented by interaction designer Sean Savage at the Cheese Bikini blog (http://www.cheesebikini.com/category/ flash-mobs/). However, as of June 2006 well-documented flash mobs continue to occur around the world at a rate of a dozen or more per month. Flashmob.com, for example, documents June 2006 flash mobs in the U.S. cities of Minneapolis, Pittsburgh, Cape Cod, Baltimore, and more, as well as the international cities of Hong Kong, Vancouver, and London.

physical vehicles for someone else's digital vision. As game-actors, they become masters of interpretative embodiment; they accept as their mission the real-world incarnation of a digital design, much as stage actors in traditional theater have long served as the actual embodiment of virtual texts. For players, then, the pleasures and challenges of real-world gaming missions are very much the pleasures and challenges of dramatic performance.

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I want to conclude this chapter by considering the future of puppet master gaming. It is not clear to me that this model of game design, as currently deployed, is a sustainable one. Even acknowledging the interpretive control maintained by the players, there remains something slightly but unmistakably perverse about requiring players to submit to an external authority in order to achieve a pleasurably immersive experience. And it is neither satisfying nor scalable in the long term to insist that players to cede all authorial control of their own real-world gaming actions to an elite group of game creators. Is there not a more power-balanced model for empowering people to play and to perform in more public and promiscuous ways?

I find Rich Gold's vision of a world in which playful and performative affordances are massively replicated throughout the environment a compelling one. And alternate reality games and reality-based superhero games have proven remarkably successful in revealing and multiplying the ludic affordances of everyday life, as Gold predicted. But the puppet master model feels to me like a temporary hack of the ubiquitous game engine—a workable patch, but not an ideal solution. The puppet master model of design has jump-started the ubiquitous gaming network, yes. But it is not necessarily the optimal source code for reconfiguring the relationship between play and everyday life.

What if the source of ludic authority were not externalized? Is it possible for players to appropriate the puppet master techniques and become the authors of their own scripts? Can the system be opened up to allow the player to become active designers of their own, real-world gaming?

In the previous chapter, I presented Douglas Rushkoff's argument that contemporary gaming as a whole is a fundamentally *open-source* culture. According to this view, mission-based gameplay should be as much a part of this open-source gaming culture as any other genre of digitally-enabled play. Indeed, *SFZero* shows clear signs of taking the puppet master model in the direction of an open source game. In March 2006, its producers created an additional feature on the game website that allows players to add their own missions to the game database. The overall game system remains managed by the core team of its three, original puppet masters. The official *SFZero* puppet masters reserve the right to maintain ultimate authorial control over the game text, noting: "Some tasks may be modified or deleted without notice" ("SF0 Add Task" [1]). However, by opening up the process of mission creation to players, *SFZero* has begun the work of *internalizing*, for players, the authority to play ubiquitously.

Since opening up its game-design source code, *SFZero* has received over two hundred player-submitted missions, or nearly half of the current mission inventory. These player-submitted missions continue to propel and to permit superhero play into surprising contexts and environments. In the mission "Green Eggs & Ham", a player-turned-PM instructs himself and others to compose "a complete verse a la Dr. Seuss which recounts your experience eating green eggs and ham in a number of places other than your dining room" and to provide "relevant photo documentation. You are especially encouraged to explore the relationship between said cuisine and the many realms of Bay Area public transportation" (Mission #426). Player-submitted missions also continue to attend to the discovery of new interactive affordances in the everday environment. In "Good for Licking", a player-turned-PM directs herself and others: "find out what things in San Francisco are Good For Licking. Lick them" (Mission #419).

Even in the closed puppet-master system of *The Go Game,* we observed teams going signficantly off-script to construct what they considered to be highly successful missions around people, places and objects that were not technically in the game. In these self-constructed scenarios, seen in the "Political Statement", "Spiritual Guidance", and "Special Project" case studies presented above, we can say that the players were inadvertantly hacking into the puppet-master engine during their live gameplay. *SFZero* makes this collaboration explicit, now on its home page proclaiming itself to be a "Collaborative Production Game". But the wireless play of puppet mastered games, arguably, has enabled it all along.

These accidental and intentional hacks to the puppet master system signify a momentum toward applying an open-source philosophy of play to the real world, a momentum also observed in the explosion of grassroots alternate reality games and the demonstrated ability of ARG players to continue perceiving patterns of their games after the games have ended. Together, these trends shift ubiquitous gaming culture toward a more *massively collaborative* co-production and reproduction of ludic affordances. They indicate the historical emergence of an open ubiquitous game network, through which a massively-scaled community of players are empowered to create their own real little games and to develop their own more gameful reality. In the next chapter, I will explore the architectures and metaphors through which this ubiquitous gaming community is constructed, connected and persisently supported.

CHAPTER EIGHT

The Collective Play Values of Ubiquitous Games

It is really important to me that you, and other people, understand the differences that alternate reality gaming has made in my way of thinking. It has powerfully affected my attitudes about what is possible. The game for me has been about gathering a first hand knowledge of how a large community can function, including the role of technology. I know that large scale communities can work and be extraordinarily effective. I am not afraid of the complexities.

—Rose, alternate reality gamer, in "A Letter to a Puppet Master"

*The community *is* the game.*

—Unfiction message board post #118146

8.1 The Community Dialectic

In his 2001 essay "The Cyberspace Dialectic", digital theorist Michael Heim divides current philosophical debate about digital networks into two opposing camps: the *naïve realists* and the *network idealists*. Heim is concerned with how each camp theorizes changing notions of community in an increasingly networked society. The naïve realists theorize digital community primarily out of fear, Heim observes. "There is fear of abandoning local communities as we move into a cyberspace of global communities. There is fear of diminishing physical closeness and mutual interdependence as electronic networks mediate more and more activities" (33). For naïve realists, he writes, virtual community is a contradiction in terms. "Real community… is a sharing that cannot be virtual because it arises from the public places that people share physically" (38). For the naïve realists, Heim argues, community is always *site-specific*. It is nurtured in the shared spaces of built environments, "where people throw their lot together and stand in face-to-face ethical proximity" (38). This notion of community also requires *co-location*, for it is physical proximity that best affords intimacy and interdependence. Where digital network technologies increasingly enable social relations at a physical distance, Heim observes, the naïve realists reject them as disabling our primary mechanisms for nurturing local community.

The network idealists, on the other hand, theorize the future of community as if in a state of expectant rapture. "They celebrate the coming electronic collective," Heim writes, with an "optimism gone ballistic" (37). As technologies increase their connectivity to each other globally and exponentially, the network idealists predict that so too will their humans users. The idealists therefore anticipate an era of *massively-scaled* communitarian ideals and platforms. Heim suggests that this philosophical camp constitutes a digital cult of the *noosphere*, a massive psychic network in which all human consciousnesses converge to create a single unified spirit.[66] The idealists believe that "the planetary nervous system" will give birth to a "cooperative intelligence that vanquishes private minds" (37). They embrace digital community as a vehicle for transcendence.

Heim does not dismiss either perspective, nor does he attempt to moderate their extremism. He suggests instead that in their current radical opposition, naïve realism and network idealism could be used as the basis for a powerfully *dialectical* approach to theorizing digital community. A sustained contest between the polarized notions of real and transcendent community, he argues, would produce a more robust criticism and communication about the emerging problem. While the current philosophical discourse

[66] The term "noosphere" was coined in the 1925 essay "Hominization" by Jesuit philosopher Pierre Teilhard de Chardin, who famously describes the concept: "And this amounts to imagining, in one way or another, above the animal biosphere a human sphere, a sphere of reflection, of conscious invention, of conscious souls (the noosphere, if you will)" (63). It represents an attempt to combine physics and evolutionary theory with Christian philosophy.

does not yet fit this model of the dialectic, he argues, it is essential to move digital theory in this direction. “The challenge is not to end the oscillation between idealism and realism, but to find the path that goes through them” (41).

Heim seeks to bring about a more dialectical approach to *theorizing* digital community. But in this chapter, I will argue that ubiquitous games are already *practicing* digital community according to Heim’s proposed dialectic. Indeed, as I explore below, both alternate reality games (ARGs) and reality-based superhero games (RBSGs) embody an agonistic play between the two extreme views of naïve realism and network idealism.

The Network Idealism of Ubiquitous Games

The first strands of a network idealist discourse emerged among ubiquitous gamers during the final days of *The Beast*. When the game ended, the Cloudmakers filled their discussion forum and website with hundreds of emotional meditations on their own online player community. They emphasized above all else a profound sense of *collective intelligence* that had emerged within the digitally networked group. As one player wrote:

> The 7500+ people in this group ... we are all one. We have made manifest the idea of an unbelievably intricate intelligence. We are one mind, one voice... made of 7500+ neurons…. We sit back and look at our monitors, and our keyboards... our window to this vast collective consciousness.... We are not alone. We are not one person secluded from the rest of the world... kept apart by the technology we have embraced. We have become a part of it through the technology. We have become a part of something greater than ourselves (T. #42523).

The post is typical of the remarkable effusion of collective identity that occurred at the end of *The Beast*. It evokes several of the noospheric qualities Heim ascribes to the network idealist's view: emergent intelligence, the fusion of individual consciousnesses, and a powerful social connectivity achieved specifically and only through digital technologies.

As the group observed their own noospheric qualities, they came to see the formation of such a community as the ultimate point of the game. One player observed:

> The solutions do not lie in the puzzles we are presented with, they lie in the connections we make, between the ideas and between one another. These are what will last. I look down at myself and see that I, too, have been incorporated into the whole, connections flowing to me and from me, ideas flowing freely as we work together, as individuals and as a group, to solve the challenges we are presented with. The solution does not lie in the story. We are the solution (Stoehr [1]).

The notion that "we are the solution" has been so oft-repeated that it is now taken by many players as an essential fact of the genre: the *raison d'etre* of alternate reality games is to create a massively-networked community. As one player observed in general discussion on the Unfiction message boards: "It's very simple: The community *is* the game" (Alzheimers #118146).

Although the players were first to engage in this discourse of network idealism, the puppet masters have played an important role in confirming and encouraging it. Sean Stewart, lead writer for the alternate reality games *I Love Bees* and *The Beast* project, famously told players during a post-game puppet master chat: "These two games have, at the risk of sounding corny, completely reaffirmed and exalted my faith in humanity" ("Post-Game Chat with the *I Love Bees* Puppetmasters" [17:37]). Stewart cited the "incredible cohesion, creativity and collective responsiveness" of the player community as the cause for his restored and exalted faith ([17:37]). These comments were made in 2004, three years after he first began talking about the players as "a collective intelligence that is unparalleled in entertainment history"—a phrase Stewart scribed for the final credits of the game. Hearing their own network idealism continually reflected back to them by the creators of their games has had the effect of tremendously bolstering the players' sense of collective identity over time.

Alternate reality games (ARGs), to date, have produced a much larger body of citable network idealist claims than their ubiquitous gaming counterparts, the reality-based superhero games (RBSGs). This is due in part to the primary basis of ARGs in message boards, versus the more action-oriented nature of RBSGs. However, where RBSGs produce texts, they too engage in a discourse that views the digital game network as fostering a fundamentally more collective spirit. Players of *SFZero* frequently refer to the game, for example, as a "collaboration engine" (Cunning Linguist 6/19/2006). They self-consciously reflect on the game as a vehicle for achieving massively-scaled community. One player speculated recently: "*SFZero* is the base for a creative catalyst that serves to connect the masses through something that generally separates them, the internet" (Face 6/25/06). The *SFZero* puppet masters encourage this way of thinking about the game, which they describe as creating a path toward a more ideally collective future. They write: "*SFZero* imagines a Utopic future in which a majority of the points players receive are from collaborating together" ("*SFZero* About" [8]). Here, the puppet masters explicitly acknowledge the utopian aspects of their designed community, which they expect to produce unprecedented levels and kinds of digitally-enabled collaboration.

SFZero also playfully appropriates the language of co-evolutionary consciousness in its level design. As the puppet masters explain: "One of the goals in *SFZero* is to work your way up from Level 0 to Level 8" ([8]). Here, the game references counterculture psychologist Timothy Leary's eight-circuit model of human consciousness, in which each circuit represents an higher stage of evolution.[67] In *SFZero*, each game level represents a greater ability to collaborate with massively more players. Thus the evolution of the game community is likened to the evolution of a collective consciousness. The puppet masters promise that merging into this consciousness will offer profound benefitis: "Advancing in Level is an incredible, life-altering experience" ([8]).

It is clear, then, that the players and designers of ubiquitous games are engaged in an explicit and ongoing utopian discourse of collective intelligence, unified consciousness, and massively collaborative production. But at the same time, with their in-game performances, they are also staging a series of high-profile arguments in favor of more traditional notions of community. I will now turn to examine the naïve realist aspects of their highly physical and public gameplay.

The Naïve Realism of Ubiquitous Games

Heim writes of the naïve realist approach to community: "Even if the 'collective mind' still offers much interaction among individuals through computers, the traditional meeting places still foster social bonds built on patience and the trust of time spent

[67] For further discussion of this model, see *Info-Psychology: A Revision of Exo-Psychology* (Timothy Leary, 1987).

together" (38). Indeed, ubiquitous games are increasingly attentive to their players' need for traditional meeting places in the real world.

Reality-based superhero games are entirely centered onf the goal of constructing collaborative interactive opportunities for their players in everyday social environments. The online community serves primarily to facilitate *face-to-face* community. The players of RBSGs demonstrate a conscious awareness of this purpose. One *SFZero* player describes the game missions as "actual attempts to get us out of our seats and into communities" (InkTea 6/24/2006). Here, the real world is described as the true locus of community, as opposed to the website that disseminates and documents the game missions.

Another player reflects on the need for face-to-face community, instead of simply online engagement, with a series of rhetorical questions: "One of the promises of virtual space is connecting to other people regardless of actual distances that would otherwise separate. We can connect on a textual, sometimes visual level, but can we connect in all human ways? Do our subconscious minds need physical space in which to interact? Does Jung's collective unconscious exist in non-space?" (Schupp 3/15/2006). Here, the promise of digital networks to create meaningful social connections is challenged. It is the more traditional notion of physically-grounded community that motivates the players to go out into the real world to complete their game missions. Each time the players meet up and perform their collective play in public, they demonstrate support for the view that real community requires a local and material foundation.

Meanwhile, alternate reality games are becoming increasingly focused on co-locating its players in order to make the community more "real". *I Love Bees* required not only "hive mind" intelligence to solve its many puzzles, but also real-world "swarm behavior" to complete its many missions. In the post-game puppet master interview, Stewart emphasized this move toward face-to-face community: "Cloudmakers were unbelievable puzzle-solvers, but I Love Bees WENT OUTSIDE" ([18:10]). The Unfiction real-world coordination thread alone documents 276 group meet-ups over the course of twelve weeks of *I Love Bees* play, and the player-submitted evidence of completed real-world missions suggests many more.[68] The iterative nature of these meetups—they occurred at least weekly for twelve consecutive weeks—reflects the realist view that community develops over time and through multiple encounters. Increasingly, the real-world missions of ARGs are not about meeting in the real-world once, in order to put a face on the online community. Rather, they use multiple face-to-face encounters to transform the virtual community into a real community. One *I Love Bees* player wrote to his local mission accomplices: "You made the game real, and no matter how foolish it may sound, I think I'm a different person for it" (skyhawk0000 #123204).

Recent alternate reality games have had players throwing their lots together to complete collaborative missions in locations as diverse as public libraries (Mind Candy's *Perplex City*, 2005- present), the desert (GMD Studio's *Art of The Heist*, 2005), and historic cemeteries (42 Entertainment's *Last Call Poker*, 2005).[69] In addition to these in-game meet-ups, the larger alternate reality gaming community has started to organize between-game gatherings in the real world. They refer to these gatherings as "hivemeets", emphasizing the real-world actualization (or meeting) of the virtual community construct (the hive). Indeed, an online photo montage from a July 2005 hivemeet in Chicago is

[68] The coordination thread is archived at http://forums.unfiction.com/forums/viewforum.php?f=89.
[69] I served as the lead designer for *Last Call Poker*'s cemetery missions.

captioned: “Make the memories REAL” (“Hivemeet” [1]). Here, the players argue that it is only through co-located engagement that they can make their ludic network into a real little, massively-scaled community.

*

Ubiquitous games, as I have shown, are practicing a *community dialectic*. They embrace the network idealist vision of transcendent digital community while simultaneously arguing that such radically different community requires a traditional grounding in the physical spaces of the real-world. As Heim suggests of this dialectic, “A collision or the collapse of one of the sides may not be the only end point to look for. We might have to learn to live with the dialectic as the art of permanent exchange” (41). Indeed, the design of ubiquitous games shows no sign of abandoning either the realist or the idealist notion of community. Instead, they forge a path that alternates between both, allowing us to rehearse different approaches to a massively-networked future we both fear and long for.

While it is interesting to reflect on the surface performances of this dialectic, particularly as they appear in player and puppet master accounts of their games, it is also important to understand the phenomenon in terms of its underlying mechanics. What in the process of gameplay inspires players to describe their communities in simultaneously network idealist and naïve realist terms? And how do puppet masters work within the game design to instill real-world collaborative aspirations while reinforcing players’ claims to emergent collectivity? In the next section, I will consider the specific elements of ubiquitous games that have been designed to communicate and to instill the value of real, collective play.

8.2 The Rhetoric and Design of Massively Collaborative Play

Ubiquitous gamers' extraordinarily self-aware reflections on the nature of digitally-enabled community can be traced back to specific choices puppet masters make in framing and designing their games. Here, I want to examine several prominent examples of this relationship between the rhetoric and design of a game, and the emergent player discourse.

SFZero's scoring system is an excellent example of how rhetoric and design meet to promote an ideal of massively networked collaboration. In *SFZero*, each mission is assigned a point value ranging from 10 to 1000. Missions are worth increasingly more points as they require more players in their execution. As the puppet masters explain: "Collaborative tasks are worth more points because real people working together is a wonderful thing" ("SF0 About" [8]). Here, the formal game system announces its own built-in bias toward increasingly multiplayer collaboration. Gamers who seek to maximize their own performance within that system must adopt the same bias. To play the game is to embrace the ideal of escalating collaboration; the act cannot be separated from the value. Therefore, we can understand much of the players' discourse of collective play to be motivated by the explicit demands of the game, as expressed through both its formal design and its communications. The players' apparent enthusiasm for working together in dramatically collaborative ways is not, then, a pure celebration of the collective spirit; it almost certainly fueled to some degree by a desire to earn more points and thereby succeed in the game.

In a more subtle way, the interface for the *SFZero* mission database also is designed to train players to aspire to massively multiplayer collaboration. The database features an “add a mission” functionality that allows players to design and post original challenges. The field-based interface for adding a new mission includes a field for the *minimum* number of players required to complete the mission and a field for the *maximum* number of players who can work together to complete it. The interface sets a lower limit for the minimum number of players that any given mission must require (at least one). However, it does not set an upper limit on the maximum number of players who can work together to complete a given mission. The limitlessness of this field evokes a sense of *infinitely scalable* cooperation. The digital game network, the interface suggests, is capable of supporting unbounded collectivity. Was this a deliberate design choice? Indeed, when I asked co-creator Ian Kizu-Blair about this interface design, he confirmed that it is intended to encourage players to “think big” when it comes to potential collaboration (personal interview 6/25/2006). The absence of an upper limit has another interesting consequence: Users can create missions for a number of players that actually exceeds the current total of registered players. In this way, the interface anticipates a scaling upward of the community itself. It encourages players to envision a near-future in which there are many more, indeed eventually massively-more, co-conspirators to complete a given mission. It is in this way that we can understand the following player comment: “There are a ton of great human beings out there, waiting to be found” (Dasro_kast). The game system formally encourages players to aspire to a more spectacular scale of social connectivity.

Finally, many of the *SFZero* missions are designed by the puppet masters to articulate a particular vision of digitally-enabled community. This vision is of a community that is uniquely empowered to achieve extraordinary things through collective mobilization. An excellent example of how this vision is communicated to players is through their design and public discussion of “The High Score Task”, which is worth 1000 points and asks players to “put up a flag on top of the Sutro Tower” (Mission #5). As a *CNET* news story about *SFZero* notes, the Sutro Tower is “the city's tallest structure and one that's located behind well-secured fences. It's a fairly unrealistic and certainly illegal goal, but nonetheless a humorous rallying cry for game participants” (Terdiman [2]). Indeed, as one of the first missions the puppet masters designed, it created as a rallying cry for a very specific kind of community. *CNET* reports: “[One player] said he was having fun thinking of ways to approach the problem and that in the end, he imagined that the only way to achieve the goal might be for the game's entire community to show up outside the fences and announce that they were there to plant the flag” ([2]). Here, the mission has suggested a community capable of overwhelming all rational and institutional forces simply by the sheer force of their own massively-multiplayer presence. This mission encourages their players from the very beginning to develop a sense of collective power that is simultaneously grounded in physical reality and mobilized by digital networks. *SFZero* is a relatively new game, but as its player-base grows, I believe it is highly likely that its collective identity will come to resemble this dramatic massive-mobility apparently required by the game’s most difficult mission. I look for future player messaging and mission design to develop around this vision, which combines the transcendent power of a collective committed to a single cause with the literally massive (as in, having physical mass) force of a real-world community.

The alternate reality gaming community, on the other hand, has had five years to develop its collective identity around its seminal collaborative experiences during *The*

Beast. Here, I want to consider the specific elements of *The Beast*'s design that required collaboration. I will then discuss the puppet masters' efforts to characterize that collaboration as singularly transcendent.

The Beast was designed to produce massively-multiplayer collaboration in two ways. First, the game was *massively-distributed*. As I explored in Chapter Five, a massive amount of game content was shredded into thousands of bits and pieces. The deconstructed content was then dispersed across dozens of platforms. This distributed design required a collective gathering effort, to bring the many pieces together, as well as a collaborative ordering and interpretation of the pieces, in order to reveal and follow the massively multi-threaded plot. One player, who took up the responsibility of publishing the results of these collaborative efforts in a walkthrough guide to the game recalled, "There was simply far too much going on for me to comprehend anything on my own" (Hon "Hitchhiker's Guide to the Game" [1]). He described the early days of the game as requiring "a few hundred people to help you analyze it all" and notes that as the game continued, it only became more difficult to follow ([1]).

According to design statements published after the game, the deconstructed narrative reflected the puppet masters' belief that digital networks inherently afford reconstruction and collaboration. Lead writer Sean Stewart recalls in an essay about his experiences as a puppet master: "The game would—of necessity—be fundamentally cooperative and collective, because of the nature of the internet. The belief, which we all shared, was that if we put a clue in a Turkish newspaper at dawn, it would be under discussion in a high school kid's basement in Iowa by dinner time" ("The A.I. Web Game" 2). Here, Stewart describes a global social network that grows to be everywhere at once only because of the site-specificity of the game's distributed content. The game network comes to encompass and to connect all possible real-world locations by paying attention to actual and individual locations. (This concept was more fully developed by the design of *I Love Bees*, of course, which made the majority of its content site-specific, as opposed to a much smaller part of the game content in *The Beast*.)

In addition to finding and tracking the story, players were also charged with cracking complicated puzzles purposefully designed to require a greater variety and depth of skill than any single player was likely to have. As Elan Lee wrote in his essay "This Is Not a Game": "We built challenges based on every discipline we could find. We wrote puzzles that required expertise in Photoshop, Greek mythology, 3D sculpting, molecular biology, computer coding, and lute tablature. We created strings of puzzles that no single person could solve on their own" (2). Here, the idea of a collective intelligence comes into play. The larger the group, the more likely it is to include someone with a highly specific knowledge or advanced skill set.

One Cloudmaker described this method of puzzle design as creating an intensely interdependent community, in which each individual player relied primarily on the strength of rest of the group, but also remained vigilant for the opportunity to contribute personally. He describes the experience of collective puzzle solving:

> As I move from puzzle to puzzle, I don't know that I can quantify what my part is. With each coming challenge, I contribute a bit of knowledge, a nudge here, a scrap of trivia there. The binary code translations and Japanese katakana puzzles are right over my head, but I come to trust that there are others that can solve them. Others, there are always others, an

> ever-growing number of them. If I can't solve something, and there's no way any one person could solve everything themselves, there are the others there to help carry the torch onward (Stoehr 1).

Two things are worth noting about this player account. First, the player describes a continuously expanding network of players, his “ever-growing number” of collaborators. This vision of community, like the network idealist’s, is *scalable*. At the same time, he mentions *trust* as a fundamental attribute of the online community; trust is a primary concern of the naïve realist. However, here in the alternate reality of the game, as this post reveals, community trust is a matter not of assessing individual, *personal* qualities. Rather, it is a matter of regarding the collective, actionable potential of a larger *system*. Rather than learning to trust and to identify with their fellow members, the players come to trust and to identify with the network. This, I want to suggest, is the primary process through which the alternate reality gamers’ collective identity seminally was formed. It is a process of observing the *mechanics* of, rather than the *participants* in, collective play, and thereby becoming personally invested in the group-as-*system*, rather than the group-as-people.

The players’ fascination with their own group mechanics has been fueled over time by the puppet masters’ praise of both the *power* and the *beauty* of their community architectures. Here, then, I want to turn from examining the puppet master’s game design strategies to analyzing some of their most influential out-of-game communications with and about their players.

One story about the early collaborative success of the Cloudmakers has had a tremendous influence on the players’ understanding of the ubiquitous gaming network.

The story, which relates how the Cloudmakers nearly “broke” the game with their collective intelligence, was first told by puppet master Elan Lee at the 2002 Game Developers Conference. A transcript of Lee’s talk has been widely circulated among players; the portion they were most interested in follows:

> What we quickly learned was that the Cloudmakers were a hell of a lot smarter than we are, and that really kept us on our toes… Here, I'll show you this. [He shows a slide entitled '*Beast* Beat 1', a schedule of game puzzles.] Now, there's a color key here for puzzles: hard, easy, not so hard, etc. [Pointing to different colors] These were the puzzles that would take a day, these were puzzles that would take a week, and these puzzles they'd probably never figure out until we broke down and gave them the answers. So we built a three month schedule around this. And finally we released. The Cloudmakers solved all of these puzzles on the first day” (5).

This anecdote is a favorite of alternate reality gamers, even those who did not play *The Beast*. It describes the Cloudmakers’ early gameplay as an epic act of collective intelligence, one to which all ARG play should similarly aspire. When a challenge temporarily stumps the collective, someone inevitably posts a message quoting this exact portion of Lee’s lecture. During an *I Love Bees* challenge known as “the preposition puzzle”, for instance, one player wrote after nine hours of unsuccessful collaborative work: “‘... The Cloudmakers solved all of these puzzles on the first day.’ Only 15 hours left in the first day for prepositions!” (MacLeod #84631).

Moreover, this widely-circulated text explicitly argues that the player network can trump even the most skillful puppet master. Note how Lee describes the players as “a hell of a lot smarter than we are". In the questions after his Game Developer lecture, Lee reiterated this idea. When asked by an audience member at the GDC lecture what he had learned during *The Beast*, Lee responded: "We're really stupid, and they're really smart" (2). This constant flattery of the players is not necessarily insincere or undeserved—historically, collaborative player groups have exceeded the expectations of virtually every ARG's puppet masters in terms of their quickness and cleverness at solving the game's puzzles and challenges. But the flattery, I want to suggest, is most certainly strategic. It creates a win condition for a game genre that is known, in part, for having none. In alternate reality games, players are not playing toward any specific, known goal. Instead, the game goes on until its story is complete, and then it ends, without the players having been appraised of a particular game objective. But victory on someone's part is an essential condition of gameplay. Lee's description allows ARG players to define victory as the successful emergence of collective intelligence. The players have won if they have cohered as a group, combined forces, and collaborated with magnificent in-game success, thereby earning the puppet masters' respect. *Powerful community* is the win condition of the ARG. I am not arguing that players consciously work towards community development as an explicit game objective. But I do believe that the dynamic of win-through-collectivity, established so persuasively by Lee, has absolutely shaped the gamers' sense of purpose in playing their games. We can understand the players' prolific writing about their own community as stemming to a significant degree from Lee's seminal acknowledgement of the players' collective greatness.

Finally, it is important to observe how the puppet masters of alternate reality games encourage players to *aestheticize* their collective play. In the design statement "This Is

Not a Game", Lee described how the Cloudmakers' gameplay was attentively watched and appreciated by the puppet masters. Lee wrote of their collaborative game design: "We found to our delight it was working. The audience was forming teams, sharing ideas, writing applications, posting theories, arranging group meetings, programming distributed-client password crackers, creating art" (2). I want to focus here on the last activity Lee attributes to the Cloudmakers: *creating art*. This phrase is not a reference to a specifically artistic mission; ARGs do not typically ask players to create works of art or to stage artistic interventions, in the way that reality-based superhero games do. Instead, "creating art" should be read as a reference to the collective gameplay itself. The players' self-organization and collective expressivity is theorized as a kind of art practice. Indeed, in the post-game chat for *I Love Bees*, Stewart explicitly told the players: "The audio isn't the art, or the puzzles, or the story. They are designed to precipitate, to catalyze the actual work of art. Which is you" ([17:37-8]).

This notion that the players' social configurations can be appreciated aesthetically has strongly influenced ARG players' collective identity. The player see their collective gaming as not just another kind of play; it also beautiful and meaningful. An *I Love Bees* player remarked of the distributed mission design: "This is really beautiful. In order for any of us to move forward WE ALL have to move forward" (Skillet #109437). Another explained what differentiates *I Love Bees* from other games she had played: "We experienced being part of a collective intelligence… participating in a search for, or perhaps creation of greater, shared meaning" (Phaedra #111201). She describes their gameplay as a fundamentally creative act. What is created is a deeply meaningful community.

More than three years after *The Beast* reached its conclusion, one former Cloudmaker sought to explain his continued interest in the collective aspects of alternate reality games. His blog post epitomizes how players have come, through the puppet master's framing, to understand ARGs as a platform for creating meaningful digital community:

> The community that formed around *The Beast*, the Cloudmakers, was intensely remarkable. It was the best part of the game. Better than the puzzles. Better than the writing. Better than the visuals.… We came together as a group—a collective detective, as the term came to be—and brought monumental results. We were part of something huge, if just for a little while…. We made our decisions collectively. We posted our mistakes collectively. We played our game in collaboration. …I still miss it (Burns "The Collective Detective" [1]).

The author's originary experience with the collective play of ubiquitous gaming still holds incredible power for him years later. Indeed, on the anniversary of major ARGs, players regularly return to archived message boards to engage in nostalgia about the specific communities generated around each game. Ubiquitous games, these project-specific gatherings reveal, do not propose a single vision of digitally-enabled communities, but rather multiple visions tailored to the themes and platforms of each game. Their dialectical configuration of community allows each game to embody to varying degrees different values. In this section, I have attempted to demonstrate how the collaborative play and effusive expressions of connectivity first *arise*. Next, I will explore how the collective experiences are made specifically memorable through the different metaphors of community they produce.

8.3 The Socio-Technological Metaphors of Ubiquitous Games

To assume a new, collective identity, players must be given powerful new language for conceiving of and reflecting their new social configurations. In this section, therefore, I will consider the relationship between the *themes* and the *technological platforms* of ubiquitous games. I will explore how these two elements work together to create *socio-technological metaphors* embraced by the players as blueprints for community development.

The Beast drew heavily on both the computer science and co-evolutionary intelligence themes of Steven Spielberg's *A.I.: Artificial Intelligence*. This was manifest extensively throughout the subject matter of game play, which included tracking down rogue sentient robots and participating in a human rights campaign for A.I. machines, whose intelligence had evolved to the point of requiring the passage of the fictive "Mann Act II". (The original real-world Mann Act, passed in 1910 in the United States, is an actual historical law prohibiting sexual slavery.) The heroine of the game, and the closest thing it had to a narrator, was Laia, an 'enhanced post human' who is implanted with AI's' ("Salla Family Homepage"). Laia represented a second strand of evolutionary intelligence. As the machines evolved their artificial intelligence to become so human they deserved human rights, the humans evolved their natural intelligence to become more like their machines.

All of these narrative themes derived from the *A.I.* property were also reflected in the *structure* of game play. The distributed design of *The Beast* separated the game content into thousands of story and puzzle nodes around which players formed mini problem-solving and story-interpreting circuits. These clusters of players, networked into a massively multi-player whole, grew smarter and better at the game as the weeks went on, evolving their cooperative techniques to become more collectively intelligent. Furthermore, the digital distribution of the content combined with the human resources required to connect and to activate the content became, for the players, a perfect metaphor for hybrid (organic-digital) artificial intelligence. Here, it helps to analyze some player comments regarding the narrative and structural themes of the game.

As I have observed already, the Cloudmakers filled their discussion forum and website with reflections on their emerging collective identity. In these messages, the metaphor of evolutionary intelligence was both prominent and pervasive. One player speculated on "the possibility that this Game might, would, could produce what we've been wrangling with all along: an (admittedly low-level) sentient artificial intelligence… this would blow my mind - and completely blur the line between entertainment and philosophical and technological advances in our modern society" (Bonasia [1]). Here, the author is referring to the Cloudmakers themselves as the low-level sentient artificial intelligence. This post represents a fascinating and profound slippage between the real and the artificial, one perfectly suited of course to the virtualizing aesthetic of the game. Indeed, to refer to naturally intelligent players as being transformed into sentient artificial intelligence is to evoke the notion of a higher (noospheric) order, in which the desire is not to be real but to be augmented through massive connectivity.

Other players confirmed the notion that they felt as if they collectively were performing a computer science experiment. "Cloudmakers are organic, yet using their brains in a gigantic parallel-processing venture, like SETI@home on a wetware scale" (Moonlore #11912). Here, the player refers to the Search for Extra-Terrestrial

Intelligence distributed computing project, which allows users to combine personal computing resources to search for radio signals from space. As the SETI website explains: “Radio telescope signals consist primarily of noise…. More computing power enables searches to cover greater frequency ranges with more sensitivity. Radio SETI, therefore, has an insatiable appetite for computing power” (“SETI About”). It is easy to see how the players could understand a distributed computing project as a metaphor for their own gameplay, which largely consisted of sifting through the noise of the everyday media environment to discover the signal of the game. The more players available to sift, the faster and more effectively the signals of the game could be discovered. But as the author of the post above notes, it is the brains and not the personal computers of the players that are recruited for the distributed efforts; thus, they comprise a kind of supercomputing *neural* network.

At the game's end, many players cited their favorite moment as the day Jeanine Salla, *The Beast*'s fictional A.I. researcher, added a new line to her online curriculum vitae: "Multi-person social problem-solving arrays considered as a form of artificial intelligence" (“Jeanine Salla Publications”). The entry was described as a “prototype” and was followed by a link marked "DEMO". This link, which appeared approximately four weeks into the game, took users to the Cloudmakers' home page. "We are now officially a scientific experiment!" one player observed (Rico #8211). Indeed, many players felt *worked upon* by the game; one player described the game as “shaping us into something new” (Joseph [1]).

Another player echoes this sense of evolution through gameplay, using the term “integrated” to describe this shaping process. He wrote: “The game has managed to evolve itself into something more. No longer is it just a matter of finding and solving puzzles, if that was ever the point…. We have become a part of the game, just as the game has become a part of us. We have become 'integrated,' interacting and communicating " (Ng [1]). Here, the player marks off the word *integrated*, which has a special meaning in the context of the game platform and the game narrative. 'Integrated', in reference to technological platforms, describes the integrated circuits that ubiquitously power computers and personal communications devices, as well as ubiquitous computing's goal of integrating its infinitely many systems into a massively networked whole. In the game world, "integrated" is both a social aspiration—*A.I.*s must be "integrated" into the human social system—and a means for co-evolution—humans and machines grow closer as the latter is physically integrated into the nervous system of the former. As one Cloudmaker observes of this narrative theme: "The evolutionary progress across the generations is very obvious. And think about the machine references in this way. Jeanine helped to make AI machines. The AI machines enabled eugenics and then taught Colleen. The next progression is for the AI machines to be integrated with a human, Laia. At each step, the relationship between human and machine is getting closer" (FuzzyMelon2000 #3163). For the Cloudmaker who described the game as evolving into something more, the increasingly intimate relationship between human and machine is a metaphor for the increasingly intimate relationship between player and the game network. In this way, the game's immersive effects can be understood not in terms of a realistic aesthetic, but rather in terms of the ability of the community architecture to absorb individual players into a larger, cohesive whole.

Finally, one player of *The Beast* commented on the relationship between the development of the Cloudmakers community and the themes and platform of the game. He wrote:

> With this game, the medium is indeed the message. Telecommunication is pervasive and, one day, will be incorporated into sentient beings and, perhaps, might become sentient itself. As such, these communication tools not only enhance who we are, acting as extensions to our senses (as the keyboard I use to type these words uses technology to extend my voice), but they may also define who we are as well. So what precisely is being defined, as revealed through the gameplay? On one hand, we have the image of humans living in fear of technology's ubiquitous eye….. On the other hand, we are offered the potential of telecom technology freeing us from the oppressive confines of modernity while encouraging a cooperative behavior that takes advantage of the powers of a group mind (Joseph [1]).

Here, the player observes a dialectical argument posed by *The Beast*. He argues that the game narrative depicts a dystopic technological world as the gameplay facilitates a version of the idealized network community. It is the synergy of platform, theme and gameplay that enabled the Cloudmakers to make such thoughtful observations about the game as a means for exploring potential digital futures.

The power of *The Beast* to inspire and imprint a particular kind of collective play—modeled after distributed computing and co-evolutionary intelligence—stems from the unified aesthetic of the game, in which the platform, gameplay and themes align around the common metaphor of collective intelligence. I want to turn now to *I Love Bees,* to discover the alternate metaphor it proposed for massively-scaled community.

*

Heim observes in “The Cyberspace Dialectic”: “The network idealist builds collective beehives. The idealist sees the next century as an enormous communitarian buzz” (37). So perhaps it is not surprising that an alternate reality game should choose to tell the story of a very enthusiastic amateur beekeeper. The extremely complicated narrative premise of *I Love Bees* is summarized best by the players’ walkthrough guide to the game:

> A military spacecraft named the Apocalypso from the Halo universe has crashed, and somehow its controlling AI has ended up on Earth. The AI controlling the craft, named Melissa (informally known as The Operator by her crew), is being repaired by an autonomous AI task, which it calls a Spider. It doesn't find the experience very pleasant. The Operator was very badly damaged and spent a while in delirium, not knowing where it is. The Operator apparently managed to transfer itself to a computer in the Bay Area. It then took over a beekeeping website, ilovebees.com, from which the the Operator is trying to signal any survivors from the crew on the planet (*Ilovebees Development Wiki* “Summary”).

As this summary explains, the story centers around a damanged AI program that has taken over an amateur beekeeper’s website; the beekeeper is so wholy enthused of bee culture that she calls the site “I Love Bees”. In this plot, we find a literal representation of what Heim identifies as the network idealists’ ardent desire to see “the worldwide networks that cover the planet from a global beehive” (37).

When project director Elan Lee first explained the project to me in April 2004, he acknowledged that the metaphor implied by the name “ilovebees” was absolutely intentional. “It’s a little gift to the hive mind,” Lee said (personal interview 4/3/2004). The players picked up on this gesture toward their collective identity immediately. An early post read: “I think one of the reasons ‘The Operator’ chose to invade a site about bees was to contact us…. It needed a hive intellect, or as we'd call it, a collective detective” (Bellebet #43966). Another player theorized: “I think that this won't be an entire ARG about bees… but the hive mind or collective mind comparison may prove to be intentional” (Varin #43995). Indeed, the players shows a conscious awareness of the puppet masters using metaphor to shape the community, much as they had used A.I. metaphors to encourage collective intelligence in *The Beast*. One player wrote: “The creators of this ARG have definitely put some thought into the storyline, and they definitely consider us SOMETHING. I wouldn't be surprised if we ARE supposed to be the bees” (t-toe #73194). As they discussed what to call themselves during this particular game, much as *The Beast* players called themselves the Cloudmakers, the players embraced the bee-inspired metaphor: “I'd call us The Hive or HiveMind... after all, we are a collective gestalt” (spectecjr #45132). The community excitedly embraced the metaphor. One player wrote simply: ““Dude, that means that WE are the bees!” (krystyn #44902)

The players made explicit connections between the hive mind metaphor for collective intelligence and their digital network technologies. “You know how an individual bee isn't too intelligent, but the entire hive acting as a whole can display a remarkable cohesiveness -- becoming more than the sum of its parts, so to speak? And you know how an individual silicon computer chip can't do a darn thing, but if you put enough of them together in the right way, whoa, you get the Internet?” (Shad0 #44898). Because technology and artificial intelligence were both explicit themes of the game’s story, players also applied the metaphor to understand the computer science aspects of the narrative. “I'm thinking that the being (if it is actually a being) on the ilovebees site is a hive mind that is forming out of the bits of information scattered about the internet. It is communicating through seemingly disparate and disconnected bits of information scattered about the website” (RobMagus #42937). In this way, the players understood the computer science of the story to be modeling the gameplay of their own community.

They also began to talk about their online collaborations using language inspired by the beehive metaphor. When thousands of players descended to analyze a newly received email or encrypted image, they described their massively multi-player interpretation over the found game content in terms of bee-like activity. As one player wrote: “This is becoming a swirling interconnected swarm of speculation” (johnny5 #79835). And they described their prowess with puzzles through the new metaphor: “If you ever have an unsolvable problem, bring it to the hive mind” (Urthstripe #178525).

Together, these posts show that the players initially interpreted the beehive metaphor as a gesture to their collective intelligence, much as *The Beast*’s metaphor of artificial intelligence had been. However, all of the posts I cite above were written in the first month of the game, during which time all gameplay transpired over digital media, such as emails, blogs, cell phone calls, and web sites. When players were asked to use GPS coordinates to find and to answer real-world payphones, they came to see the metaphor in a new way. They began to think more about the swarming behavior of bees as a metaphor for their own massively multi-player mobilization.

One player wrote: “I think I had an epiphany about this whole thing the other day. …. we are the *BEES*!!! Think about it. How BUSY we've all been, how efficient, how much teamwork has been involved. We are the bees. We are the hive. Think of the axons [payphones] as flowers and we have ourselves a pretty loaded metaphor there” (Jubei #73181). Here, the player talks about the swarming behavior as a kind of collective *action*, rather than just a collective intelligence. Moreover, as one player observed, this collaborative action provided the basis for networking together multiple “real”, face-to-face communities into a larger community.

> You could say that a hive mind is a collection of minimally sentient beings that together form a larger sentience. One of the most striking things about ILB for me was the fact that they managed to mix the local collaboration—our little groups in our respective cities—with a much larger collaboration between people all over the world. So I might go to a payphone and see one of my friends, who can tell me, "hey, I just looked on the forums, somebody jumped up and down and got a picture of it so that he could be the paratrooper!" Or, when I'm about to get an axon, I can call up Angelo or Buzzkill and tell everybody, "Listen! The SP will call and ask you ten questions!" etc. …Anybody who says the Internet is keeping people from meeting each other needs to be chased by a swarm of bees (CherryCotton #104191).

Here, the author describes specific game missions that required her to engage in local, site-specific collaboration, while remaining connected in real-time to the larger game community through digital networks. This post perfectly illustrates how the new collective metaphor of *I Love Bees* came to dialectically embrace the values of both network idealists and naïve realists.

It also helps here to consider the *technological* basis for *I Love Bees*' collective metaphor. "Swarm computing" is a research subset of distributed computing, which remotely connects multiple computers to accomplish a common objective, as seen in the SETI example above. Swarm computing is unique from other forms of distributed computing research, however, in that it often has a distinctly physical component. David Evans, director of the Swarm Computing Research Program at the University of Virginia writes: "Computing is rapidly moving away from traditional computers. Programs in the future will run on collections of mobile processors that interact with the physical world and communicate over ad hoc networks. We can view such collections as swarms." (Evans "Programming the Swarm"). Evans describes massively-networked, mobile devices with sensors that will be able to interface with the physical environment. In this way, swarm technologies strive for a more embodied and site-specific computing practice. Its devices are sensory-aware.

These swarm computing research goals are perfectly represented in the *I Love Bees* narrative and gameplay. In the fiction of the game, the players are asked to collectively work towards a single objective: to help the Operator, who is stranded on the beekeeper's website, make sense of her new environment, Earth. And so the players serve, in their collective gameplay, as distributed and networked swarm devices—mobilized to interface with real-world environments, but always connected to and communicating with each other.

So far, we have observed the design and deployment of *wetware artificial intelligence* and *hive mind swarm behavior* as two potential metaphors for collective play. Next, I will examine a third and final collective play metaphor, as enacted by the collaborative production game *SFZero*.

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SFZero is an interesting case study to contrast with *The Beast* and *I Love Bees*, for it lacks a narrative basis. Reality-based superhero games do not feature story elements; therefore the metaphor must emerge solely from the platform and any themes used to present the rules, scoring and missions of the game. Because the game is still being played and because it lacks the other games' plenitude of fictional objects and player-created texts, my analysis here will be briefer, but hopefully still instructive of the diversity of collective metaphors at work in ubiquitous games.

The metaphor that seems to be emerging as a primary organizing principle of players' collaborative social experience in *SFZero* is the metaphor of the *wiki*. A wiki is a website that allows users to add, remove, or otherwise edit and change its content. The first wiki was created in 1995; the best-known wiki to date is Wikipedia, the collaboratively authored encyclopedia launched by Jimmy Wales in 2001. As the Wikipedia entry for "wiki" notes": "This ease of interaction and operation makes a wiki an effective tool for collaborative writing." The primary innovation of the wiki is that it completely decentralizes authorship of its content. It is a kind of "open source" approach to textual databases. Indeed, the inventor of the wiki, Ward Cunningham, originally defined it as follows: “The simplest online database that could possibly work” (“What is Wiki”).

As I have discussed already, *SFZero* takes an open source approach to its superhero mission database. Players are allowed to contribute missions, thereby collaboratively contributing to the overall game system. As a player was quoted in a *CNET* news story as observing: "What makes it work is the wiki model, the collaborative, bottom-up, open-source model…. It's a wiki alternate reality game" (Terdiman [2]). However, it is important to note here that the mission database does not actually take the form of a wiki. Players cannot, for instance, alter each others’ missions; nor can they make changes to the official puppet masters’ missions. We might say that the game system is wiki-like, but it is certainly not as robustly collaborative and decentralized as an actual wiki website.

As it turns out, the *SFZero* puppet masters are not so much interested in working with actual wikis as they are curious about how players might abstract from wiki technology a wiki-like approach to the real-world. In a press interview, the puppet masters made this goal explicit, describing the game as exploring “the way real-world communities can take on the collaborative characteristics of Internet wikis” ([1]). As the puppet masters write on the project homepage: “*SFZero*'s designers imagine a decentralized network of enthusiastic collaborators (“*SF0* About” [8]) Here, they suggest the three key principles of such a wiki-abstraction: *collaboration* that is *decentralized* and facilitated via a *network configuration*. The three principles can be applied, the game suggests, to the shared spaces of everyday, real-world environments.

Here is helps to examine one of the few thematizing texts that the puppet masters have inserted into the game system. The *SFZero* website features five texts that describe five different themes of the game. Each theme is used to organize a sub-group of missions. The one I am most interested in exploring in connection with the wiki metaphor is the "EquivalenZ" theme. On this theme's page, the puppet masters write: "The fantasy of *equivalence* is the endgame of virtual reality—a modeling so precise that virtual and real are indistinguishable. EquivalenZ is that state of seamless equivalence" ("*SF0* EquivalenZ" [4-5]). Here, the game speaks to the fantasy of many other games, to create a playable simulation that achieves the most perfectly realistic immersive aesthetic. But this simulation is not in fact the goal of *SFZero*. Instead, *SFZero* seeks to make reality itself playable, so that in a reversal of traditonal gamer fantasies, it is the real world that acheives the most perfectly *ludic* aesthetic. They write: "To achieve this state we work backwards. True virtual reality cannot be achieved with faster processors and better video cards. The only way to make it exact is to start with the virtual and model the real on it: to model the real on the virtual" ([6]). Here then, we see the funtion of the wiki abstraction. It seeks to instill in players a pattern of collaborative authorship, applied not to virtual texts, but rather to real-world environments.

SFZero argues through its emerging wiki metaphor that social codes can be hacked, and that if they are hacked collectively, the ultimate collaborative result will have the full weight of the entire community's authority. Like *I Love Bees*, then, this metaphor for collective identity involves real-world mobilization. However, where the mobilization was applied to achieving a common objective and problem-solving in *I Love Bees*, here it is a mobilization applied to collective authorship. And whereas *The Beast* theorized the value of the collective in terms of its intelligence, the real-world wikification of social spaces theorizes the value of the collective in terms of a kind of ethically-grounded imagination. Rather than embracing the wisdom of the crowd, it values the (presumably) *ethical desire* of the crowd to make a space more meaningful inhabitable. These two distinctions are subtle, but crucial to understanding the diversity of community models proposed by these various ubiquitous games.

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The community dialectic of ubiquitous games is distinguished by its two simultaneous interests: exploring massively-scalable social configurations made possible through digital network architectures, and seeking to preserve the traditional basis for community in physically-grounded, face-to-face interaction. The collective metaphors of wetware artificial intelligence, hive-mind swarms, and reality-based wikis all work to integrate these paradoxical interests into a single metaphor.

The players embrace these metaphors and the visions they proffer during the game as an opportunity to try on a new collective identity and to exercise new collective powers. At the same time, however, it bears noting that ubiquitous gaming's inventory of metaphors may also suggest some of the more troubling connotations of collectivity. The metaphor of collective intelligence, for example, may be associated with group think; the hive mind, with coercion of the masses; swarm behavior, with deindividuation and mob mentality. And in "Digital Maoism: The Hazards of the New Online Collectivism", digital theorist Jaron Lanier cites the recent cultural embrace of the wiki platform as evidence of a socially and politically dangerous return to collectivist ideals. He writes: "This idea [of collective identity] has had dreadful consequences when thrust upon us from the extreme Right or the extreme Left in various historical periods. The fact that it's now being re-introduced today by prominent technologists and futurists, people who in many cases I know and like, doesn't make it any less dangerous” ([6]). All of this is to say that not everyone embrace collective intelligence, hive minds, swarm behavior, or wiki-like collectivist ideals to the extent and with the enthusiasm of ubiquitous gamers.

It is undoubtedly important to keep such concerns in mind as we chart the development of ubiquitous games, and as we track and observe the collective communities that emerge around them. At the same time, I would also argue that two aspects of ubiquitous gaming make it likely for the potentially darker aspects of group psychology to be noted, theorized, and perhaps even safely explored by the gaming projects, rather than naively ignored. First, as I have observed, ubiquitous games are capable of dialectically considering the polar-opposite values of the naïve realists and the network idealists. As they negotiate and perform a relationship between traditional and digitally-mediated notions of community, ubiquitous games may very well be inclined to embrace dialectically not only our hopes, but also our fears surrounding the notion of collectivity itself. Second, as I have demonstrated, these massively-collaborative games as a category produce multiple visions and means of collectivity, thereby allowing for *comparative* consideration of the benefits and potentially negative consequences of any given articulation of the collectivist ideal. The ubiquitous gaming category is not a monolithic representation or relentless generator of a single and particular massively social configuration. Instead, ubiquitous games create a relatively safe space to experience and to explore more massively scaled community architectures, through the self-awareness reflected in all the player communications I have cited here.

Performance theorist Baz Kershaw observes in the 1998 *Radical in Performance*: "In the post-modern, notions of the common good are frequently viewed, paradoxically, as potentially coercive. Anything that smacks of collectivism… is treated with suspicion" (192). As a result of this pervasive suspicion, Kershaw argues, we face the "the death of community and loss of agency" (192). But Kershaw identifies performance as a platform for investigating these suspicions and potentially alleviating them. He asks: "What are the most effective ways for performance to redress the collapse of confidence in collective action, especially on a global scale?" (66) Perhaps we could ask the same question of play. What are the most effective ways for gaming to redress the collapse of confidence in collective action, especially on a ubiquitous scale?

Notably, Kershaw settles on "an aesthetics of total immersion" as the most viable mode for collective empowerment (18). I want to suggest that there is a clear parallel between Kershaw's vision of a radical performance practice that is both ubiquitous (global) and immersive, and the immersed-in-reality aesthetic of ubiquitous games. The ultimate effect of performative immersion, Kershaw argues, is to "create access to new sources of collective empowerment, especially through the forging of a strong sense of community" (18). Indeed, the strong sense of community forged through ubiquitous games creates a sense of collective empowerment among the players. To what ends the players put their new sense of collective empowerment remains, as a matter of history, to be seen. By way of speculating about this future, I want to conclude by considering the ways in which the collective metaphors discussed here may ultimately give rise to further collective play outside the game.

8.4 The Virtual Problematic of Ubiquitous Games

For ubiquitous players and performers, are there any residual or long-term effects of enacting and embodying the collective metaphors of their games?

Linguists George Lakoff and Mark Johnson, who study how metaphors shape thought, observe in *Philosophy in the Flesh*: "Metaphors provide subjective experience with extremely rich inferential structure, imagery, and qualitative feel" (59). In other words, metaphors serve as a kind of interface between the subjective self and the phenomenal world. Metaphors mediate our perception of phenomena; indeed, "the metaphor structures experience itself" (72). Here, Lakoff and Johnson argue that internal metaphors play an extremely important role in how we understand and choose to act in any given scenario. Therefore, I would argue, we should expect that the collective metaphors of ubiquitous games may come to structure players' subsequent experiences, if the metaphors are sufficiently internalized. And given the extremely passionate and self-aware expressions of the metaphors that proliferate across player message boards and blogs, as long as months and years after the games have finished, I think it is fair to say that they are quite *deeply* internalized.

How, specifically, do these metaphors come to shape experience outside the game? In their earlier work *Metaphors We Live By*, Lakoff and Johnson pay special attention to what they call "conceptual metaphors". These are the metaphors we use to understand entirely novel scenarios, or to reframe familiar scenarios in entirely novel ways. To construct a conceptual metaphor, they explain, we draw on experiences we have actually had, from our personal "source domain", and we project that experience onto the "target domain", the experience we are attempting to apprehend for the first time, or in a new way.

As players persist in enacting their collective metaphors *outside* of the game, we can understand this cognitive activity as the creation and deployment of a new conceptual metaphor. For instance, when the Cloudmakers apprehended the events of 9/11 as a potential opportunity for collective problem-solving, we can understand this as a mapping of the game (source domain) onto the new experience (target domain). It represents an attempt to apprehend the essentially novel experience of what was no doubt for many a personally unprecedented horror through a more familiar conceptual metaphor, which had been internalized already through gameplay. And the fact that this particular conceptual metaphor was applied can be understood as a result of the strength of the community formed through collective play. The reason so many players *initially* returned to the Cloudmaker boards, I want to suggest, was not to play 9/11, but rather to be surrounded by some of their closest friends. Once they were reimmersed in that community, the collective metaphor of the game became a natural cognitive interface for dealing with the attacks.

Lakoff and Johnson observe: “One cannot ignore conceptual metaphors. They must be studied carefully. One must learn where metaphor is useful to thought, where it is crucial to thought, and where it is misleading. Conceptual metaphor can be all three” (73). I would emphatically state the same for the collective metaphors internalized by players through ubiquitous games. They, too, can be understood as potentially useful, crucial, and misleading, depending on the context. Future study of ubiquitous gaming, I would argue, should focus on precisely this question. Where is the conceptual metaphor of collective play projected to the most benefit, and to the most detriment? For although ubiquitous games may ultimately be capable of transforming anything and everything into a platform for massively-collaborative play, we may not in the end decide that all things and contexts are best apprehended through the metaphor of a game.

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I began my analysis of ubiquitous games in Chapter Five with a discussion of the virtual paradigm shift proposed first by ubiquitous computing. This shift argues that computer design, or game design, should move away from simulating reality through virtual worlds, and towards virtualizing the real-world itself. The process of virtualizing everyday life, we have seen, involves many different strategies, from embedding actual network technologies in everyday objects and environments to activating ordinarily non-interactive media and sites through the creation of gameplay affordances. I want to close here my consideration of ubiquitous games by relating the conceptual metaphors created through collective play to philosopher Pierre Levy's notion of virtualization.

In *Becoming Virtual*, Levy presents a theory of virtuality that is extremely useful for thinking about the virtualizing practices of ubiquitous games. He argues: "The virtual, strictly defined, has little relationship to that which is false, illusory or imaginary. The virtual is by no means the opposite of the real. On the contrary, it is a fecund and powerful mode of being, which expands the process of creation, opens up the future" (16). Here, Levy offers a definition of virtuality that allows for the potential alignment of the virtual and the real, as do the formal aesthetics and rhetoric of ubiquitous games. Indeed, for Levy, virtuality is not limited to the digital realm of cyberspace. Virtuality also exists as a networked mode of thinking and interacting in the material environment. He writes: "The virtual is a kind of problematic complex, the knot of tendencies or forces that accompanies a situation, event, object, or entity, and which invokes a process of resolution: actualization" (24). Here, we can understand the virtual problematic as a conceptual metaphor that provokes active engagement. In other words, a virtualized site or scenario suggests both a cause for and a potential mode of engagement, which tends toward actual action and engagement. The payphones, for instance, were virtualized by *I Love Bees*; for players still prone to listening for calls, the real-world sites have been charged with a virtual problematic: How can these phones be further engaged?

Levy writes that this kind of virtualization is a “change in identity” (26). The virtualized entity “now finds its essential consistency within a problematic field. The virtualization of a given entity consists in determining the general question to which it responds, in mutating the entity in the direction of this question and redefining the initial actuality as the response to a specific question” (Levy 26). This question, once discovered, can then be used as a springboard for further investigation and problem-solving; it becomes a conceptual metaphor that can be used to apprehend other entities. Indeed, Levy suggests that the virtualized entity may suggest “correspondences” to other entities, correspondences that enable the same question to be used as a primary cause for and mode of engagement, detached from the initial object, just as the source domain of a conceptual metaphor is mapped onto the target domain. And where Lakoff and Johnson suggest that metaphors, once internalized, continue to shape our structure of experience, Levy suggests that it is impossible, once the question is defined, to avoid these correspondences. Due to this “irreversibility in its effects,” Levy writes, “virtualization is one of the principal vectors in the creation of reality” (27). In short, through the virtualizing work of conceptual metaphors taught by the game, it becomes possible to truly see the game everywhere.

Ultimately, this process of ludic virtualization through collective metaphor is how the ubiquitous gaming network grows. Technologies, spaces, crowds, and systems become new playgrounds for experimental and collaborative design and interaction. And because scalability is a fundamental value of all of the collective metaphors enacted by ubiquitous games, the number of players who may internalize the metaphor will grow exponentially as the community expands to absorb massively more players. Likewise, as the games seek to absorb ever more platforms and sites, so too do the number of virtualized entities inexorably increase. If the conceptual metaphors of collective play become a permanent aspect of daily cognition, and if the virtual problematic of massively collaborative play is irreversible, then ubiquitous gaming is highly likely to structure more and more everyday interactions, and more and more players' phenomenal experiences of the real world. Once a ubiquitous game has been played, it would seem, a ubiquitous player has been created, and there is every reason to suggest that for this player, the game will continue to be played. As one player wrote in a personal letter to a puppet master (me) after *I Love Bees*: "It is really important to me that you, and other people, understand the differences that alternate reality gaming has made in my way of thinking. It has powerfully affected my attitudes about what is possible. The game for me has been about gathering a first hand knowledge of how a large community can function, including the role of technology. I know that large scale communities can work and be extraordinarily effective. I am not afraid of the complexities" (Rose 8/1/ 2005).

In the end, it is the powerful virtualizing effects and the cognitive persistence of community metaphors that make the genres of alternate reality games and reality-based superhero games capable of generating ubiquitous play above and beyond the formally played game. This inexorability of massively more play is what demands our critical attention now, and going forward. As one Cloudmaker wrote with utter certainty at the conclusion of *The Beast*: "The game is now over… the game has just begun" (Ng [1]).

CHAPTER NINE

Conclusions: Specifying Play

> *I have tried to avoid the philosophical short-circuit that would assert* all *human action to be play. Now, at the end of our argument, this point of view awaits us and demands to be taken into account. ... What is play? What is serious?*
>
> —Johan Huizinga, *Homo Ludens* (212-3)

9.1 The Construction of a Ubiquitous Game Studies

In this dissertation, I have explored the historical intersection of *ubiquitous computing*, the practice of augmenting everyday objects and physical environments with invisible and networked computing functionality, and *multi-modal digital gaming*, the appropriation of novel technological platforms for play. I have argued that out of this historical intersection, three new categories of ubiquitous play and performance—*ubicomp games*, *pervasive games*, and *ubiquitous games*—have emerged, each one reconfiguring, often radically, the formal, technical and social limits of play in relation to everyday life.

In organizing the emerging field of ubiquitous play and performance into three distinct categories, my goal has been to document the heterogeneity of this experimental design space at the turn of the twenty-first century. Previous research in this area has tended to group together, indiscriminately, all game projects with a significant technological or philosophical connection to ubiquitous computing. This endemic failure to specify has resulted in a superficial understanding of some very complicated, seminal works; moreover, it has obscured crucial variations in the qualities of play and performance produced in the service of highly divergent design agendas. As I have shown, all three categories take gameplay seriously as a powerful medium for changing perspectives, inspiring new modes of interaction, and generating significant insights about our developing ubicomp culture. However, their proffered perspectives, interactions, insights vary remarkably. I therefore have worked to reveal the fundamental, ideologically-charged differences in the design goals, aesthetics, and reproductive strategies of the three genres of ubiquitous play and performance. Here, I will briefly summarize those observed differences.

Ubicomp games such as *Smart Playing Cards* and *Can You See Me Now?* serve primarily as a way to investigate and to cultivate future locations and contexts for embedded computation and networked interaction. They work to demonstrate, playfully, the potential future robustness and pleasures of a fully developed ubicomp society. Their platform for demonstration is the game prototype, deployed in carefully staged, ubicomp-augmented environments. As such, they are first and foremost games with a technological agenda. Rather than producing abundant play, ubicomp games produce abundant *citations* of play, in order to document technical advances in the field, to persuade others of the feasibility and desirability of ubiquitous computing, and to fuel further computer science research.

At the same time, the highly provisional nature of this games-based research practice allows for potential refinement and rethinking of the ubicomp project—particularly as some locations, users, and contexts may be shown to resist the researchers' computational interventions. Indeed, in their prototypical play and technological performances, ubicomp games dramatically embody the stakes and potential consequences of ubiquitous computing, thereby providing data points for understanding some of the most serious *non-technical* issues in the field. The critical issues charted by ubicomp games include the challenges of socially integrating ubicomp technologies into everyday environments; the complicated power dynamics constructed between ubicomp users and their technologies; and the new modes of techno-social intimacies that may be forged by ubiquitous computing.

Pervasive games such as the *Big Urban Game* and *PacManhattan* serve primarily as a means to critique and to challenge the social and technological conventions of urban environments. Their medium of choice is live, pubic gaming events. These events work to disrupt the ordinary interactive rhythms of the city by inserting *physical* and *visually arresting* gameplay into shared, social spaces. In doing so, the pervasive games perform alternatives to typical computing practices and to normative uses of the public environments. Site-specificity is central to their aesthetic, which opposes two perceived tendencies of ubiquitous computing: first, the tendency to reconfigure distinct locations as identically-functional nodes in a massively-scaled network, and second, the tendency to disengage users from their local, material contexts. To provoke public awareness of these two issues, pervasive games employ the visual language and spectacular form of live gameplay. As such, pervasive game design can best be understood as a performance art practice.

In order to ensure that their performed critiques are made as effectively and as evocatively as possible, public participation in pervasive games is often strategically limited, or even precluded entirely. Indeed, these projects are more inclined to seek massively-multiple spectators than to engage massively multiple players. They carefully construct a spectator network that includes not only live, local audiences, but also mediated, remote audiences, who benefit from the genre's prolific circulation of digital photographs and videos of live play. In this way, pervasive games work to create a more ubiquitous *visual culture* of play. This visual culture does not directly produce ubiquitous gaming opportunities for the general public. However, in making their socio-technological critiques, pervasive games indirectly help to create a more widespread awareness of and discussion about the potential for games to escape the conventional boundaries of the magic circle and to infiltrate everyday life.

Ubiquitous games such as *The Beast* and *The Go Game* aim to discover and to reveal the secret ludic affordances of everyday media, personal technologies, and social environments. Whereas ubicomp games and pervasive games use play as a means to an end, ubiquitous games value gameplay itself as a fundamentally more engaged and collaborative way of experiencing the real world and real life. They engage in the *aesthetic practice* of using real life as the interface to a game as well as the *social practice* of using gameplay as an interface to real life. They seek to proliferate gameplay opportunities (rather than gameplay technologies) by virtualizing everyday and often non-technological objects into game platforms, and also by teaching players to search for gameplay signals in the noise of everyday life. Their fundamental and intentional ambiguity regarding what is in-game and what is out-of-game invites players to consider anything and everything as a possible invitation to play. They therefore result in a propensity for ludic pattern recognition, through which their players may become prone to mistaking both accidentally and purposefully something *real* for a *real little game*.

Ubiquitous games are massively-scaled in terms of their iterability, their geographic distribution, the size of their player base, and their temporal persistence. Because of this significantly higher order of play produced, ubiquitous games generate highly complex ludic systems. As such, they are capable of producing fundamentally new insights about the emergent pleasures and powers of collective play and massively-collaborative community. Finally, ubiquitous games embody the play and performance values of seminal ubiquitous computing manifestos. Therefore, more broadly, they allow us to experience directly the fundamentally playful and performative vision that first inspired ubiquitous computing in advance—or as it may turn out, *in lieu*—of the vision's actual technological fulfillment.

To uncover the technological and theoretical factors that have contributed to the emergence of these three categories, I have focused on the affiliations between their experimental game design practices and some key research issues in the ubiquitous computing project. I have explored in Chapter Three, for example, how ubicomp games arise from the field's desire to create a *techno-colonial map* to the imagined "there" of ubiquitous computing, as well as to construct inhabitable *emulators* of the future ubicomp world. I explored in Chapter Four how pervasive games emerge out of ubiquitous computing's special interest in *urban computing* and its adoption of the Situationist techniques of the détournement and the dérive as performance-based research methods. And in Chapter Five, I have explored how ubiquitous games develop out of ubiquitous computing's attempts to reverse the conventional computing relationship between *virtuality* and *reality*. With these analyses, I have worked to document the origins of ubiquitous play and performance in a particular, historical moment in computing culture.

The future study of ubicomp, pervasive, and ubiquitous games, however, most likely will take place largely not in the field of computer science, but rather within the academic discipline of *game studies*.[70] I therefore want to propose, in closing, a research path forward that connects these ubicomp-inspired projects to game studies' longer history of thinking about play as an embodied, massively social and highly consequential ritual, always already grounded in the practices of everyday life. In order to best meet the future research challenge posed by these new experiments in ubiquitous play and performance, I will argue, we must take more seriously game studies' *non-digital* past, which for the most part has been abandoned by the new field of digital games research. Here, it helps to consider contemporary game studies' biases against play studies of the past.

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In July 2001, Espen Aarseth penned "Computer Game Studies, Year One", a disciplinary manifesto that officially proclaimed the digital rebirth of traditional game studies. Aarseth's essay appeared as the lead editorial in Volume 1, Issue 1 of *Game Studies*, the "first academic, peer-reviewed journal of digital games research" ([1]). In the manifesto, Aarseth proclaimed: "2001 can be seen as the Year One of *Computer Game Studies* as an emerging, viable, international, academic field" ([2]). He marked the historic moment by looking forward to an increasingly ludic culture: "Seen from 2001, the potential cultural role(s) of computer games in the future is practically unfathomable" ([3]). To prepare for this future, Aarseth advocated making a clean break with the past. "The old field of game studies barely exists and seems in no shape to give the computer game scholars a safe haven" ([8]). Moreover, Aarseth argued, digital games are

[70] The humanities and social science research of game studies, a field that is also often referred to as *games research* or *games theory*, should not be confused with the branch of applied mathematics known as *game theory*. Game studies, or games theory, analyzes popular games, mostly of the digital variety, as cultural phenomena and media objects. Game theory, on the other hand, studies games invented by the researchers specifically to serve as well-defined mathematical objects for exploring decision making in economics, politics, and ethics.

fundamentally different from their predecessors. He wrote: “Their simulation aspect is crucial: it is *radically* different” ([4]). He insisted that researchers must not “force outdated paradigms onto a new cultural object” ([8]). And so, Aarseth drew a taxonomical line in the sand: digital games and pre-digital games are fundamentally not the same, and therefore digital games research must begin the study of games from scratch. Aarseth concluded with a rallying cry to digital games researchers everywhere: “Build a *new* field” ([9]).

The 2001 inaugural issue of *Game Studies* also included the literature review “The Repeatedly Lost Art of Studying Games”, in which Jesper Juul surveyed pre-digital game studies literature from the late nineteenth century through the mid-twentieth century. After confronting the considerable body of failed previous efforts to ignite a sustained academic study of games, he posed the question: “Are we studying games *yet*?” ([11]. This question, along with the title of the article, suggested some degree of anxiety about the *new* game studies’ chances for success. Juul, however, in the optimistic spirit of an inaugural journal issue, offered multiple reasons why the resurgence of game studies with a digital focus would fare better than its pre-digital predecessors. Chief among these reasons was what he called games’ “change in object status” ([11]). Juul observed: “Computer games are played on screens, and… there is some consensus that what happens on a screen is worthy of scholarly interest” ([11]). Furthermore, he noted that “most computer games are mass-produced and commercially published, and are as such quotable objects that can be listed as references” ([11]). In short, Juul argued that digital games were formally bounded works of art and fundamentally stable media objects, and in their newfound status as stable, art objects, digital games now were both more deserving of and better able to support academic study.

The argument made by both of these articles for a brand new study of games has been recapitulated countless times in the five years since, perhaps most memorably and colorfully in David Thomas' "The Yawning Gap of Game Studies". The title of this essay refers to what Thomas believes to be the absolute ontological divide between digital games and non-digital games; it is a gap that Thomas believes we must respect and preserve. Thomas writes: "Video game and traditional games are different. They share genetic similarities in the same way that all mammals are cut from the same biological cloth. But no one tries hard to see the world of people through the eyes of a dolphin. Likewise, we should recognize the *sui generis* of video games, and not try to unnaturally mate them continually with traditional game theory" ([25]).

But what I want to argue here is that ubiquitous play and performance projects, with their emphasis on physical environments, everyday contexts, and shared social spaces, profoundly trouble the new game studies' desire to leave the old game studies behind. This is true for two important reasons. First, as the games documented in this dissertation show, ubiquitous play and performance projects increasingly are *not* entirely screen-based, nor are they formally bounded in time, platform or location. They are, instead, distributed and embodied acts that are more difficult to quote, to cite, and to analyze as formal objects. Second, in their turn away from traditional modes of digital simulation in favor of real-world performance and an immersed-in-reality aesthetic, the games I have documented in this dissertation also lack the supposedly defining characteristic of the new computer games—even though they, too, are enabled by digital platforms.

Thomas laments in "The Yawning Gap of Game Studies: "We homologize [the board game] Chess with [the computer game] *World of Warcraft* never realizing that they are as different in nature as live and recorded music" ([15]). The metaphor here is quite apt: games before digital technologies were inherently more like live performance, whereas traditional computer and video games now are inherently more like recorded media. Indeed, in my identifying the category of ubiquitous play and *performance*, I have already aligned these new experimental games more closely with the live play of pre-digital games than with the media objects of most digital games. At the same time, in their close alignment with everyday media and built physical environments, they do have a kind of objectness—but it is an *enspirited* objectness, as theorized by Gold in his early ubicomp manifestos.

In *The Study of Games*, a 1971 anthology of non-digital games research, Elliot M. Avedon asks: "What are games?" (491) He proposes, variously, that they are "behavioral models", "social situations", and "magical rites" (491). Here, we find definitions of games that are far better suited for describing the categories of ubiquitous play and performance as I have explored them in this dissertation. As the games map socio-technological metaphors onto their players, they are behavioral models; as they intervene in public and shared spaces, they are social situations; and as they seem to bestow new powers and superpowers upon their players, they are magical rites.

So it is that the emergence of ubicomp, pervasive and ubiquitous games gives lie to the notion that all digital games require or benefit most from an entirely new approach to theorizing and studying play. But what *old* approach might be most useful for beginning to consider ubiquitous play and performance in the context of game studies?

What I have tried to suggest throughout this dissertation, but perhaps have not yet made explicitly clear, is that the three categories of ubiquitous play and performance, as they proliferate points of connection between *ludic experience* and *real life*, pose a fundamental classification problem for players. Questions raised by the classificatory troubling of these games include: Is this object for ordinary use only, or does it also secretly afford play? Has this space been activated for play—and if so, for whom? How do I know when I have discovered part of the game? How do I know if you, too, are playing the same game? To what extent will I allow this game to impact reality? Is there anything that cannot be apprehended through gameplay?

In ubiquitous gaming in particular, the active creation of these classification problems are embraced as formal design philosophies. This is apparent in alternate reality gaming's hallmark disavowal—*This is not a game*—and reality-based superhero gaming's coy claim—*I* might *be playing*. Both seminal mottos, of *The Beast* and *The Go Game* respectively, frame their gameplay in terms of the difficulty of confidently classifying what is the game, what is real, what is real but can be gamed anyway, and what is real and should not be gamed.

What I want to suggest in this final chapter is that these questions about the limits of gameplay are not new; indeed, they are decidedly old. Before games were digital, these were the fundamental questions of game studies. And our ability to theorize ubiquitous play and performance may very well depend upon our awareness of the historical efforts to deal with these same classificatory problems.

Here, then, I offer a final analytical framework for the future study of ubiquitous play and performance that is based in the pre-digital game studies of historian Johann

Huizinga, philosopher Roger Caillois, developmental psychologist Brian Sutton-Smith, and recreation specialist Elliot Avedon. In the remainder of this chapter, I will explore the foundational role that problems of *classification*, the act of sorting things according to perceived similarities and differences, and *taxonomy*, the creation of structure in an unordered group through the distinct naming and relating of its parts, have had in shaping three seminal studies of play. They are: Huizinga’s 1938 *Homo Ludens*, which argues that games and play are the most important constitutive elements of civilization; Caillois’ 1958 *Man, Play and Games*, which explores how individual cultures can be understood through the study of their preferred genres and styles of play; and Brian Sutton-Smith and Elliot M. Avedon’s 1971 *The Study of Games*, which outlines a multidisciplinary approach for a social science of organized play.

In examining these three texts, I will outline three classification problems regarding the role of gameplay in everyday life: the limit between play and seriousness; the limit between safe play and dangerous play; and the limit between gameplay and real-life behaviors. I will then conclude this dissertation by extrapolating from these seminal game studies texts a series of potential research avenues in the area of ubiquitous play and performance.

9.2 On the Limits of Play and Seriousness: *Homo Ludens*

Dutch historian Johan Huizinga’s 1938 *Homo Ludens* takes its name from the author’s now famous use of scientific nomenclature to classify humans, among all other species, as particularly and quintessentially playful beings. Huizinga observes: “A happier age than ours once made bold to call our species by the name of *Homo sapiens*. In the course of time we have come to realize that we are not so reasonable after all as the Eighteenth

Century, with its worship of reason and naïve optimism, thought us" (i). Huizinga suggests an alternative classification, arguing that for humans playing is "just as important as reason"—indeed, "civilization arises and unfolds in and as play" (i). Huizinga intends to show how all of humanity's significant institutions and cultural achievements, from religion, law and politics to philosophy, music and poetry, have their origins in play. He therefore proposes, "*Homo ludens*, Man the Player, deserves a place in our nomenclature" (i).

Huizinga could have easily titled this work "Man the Player," the translation he provides immediately following his proffered scientific term. Instead, he grounds his argument in the conventions of biology's formal naming system. Why begin with Carl Linnaeus' *Systema Naturae*, a hierarchical classification of species that is the basis for modern scientific classification, as the entrée into a project he just as quickly claims will be "approached historically, not scientifically" (i)? What leverage does a taxonomical argument provide Huizinga, when he otherwise insists that "play is to be understood here not as a biological phenomenon but as a cultural phenomenon" (i)? The counter-intuitiveness of Huizinga's scientific rhetoric demands a closer reading than it traditionally has received.

Any interpretation of Huizinga's taxonomy-based argument must begin, of course, by noting the naturalizing function of scientific classification schemes. In his landmark 1970 essay on "Classifying," Michel Foucault thoroughly explores the rhetorical power of the "the exact Names of things," that is, the system of binomial nomenclature articulated by Linnaeus and other founding taxonomists (159). Foucault quotes Linnaeus' 1788 assertion that it is only through a deliberate naming process that "*character* emerges"

(140). Here, “character” is meant as an essential, defining trait. Character is discovered through the realization of a name that could not reasonably be applied to any other biological thing. Foucault notes that Linnaeus defines the work of taxonomy as revealing definition, rather than imposing it. The proper name is discovered, rather than artificially applied—as if the living thing itself were capable of speaking its own name when asked. Taxonomies, Foucault therefore observes, aspire to natural knowledge, which is *found* by investigators rather than constructed.

But how can Huizinga lay claim to the natural knowledge afforded by a rational taxonomy? It seems either pure wit or audacity (or perhaps both) to argue that man is *not* the supreme rational being the Enlightenment once claimed while simultaneously adopting one of the Enlightenment’s hallmark achievements, the classification of species, in order to make that very argument. Since Huizinga explicitly rejects the scientific approach and the biological framework, why does he not take up a more classically humanistic approach to the problem—for instance, Friedrich Schiller’s philosophical description of play? Schiller, a century and a half earlier, made a claim quite similar to Huizinga’s opening assertion. Schiller said: “For, to speak out once and for all, man only plays when in the full meaning of the world he is a man, and *he is only completely a man when he plays*” (56). Although Schiller’s sentiment is quite similar to Huizinga’s central premise, it is not this humanistic tradition of thought that Huizinga chooses as the context for *Homo Ludens*. He references Schiller’s notion of “the play-instinct” only briefly and somewhat belatedly in his chapter on play in the plastic arts (168).

How do we reconcile Huizinga’s preference for a scientific rhetoric with his rejection of science as a critical framework? In his chapter on play in philosophy, the author offers a resolution to this seeming paradox with his rather rapturous description of the Scientific Enlightenment. He points to the eighteenth-century birth of modern science as a quintessential example of culture flourishing through play. He describes Linnaeus' era as one in which "Natural Science underwent a glorious efflorescence" resulting in a "frivolous Rationalism" (156). This exuberant blooming of scientific discourse, according to Huizinga, marks Linnaeus' original taxonomical efforts as "an essential part of that playfulness which nobody will deny the 18th century" (157). The phrase "frivolous rationalism", it is important to note, is not meant to undercut the importance of the work of Enlightenment thinkers. For Huizinga, the term frivolous expresses a deep respect for the lively and "agonistic", or heatedly dialectical, spirit of competition that drove the natural philosophers of the time.

Huizinga's attraction to the playfulness of Linnaeus' scientific era explains his own agonistic approach to the naming of the human species. "Everyone is taking up new positions; camps and factions fill the scene," Huizinga writes of dueling scientific theories of centuries past (156). And so Huizinga creates his own new position, opposing *Homo sapiens* and establishing a new camp on the side of *Homo ludens*. In doing so, the author performs for readers what I take to be Huizinga's primary goal in publishing *Homo Ludens*: to hasten the purposeful return of the play element to his contemporary cultural institutions. Huizinga worries in the text, for instance, about twentieth-century science, which he claims "is far less liable to fall into play as we have defined it than was the case in earlier times, when scientific thought and method showed unmistakable play-characteristics" (204). With his frivolously rational challenge to the classification of our own species, I believe Huizinga is modeling the return to play that *Homo Ludens* is intended to precipitate. The author's motivation is stated most plainly in the final pages of the text: "More and more the sad conclusion forces itself upon us that the play-element in culture has been on the wane ever since the eighteenth century, when it was in full flower. Civilization today is no longer played" (206).

If Huizinga's thesis in *Homo Ludens* is that all of humanity's great institutions and achievements have their roots in play and games, then his stakes are this: the growing concern that society worldwide is abandoning its play ethic. The most poetic expression of Huizinga's lament appears in the widely read 1955 English translation of *Homo Ludens*: "The real play spirit is threatened with extinction" (199). Although the translator takes some liberties with the phrasing of the original German sentence, I believe his interpretation opens up another important aspect of Huizinga's attraction to binomial nomenclature as a rhetorical strategy. It is not, in fact, abstract ideas like "play" that face extinction. *Species* face extinction. In the end, then, *Homo Ludens* is as much a deeply troubled text, worried for humanity's future, as it is an exultation of playful civilization past. It is not just a *history* of play—it is a *call* to play, first modeled by the author's playful intervention into conventional taxonomy and then rhetorically strengthened by Huizinga's positioning of *Homo ludens* as a species facing its own extinction.

It seems important at this point to comment on the historical circumstances surrounding Huizinga's authorship of *Homo Ludens*. Just three years prior to its original German-language publication, alarmed by the rise of fascism and perceiving a major cultural crisis, Huizinga wrote *In de schaduwen van morgen* (1935), published in English in 1936 as *In the Shadow of Tomorrow*. The text is worth quoting at length to indicate just how serious Huizinga was about the potential extinction of Man the Player.

> We are living in a demented world. And we know it…. Everywhere there are doubts as to the solidity of our social structure, vague fears of the imminent future, a feeling that our civilization is on the way to ruin. They are not merely the shapeless anxieties, which beset us in the small hours of the night when the flame of life burns low. They are considered expectations founded on observation and judgment of an overwhelming multitude of facts. How to avoid the recognition that almost all things which once seemed sacred and immutable have now become unsettled, truth and humanity, justice and reason? We see forms of government no longer capable of functioning, production systems on the verge of collapse, social forces gone wild with power. The roaring engine of this tremendous time seems to be heading for a breakdown (12).

Within six years of making this prediction, and after delivering a speech critical of the Nazi regime, Huizinga was arrested by German forces. He was banished to the village De Steeg in Gerderland, near Arnheim, where he died under Nazi detention just a few months before the end of the war.[71]

Huizinga's clear sense of the horrors to come as he was writing both *In the Shadow of Tomorrow* and *Homo Ludens* is not often accounted for in discussions of the latter text. But it is absolutely critical to understanding the moral-ethical imperative that underlies the historical work of the *Homo Ludens* project. Here, therefore, I want to discuss a second, related, classification scheme that appears prominently throughout Huizinga's

[71] Further historical details of Huizinga's life and work can be found in Christoph Strupp's biography *Johan Huizinga: Geschichtswissenschaft als Kulturgeschichte* (2000).

discussion of the play element: his attempt to understand the relationship between the two categories of "play" and "seriousness".

Although Huizinga is frequently cited as one of the first thinkers to take play seriously, *Homo Ludens* is in fact absolutely fraught with the difficulty, yet urgency, of *separating* play from the serious—at least some of the time. We see this will to proper categorization early on, when he resolves: "It is ancient wisdom, but it is also a little cheap, to call all human activity 'play'" (i). Huizinga wants us to view "play as a *distinct* and highly important factor in the world's life and doings" (i, emphasis mine). We must see play as a discrete and separate entity in the workings of culture. Even when play influences things serious, or takes on qualities of seriousness, Huizinga urges us, we must not mistake one for each other. The two must remain distinguishable as categories of intent.

The importance for Huizinga of organizing the relationship between play and seriousness can be found in work earlier than *Homo Ludens*. Its publication came five years after Huizinga delivered a major lecture, his annual address as the rector of the University of Leyden, called "The Cultural Limits of Play and the Serious." In his foreword to *Homo Ludens*, Huizinga cites this lecture as the seed of the present work, and in its title, we see that the playing was for Huizinga always already bound up very closely, perhaps too closely, with the serious. Understanding the "limits" of each is a central part of the *Homo Ludens* project. There are boundaries, and they must be found.

But Huizinga never suggests that finding the boundary between play and seriousness will be an easy task. He describes attempted classification as a dizzying experience: "We are seized with vertigo at the ceaseless shuttlings and spinnings in our mind of the thought: What is play? What is serious?" (213) Indeed, throughout the text we find evidence of these shuttlings and spinnings, as Huizinga seemingly undercuts his own classificatory efforts: “The contrast between play and seriousness is always fluid… play turns to seriousness and seriousness to play” he writes at one point (8). Players often exhibit “the utmost seriousness, with an absorption, a devotion that passes into rapture”—indeed, at which point, “play may rise to heights of beauty and sublimity that leaves seriousness far behind” (8). For Huizinga, then, there seems to be a spectrum of play that moves from play that is not serious, to play that is taken seriously, to play that is taken so seriously, it no longer serious, but rather *beyond* seriousness. As Huizinga writes: “The play concept as such is of a higher order than seriousness. For seriousness seeks to exclude play, whereas play can very well include seriousness”(45). In such a structure we see that seriousness always strives to claim: *This is not play, it is serious*, whereas play may choose alternately to claim: *This is not serious, it is play* or *This is play, and it is serious*.

Play, according to Huizinga, has a powerful mechanic for excluding the serious. This power is perhaps the most cited concept in *Homo Ludens*: Huizinga’s “magic circle”, the idea that through a clearly delineated space apart, time apart, and rules apart, play creates a separate sphere in which no real-world matters hold sway (8). Play creates “temporary worlds within the ordinary world, dedicated to the performance of an act apart” (8). Here, Huizinga’s famous image of a protected space suggests an effective structure for keeping play distinct as a category. But does the serious have the same power to self-classify? What structure keeps the boundaries of seriousness intact? In fact, Huizinga argues that it is more a complicated task to discern and to guard the boundaries of seriousness than to discern and to enforce the magic circle of play.

Here, we need to pay close attention to Huizinga's conclusion, which is far less cited than his foreword but at least as important to understanding the stakes of classification in *Homo Ludens*. In his closing remarks, the author suggests that the ability to distinguish between the two categories of play and seriousness is a moral issue. "We shall find the fixed, unmoving point that logic denies us, once more in the sphere of ethics. Play … itself is neither good nor bad. But if we have to decide whether an action to which our will impels us is a serious duty or is licit as play, our moral conscience will at once provide the touchstone" (213). Huizinga does not specify which circumstances might tempt us to play when in fact a serious approach is ethically required. It is clear, however, that such circumstances exist for Huizinga, and that recognizing them and choosing *not* to play is just as important as keeping the play element alive where it is "licit". Furthermore, it seems reasonable to connect this passage to Huizinga's earlier writings about the rise of fascism and Nazism, which he describes as "social forces gone wild with power" and which since have been characterized by cultural theorists as a hijacking of the agonistic impulse that Huizinga defines as the driving force of play.[72]

Having offered moral conscience as the appropriate guide to distinguishing between *what is play?* and *what is serious?*, Huizinga writes: "As soon as truth and justice, compassion and forgiveness have part in our resolve to act, our anxious question loses all meaning. One drop of pity is enough to lift our doing beyond intellectual distinctions" (213). For Huizinga, it turns out, classification is as much a *visceral* enterprise as a rational one. The proper categories for acting in play or in earnest must be felt, rather than reasoned. And so we are reminded here, in the end, of the text's original claim that

[72] Deleuze and Guattari, for example, make this claim in *Anti-Oedipus: Capitalism and Schizophrenia* (1983).

Homo sapiens is a misnomer. Huizinga is not so much ambivalent about the power of classification. Rather, he is proposing an alternate, less rational—or perhaps *frivolously* rational—approach. If, as Huizinga suggests, "the very existence of play confirms the supra-logical nature of the human situation," then no doubt it is a kind of play that will enable us to move beyond intellectual distinctions and therefore to differentiate more effectively, and more ethically, between play and the serious (4). And so he ends the work on a note of hope: Could we *play* our way to a proper sorting of things? The final words of *Homo Ludens*: "Conscience, which is moral awareness, will always whelm the question that eludes and deludes us to the end, in a lasting silence" (213). For Huizinga, play is not just a historical factor in culture; it is also a continuing ethical issue, one that is most clearly articulated by the difficulty in classification it poses.

9.3 On the Limits of Safe and Dangerous Play: *Man, Play and Games*

Caillois begins his 1958 *Man, Play and Games* with a respectful but pointed critique of *Homo Ludens*. Caillois praises Huizinga for "opening extremely fruitful avenues to research and reflection," but takes issue with the fact that "he deliberately omits, as obvious, the description and classification of *games* themselves" (3, 4). Caillois demands a more formal approach to the subject of play: a more organized field of research that specifically looks at the most structured form of play, games. He presents his own effort at establishing more order in the study of play in the widely cited chapter "The Classification of Games."

The classification system Caillois proposes is well-known to any student or researcher of games. It consists of a rubric of four dominant gameplay aspects—competition, or *agon*, chance, or *alea*, simulation, or *mimicry*, and vertigo, or *ilinx*—and two opposing styles: *paidia*, spontaneous free play, and *ludus*, conventional structured play. Countless researchers have taken up Caillois' rubric as the framework for their own examination of gameplay, citing his categories to explain a particular phenomenon in digital gaming, or modifying them to better fit emerging genres of digital play.[73] But rarely, if ever, do contemporary game researchers cite Caillois' text in any more than a cursory fashion.

Indeed, much as contemporary games researchers tend to cite Huizinga only as evidence that someone once proved games were worthy of study, so too do they ignore the better portion of the Caillois' text, which is comprised largely of the ideologically charged work he has designed the classification system to do. In *Sorting Things Out: Classification and its Consequences,* information theorists Geoffrey C. Bowker and Susan Leigh Star remind us that there is always an end in mind for any classification scheme. They offer the following definition: "A 'classification system' is a set of boxes (metaphorical or literal) into which things can be put to then do some kind of work" (10). Here, Bowker and Star urge us to remember that classification always has an applied goal. So what is the intended work of Caillois' classification system?

Caillois' classification system is not framed in the tradition of Linnaeus' taxonomical work; it does not make any naturalizing claims for itself. The author does not profess to reveal the natural order of play; rather, he himself is artificially imposing order. His own role as the organizer of the unruly field of play theory is always foregrounded. For instance, he suggests that classification is difficult, describing it as an active process that has taken great effort on his part: "The multitude and infinite variety of games at first

[73] See, for example, Siobhán Thomas' "Pervasive Learning Games: Explorations of Hybrid Educational Gamescapes" (2006) Mike Molesworth's "The Pleasures and Practices of Virtualised Consumption in Digital Spaces" (2005), and Tanya Krzywinska and Geoff King's "Gamescapes: Exploration and Virtual Presence in Game Worlds"(2003).

causes one to despair of discovering a principle of classification capable of subsuming them under a small number of well-defined categories" (11). When Caillois makes comments like, "I will try to establish the classification to which I am committed," we see his system as an *authored construct*; his personal part in its development is never hidden or downplayed (13). He also acknowledges that multiple feasible schemes could be designed, marking his own just one of many options: "Games also possess so many different characteristics that many approaches are possible" (11). Indeed, before presenting his own taxonomy, he briefly describes several other plausible schemes for classifying games. It is only after "examining multiple possibilities," he tells us, that he settled on the now-famous rubric (12).

Why does it matter that Caillois makes transparent his own process, revealing the classification of games to be an artificial convention rather than a natural revelation? By taming Huizinga's unruly play theory, Caillois is strategically modeling a particular vision of a more *civilized*—that is, highly constructed and rigidly categorized—culture of play. Caillois is arguing *for* and *against* certain kinds of play: in favor of the conventional, "neutralized" cultural play of *ludus*, and against the *instinctual*, dangerous social play of *paidia*.[74]

[74] Caillois' use of the term "ludus" to describe rule-governed play is a strategic intervention into the traditional linguistic uses of the term. The original Latin word *ludus* refers to any kind of play, not necessarily formal and rule-governed play. Indeed, Huizinga coined *Homo ludens* in accordance with this original Latin inclusiveness. However, Caillois wants to make the language do more specific work (the work of promoting highly structured play). Therefore he chooses to use *ludus* only to refer to the most structured forms of play. Since Caillois, many games theorists and writers have followed suit. For example, digital games researcher Gonzalo Frasca coined the term *ludology* to refer to turn-of-the-twenty-first century game studies, citing Caillois' definition of *ludus*. Frasca, who first presented the term in the 1999 article "Ludology Meets Narratology", intends ludology to include only the study of formal video and computer games, and not more general playful computing practices. In this way, he reflects the now widespread understanding of the root *lud-* to refer to games specifically.

Consider, for example, Caillois' very first application of his gameplay taxonomy. Immediately after presenting his rubric, Caillois dedicates his attention to something he calls "The Corruption of Games" (43). He writes: "Corresponding to each of the basic categories there is a specific perversion" (44). He sets out to define these perversions by matching the four kinds of play attitudes with basic human instincts that are corruptible. According to Caillois, *agon* represents the desire to prove oneself through merit; a*lea*, the pleasure of anxious and passive anticipation; *mimicry*, the desire to take on an alternate persona; and *ilinx*, the pleasure of vertigo and perceptual disruption. His "Corruption of Games" table lists games that safely satisfy these instincts, as well as perverse modes of play that overindulge them. The safe games are charted at the *ludus* end of the spectrum, while the perverse examples are located at the far *paidia* end. He says of *ludus*: "in disciplining the *paidia*, its general contribution is to give the fundamental categories of play their purity and excellence" (33). But paying special attention to the perversions of *paidia*, Caillois specifies the various forms of cultural damage that arise from undisciplined play in each category. "Violence, Will to power, and Trickery", for example, may emerge from unrestrained *agon;* "superstition" from excessive *alea*; "alienation and split personality" from unbridled *mimicry;* and widespread societal problems with "alcoholism and drugs" from unchecked *ilinx* (54).

For Caillois, then, play is the expression of instinct, and games are civilizing forces on those instincts. He writes: "Left to themselves, destructive and frantic as are all instincts, these base impulses can hardly lead to any but disastrous consequences. Games discipline instincts and institutionalize them" (55) Without the restraining structures of games, society is always at risk of these four varieties of perversions that Caillois has clearly laid out for us. It is only through arbitrary, formal convention that the play instinct can be harnessed as a cultural benefit.

Following Caillois' chapters on classification and the corruption of games, the majority of *Man, Play and Games* is dedicated to exploring the proposition that individual cultures around the world and throughout history can be understood best by examining which combination of play forms predominate. But his investigation is not simply a neutral plan to know cultures better through applied taxonomy; rather, it is part of his larger argument about the ideal forms of gameplay, and the dangers of non-ideal forms. He writes: "It does not seem to me unreasonable to find out whether the very destiny of cultures, their chance to flourish or stagnate, is not equally determined by their preference for one or another of the basic categories into which I have tried to divide games" (67). Caillois examines ancient cultures like the Incas, the Asyrians, the Chinese and the Romans alongside the contemporary Tungus, Bechuana, and Zuni. Among these, he determines that those societies ruled by a preference for *mimicry and ilinx* are "primitive"; whereas societies that prefer *agon* and *alea* are "rational" (87). Caillois argues that *mimicry* and *ilinx* are more prone to *paidia*, whereas *agon* and *alea* tend toward the *ludus* (75). By extension, then, Caillois is ascribing irrational, primitive qualities to *paidia* and rational, civilized qualities to *ludus*. They are not just different ends of a spectrum of play; they represent two distinct historical paths any culture might take: toward civilization or toward depravity.

It is important to note here that Caillois wrote *Man, Play and Games* at the same time that he was renouncing his earlier (pre-WWII) surrealist writings, which had been in favor of social anarchy and opposed to the rational ordering of culture. During the 1930s, Caillois was an active member of the surrealist movement in Paris, working closely with leading surrealist André Breton. But after spending five years (1939-1944) as a war exile in Argentina, Caillois began to reverse his positions on social organization. In *The Edge of Surrealism*, an annotated collection of Caillois' writings, Claudine Frank documents Caillois' time in Argentina. She describes it as a period in which he underwent an "intellectual, ideological, and cultural change which left him a convert to 'civilization' – or what he had previously sought to overturn and destroy"(33). In a review of Frank's analysis for the journal *Papers of Surrealism*, Donna Roberts describes "this change as one from revolution to civilization" (2). Roberts describes Caillois' growing admiration for "the enormous efforts of the past to build a civilization in the face of natural obstacles – both those of the external environment and the internal obstacles in mans' own nature" (7). She describes his post-WWII writings, therefore, as "the work of a man humbled, disgusted at his previous destructive urges and turned to contemplate the moral value of even the smallest of collective efforts" (7).

Frank's collection does not include or discuss any of the essays published in *Man, Play and Games.* Roberts, too, chooses not to consider Caillois' analysis of the relationship between games and culture in the context of the author's historic turn from surrealism toward a more rational theory. Nevertheless, I would suggest that we can observe a direct relationship between Caillois' attempt to understand the challenges of creating stable civilizations and his effort to classify the forms of play. As Roberts writes, quoting a 1943 essay on the region of *Patagonia* where Caillois was exiled: "Caillois thus marvels at the efforts of rediscovering 'every rule of a secret, delicate syntax that was never formulated,' and the careful, constructive values that generate community, build civilizations, and nurture the 'invisible treasures' that constitute the soul of man" (8). Here, Caillois' hope of discovering the secret *rules* of civilization clearly is the same structural impulse that drives his analysis of rule-governed play in *Man, Play and Games*. Indeed, the *Patagonia* essay, Roberts notes, "marks Caillois' new respect for mans' achievements and his rejection of his previous insistence on the powerful potential of harnessing mans' violent and vertiginous natural instincts" (8). It is the reigning in of these violent and vertiginous natural instincts—what Caillois comes to identify as the possible corruptions of play—that is the primary goal of his 1958 classification of games.

Therefore, for Caillois, it is imperative from both a political and a humanistic perspective to understand how individual societies choose and forge paths that diverge either in favor of or against rational, stable civilization. Caillois speculates that in a society striving for greater civilization, it might be "sufficient to challenge the ascendance of the mimicry-ilinx combination and substitute for it a universe in which merit and chance, agon and alea, would rule" (127-8). In his chapter on classification, he describes this escape from the *paidia* forms toward the *ludus* forms as going "From Turbulence to Rules" (27). This progression from unstructured play to organized games is for Caillois "the very adventure of civilization" (127). On the other hand, a society that ignores the conventions of its games risks reversing the arrow of civilization in the opposite direction, portending the society's decline or even demise. He worries: "What happens when every convention is rejected? When the universe of play is no longer tightly closed?" (44) For Caillois, great societal risks arise if play is not kept strictly in its proper, convention-defined box.

In the end, then, it is a tremendously normalizing sociology that Caillois presents, a demand for ordering influences that is rhetorically conveyed through the structure of his own study. The *ludus* forms of play are civilizing because “they create law, i.e. a fixed, abstract, and coherent code” (126). Here, we are reminded of Caillois’ own fixed code: his classification of games. Is it possible that Caillois’ fear of the “intoxication” and “inordinate madness” produced by unbridled, unorganized play has been channeled into his own treatment of the subject? (55) I believe, indeed, that Caillois seeks to control gameplay as an intellectual object so that he can persuade the reader of the need to control gameplay as a cultural phenomenon. It is only through the construction of arbitrary social conventions that play can be made a safe and productive part of culture, Caillois argues, and his openly arbitrary classification scheme is the perfect illustration of such ordering. Just as Huizinga modeled his ideal vision of a frivolous rationalism for the reader through his agonistic appeal to natural taxonomy, so too does Caillois perform his preferred style of play through a rhetorically-motivated classification effort.

9.4 On the Limits of Play and Real-Life Behaviors: *The Structural Elements of Games*

Caillois’ classification scheme, with its focus on culture at large and long-term historical trends, is a macro-taxonomy. It takes a big-picture approach to the subject, proposing very broad categories that seek to cover the entire human range of play. In their 1971 collection *The Study of Games*, Elliot M. Avedon and Brian Sutton-Smith adopt a more “zoomed in” approach. They propose a micro-taxonomy, a kind of *anatomy* of a game. Rather than creating categories into which diverse games and genres can be sorted, they seek to categorize the internal and constitutive elements of any single game.

In their introduction to the anthology, Avedon and Sutton-Smith resist what they identify as the *universalizing instinct* of games researchers to date. They reject the possibility of arriving, for instance, at a single, unified definition of games. After surveying half a dozen definitions deployed in different contexts, they conclude: “a game is what we decide it should be; our definition will have an arbitrary character depending on our purpose” (2). Likewise, they see game taxonomies as completely arbitrary and equally motivated by individual aims. After a literature review of game classifications dating back to 1907, they announce the complete lack of universally common categories and themes across the various systems. “Our point is that in each of these different usages the taxonomy has served the purposes of the categorizer. The system was not inevitable, it was constructed as a certain way of viewing human behavior. Each categorizer created his own ‘word game’ about games” (5).

Unable to reconcile the different classification schemes and noting that everyone else has simply devised a taxonomy to fit their own ends, Sutton-Smith and Avedon propose attempting a very different kind of taxonomy, one that suits *their* particular research goals. Rather than trying to find order in the entire sphere of games, they set out to find order at a microcosmic level. Their stated objective: to understand the internal structure of games, and how those structures produce particular qualities of play. The authors have related, but distinct, purposes in mind for their taxonomies; therefore each editor takes a separate pass at the problem. Sutton-Smith investigates “The Dimensions of Games”, while Avedon delineates “The Structural Elements of Games”.

Sutton-Smith begins his essay on “The Dimensions of Games” by explaining that his taxonomy will focus on “the behavior that games may provoke” (408). He suggests that the presence or absence of various game dimensions, each of which drives a specific behavior, dictates which game is most appropriate for any given group in any particular setting. He presents thirty different dimensions of games, for example: “Spread of winnership”—is there a sole victor, or is victory shared among some, or all, of the players?; “Use of Space”—how much is required? Can players move freely throughout the space, or are their movements limited by game rules?; and “Leeway for Marginal Impulse Expression”—to what degree is “horse play” tolerated among the players? (410, 413, 414) Sutton-Smith’s taxonomy does not include a list of corresponding behaviors for each of the dimensions. However, we can easily extrapolate what they might be. In the case of the spread of winnership, a sole victor might lead to competitive behavior in the group, whereas shared victory might prompt cooperation or the formation of cliques. The use of a large amount of space would promote exploration as an activity and possibly provoke significant physical movement, whereas smaller spaces might lead to more intimate, interpersonal play. Leeway for marginal expression could increase the potential for creative and improvisational behaviors—or it could promote excessively disruptive behavior.

Why does Sutton-Smith want to correlating play behaviors with specific elements in a game’s structure? Sutton-Smith, a developmental psychologist, is highly interested in games played by children for social and cognitive development. In “The Dimensions of Games”, Sutton-Smith strongly urges readers to examine Fritz Redl’s 1959 paper “The Impact of Game Ingredients on Children’s Play Behavior” (408). This recommendation clearly indicates this author’s motivation in creating a novel taxonomy. Sutton-Smith seeks to classify constitutive game elements, or “ingredients”, so that educators and developmental specialists can elicit specific behaviors in children.

In suggesting that one or more elements of a game’s design can significantly, directly, and *predictably* impact the qualities of the play that arise, Sutton-Smith makes a radical break from the ways in which play has been conceived in previous research. He takes a structural approach to game analysis, arguing that the fuzzy magic of play is actually susceptible to a practical logic. Games may be chosen, or even designed from scratch, to achieve specific kinds of impact. This is a dramatic departure from the understanding of games and play that Huizinga and Caillois have presented. Both earlier writers theorize games as a kind of bottom-up phenomenon, in which traditions and play practices emerge over time from the general population, or are passed down through time and across cultures relatively unchanged. Sutton-Smith, on the other hand, posits the opportunity for a top-down creation of play, an active design toward specific ends. The underlying point of Sutton-Smith’s taxonomy of game structure, then, is that game *design* matters. The construction of a game can be intentionally persuasive, strategically motivational of particular behaviors. His is the first game taxonomy designed as a practical and immediate intervention into the world of play.

Avedon, as it turns out, has a similar end in mind. In “The Structural Elements of Games”, he describes the of goals of his original taxonomy as follows: “to enable personnel to standardize game utilization for therapeutic purposes, as well as to modify professional planning practice” (420). Like Sutton-Smith, then, Avedon is concerned with choosing or designing the right game for any given group—the former being primarily concerned with children’s games and the latter, with games for adults.

Avedon does not discuss his professional practice at length in this particular essay. However, elsewhere in the collection, in “Using Recreational Games for Therapeutic Purposes”, Avedon elaborates on the need for a classification scheme to aid therapy practitioners. He writes: “In order to program for specific therapeutic goals, therapeutic recreation specialists must be able to classify games in relation to sensory-motor demands, cognitive demands, and affective demands” (371). Avedon seems particularly interested in the therapeutic work that game structures can do in relation to real, everyday life. He suggests that “a game can be viewed as an ‘encapsulated social system’—a system that has many elements of a reality situation” (371). Of the game environment, he writes: “It offers opportunities to ‘practice’ living” (371). For Avedon, then, the structural elements of games serve as *rehearsal cues*. They prompt players to practice specific sensory-motor, cognitive and affective actions and interactions that will later be performed outside of the game *for real*.

But Avedon is interested in the relationship between games and real-life behaviors not only as games resemble and prepare players for reality. He also argues that reality often resembles and adopts the structural elements of games. He discusses a variety of (then) contemporary research that explores “seemingly non-game interactions as games” (421). Among his references are Eric Berne’s classic *Games People Play* (1964), in which the author analyzes both conscious and unconscious gameplay in everyday psychological contexts, and Erving Goffman’s “Fun in Games” (1961), in which the author argues for the importance of fun, or euphoria, in motivating social participation. Avedon writes that “games are differentiated from other types of interaction because of their intrinsic elements”, rather than whether they claim to be play or not (421). And in order to recognize a game as such, including the gameplay of everyday life, we must therefore be familiar with these elements. With this familiarity, Avedon suggests, we may come to realize that “many social situations, although appearing not to be games, possess these elements, and are in reality, games” (421).

Avedon has made a striking argument here: We should base our classification of games and real life not on appearances or context, but rather on underlying structure. His proposed taxonomy of the structural elements of games allows us to see beyond the *framing* of an interaction—“this is a game” or “this is not a game”—to its actual core *mechanics*. It is these mechanics, Avedon implies, that ultimately may prove more useful for categorizing an experience as a game (or not) than the experience’s own self-classifying frame. Something that claims to be a game may in fact be merely unstructured play, while something that by all appearances is serious and “for real” may in fact phenomenologically be identical to, and therefore (according to Avedon) in fact, a game. What is the practical benefit of this insight? Understanding real-life behaviors as fundamentally ludic, Avedon implies, may allow us to re-design real-world social participation just as we can re-design recreational games to create different kinds of interactions.

To date, this particular work by Sutton-Smith and Avedon has been of minor interest to current games researchers—*The Study of Games* has gone out of publication, and it functions primarily as an object of historical curiosity for those researchers who occasionally refer to it as a failed attempt to ignite a rigorous study of games. This disinterest is understandable: the authors, on the surface, are proposing a practical tool for the rather limited audience of practitioners who use play for educational and therapeutic purposes. But I want to suggest here that their work has far greater significance in the larger context of game studies. Theirs is the first scholarly effort to understand games as designed experiences capable of being constructed for specific outcomes. And they are the first to suggest that this internal structure is worthy of, and susceptible to, intellectual scrutiny. Huizinga describes the structure of play as essentially inscrutable: it "casts a spell over us; it is 'enchanting', 'captivating'"(10). Sutton-Smith and Avedon, on the other hand, demystify play, arguing that play can be designed as a practical prompt to specific kinds of action and social participation. They identify their proposed structural elements of games as a mechanic for creating social order. And once a taxonomy for these elements exists, play can be *authored* to achieve a particular impact—just as a classification scheme of play and games may be constructed to serve its authors' ends.

9.5 The Future Limits of Ubiquitous Play and Performance

What patterns in classification do we find in these seminal studies of play, and how can we apply these patterns to understanding the work of ubicomp, pervasive and ubiquitous games?

First, in discerning the motivations for each authors' classification systems, we can observe historical concerns and agendas that parallel some of the criticisms and problems that may soon emerge around ubiquitous play and performance. Huizinga's text, for instance, which many researchers erroneously cite as a simple celebration of the play element, is actually deeply fraught about the role of play in the cultural and civic affairs of everyday life, particularly as play may persist in scenarios that exceed its moral-ethical boundaries. Indeed, where we may see ubiquitous play and performance as blurring the line between games and real life in unprecedented ways, Huizinga's work suggests that this limit has always been hard to define. Moreover, it shows that play researchers have long considered both the potential benefits and dangers associated with an intimate relationship between play and life itself. In considering the new modes of intimacy created between real-life and play through ubiquitous computing and ubiquitous computing metaphors, we would do well to understand first the long history of such intimacies. One promising area for future study, then, will be to understand how the introduction of digital network technology may *heighten* or *mitigate* the opportunities and the moral-ethical dilemmas Huizinga observed, as opposed to identifying the phenomenon as a historically singular product of the ubiquitous gaming network.

Caillois, meanwhile, creates an entire classification scheme in order to argue against play that is insufficiently bounded or not fully structured by clearly expressed rules. His concerns about play that escape the magic circle and defy arbitrary convention—whether these concerns are confirmed, modified or ultimately rejected—will be relevant to future study of pervasive games that purposefully obscure or rupture the magic circle and alternate reality games that refuse to make explicit any rules to organize the players' engagement. What I want to note here, as with Huizinga, is the fundamentally historical nature of these concerns. They are not a unique product of reality-based aesthetics or more pervasive gaming platforms; they are, rather, something that has been theorized extensively in pre-digital play. Therefore future study of the disrupted magic circle will need to account for the fact that studies of play across culture and time show that it has always already been broken by certain forms of play. It will be important to *theorize comparatively* the means and the ends of such disruption.

Furthermore, any future consideration of the potential cultural effects of such a broken circle may wish to consider the ideology that inspired Caillois' research in the area. His writing was based on a belief that games move "primitive" and "advanced" cultures in specific developmental directions: toward fruitful civilization if the play is highly structured, and toward depravity and decay if it is highly unstructured. Any future study that addresses the larger cultural implications of distributed or disruptive play certainly will need to attend to its own ideological assumptions about the benefits or consequences of each. Indeed, one theoretical area urgently in need of development in the face of increasingly ubiquitous play and performance is our understanding of the ideological factors that motivate contemporary design of unbounded, but nevertheless carefully ordered play, such as the puppet-mastered experiences of reality-based superhero games. Caillois suggested that the design of and participation in unbounded play is a fundamentally anarchist or revolutionary action, whereas play governed by arbitrary rules is civilizing and stabilizing. What, then, will we make of the political and social agendas of games that seek to challenge the formal containers of play while simultaneously revealing, enforcing and strictly adhering to a secret ludic structure? This problem of gameplay that dialectically embodies both the *paidia* and the *ludus* instincts represents a significant future challenge for research into the ideology of ubiquitous games.

Sutton-Smith, as I have shown, developed a taxonomy of internal game structure in order to demonstrate precisely how game designers and organizers wield enormous power over the actual behavior of players during the game. I want to suggest here that his description of game design and game selection as intentionally productive of specific embodied, face-to-face actions and interactions is extremely relevant to phenomenon of puppet mastered ubiquitous games. It places the puppet master phenomenon in a history of theorized game design, in which all embodied players are treated as subject to the direction of their games' designers and organizers. Moreover, in forms of ubiquitous play and performance without puppet masters, their increasingly physical, embodied and social nature draws them closer to this pre-digital notion of intentionally scripting players' real behavior. Sutton-Smith's essay suggests that the history of motivated pre-digital game design and deployment will be an important foundation for understanding the power dynamics of pre-scripted action in ubiquitous and pervasive games.

Finally, I want to call attention to Avedon's determination, through his structural approach to the subject, that games are defined primarily by the nature of their interactions, rather than by some ontological status as either for-real or for-play. While many game researchers have remarked on how the metaphor of games may be used to understand real-life interactions, Avedon suggests that there is no metaphor involved—if it is structured as a game, it is a game. In my own future work in this area, I intend to document how the specific structural elements outlined first by Avedon and subsequently by other game designers appear in both ubiquitous games and real-life contexts that players recognize as structurally resembling ubiquitous games. It is one thing to claim that real-life is playable; it is another matter entirely to construct or to frame off real-life interactions that possesses the actual structural elements of a game. Beyond design by affordance, which I have examined here, how else, at a deep anatomical level, is reality formally structured to become a real little game? Indeed, for players seeking to map the conceptual metaphors of collective play onto reality, what structural elements are required to make a matching fit?

All of the historical concerns and agendas I have presented here demonstrate that the emergence of ubiquitous play and performance, while offering radically new ludic interfaces to everyday objects, sites, and contexts, is grounded nevertheless in a history of embodied play with often indiscernible limits between the ludic and the real, between the game and society, and between play and the real-life behaviors.

But the most important pattern I want to observe in these three seminal texts is their pattern of purposefully and creatively *constructing* and *reconstructing* the specific order of things through strategic acts of classification and taxonomy. Huizinga, for example, intervened in the supposedly natural taxonomy of the species to make an agonistic intervention in favor of more play—thereby showing that the classification is not natural at all, but rather subject to motivated revision. Caillois, too, sought to demonstrate that we can make our own arbitrary taxonomies in order to enforce a different kind of order over a particular cultural domain. And Sutton-Smith and Avedon explicitly argued that all designers and researchers construct classification schemes to their own ends; therefore, they felt empowered to devise their own entirely original scheme in the service of their personal applied research goals.

All three of these texts take what we might therefore call an *open source approach* to classification. The open source philosophy, as I discussed in Chapter Six, argues in favor of a decentralized approach to improving, collectively, an end technological system. Multiple authors—indeed, ideally massively-multiple authors—propose changes to the product; over time, the most popular changes are formally built into the system. Although first applied only to computer programming, the open source philosophy has become a popular inspiration for opening up all kinds of systems to anyone who wishes to work to improve them, inspiring such terms as "open source agriculture", "open source government", "open source filmmaking", and even "open source yoga".[75] What all of these open source movements share in common is the radical idea that anyone can propose and implement changes in the structural order of things, and moreover should be allowed to test and to evaluate the results of their provisional changes.

When this open source philosophy is applied to classification, the result is called *folksonomy*. Folksonomy, a neologism that derives from collapsing the terms "folk" and "taxonomy", was first coined in 2004 by information architect Thomas Vander Wal. It was intended to describe the bottom-up, rather than top-down, classification practices of tagging data (such as websites and photographs) on the Internet.[76] In folksonomy, classification schemes are open for debate. They are understood as both mutable and socially constructed. Any user of a folksonomy tool, such as Flickr (folksonomy for digital photographs) and del.ici.ous (folksonomy for urls) can propose a new "tag" to categorize any piece of Web content. The popularity of a given tag influences how the piece of content is classified within the overall semantic structure of the Web. They are not determined by a sole information architect, but rather by the public.

Together, Huizinga, Caillois, Avedon and Sutton-Smith represent the beginnings of a folksonomy of play, an open source approach to re-classifying games in relation to everyday life. Each of their taxonomies and typologies proposes a change in our

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[75] Examples of each of these non-technological applications of the open source philosophy, respectively, include OpenCola at http://www.colawp.com/colas/400/cola467_recipe.html; The Center of Open Source and Government at http://www.egovos.org/; "Interview with Filmmaker Robert Greenwald" at http://www.plugincinema.com/plugin/ articles/article_outfoxed.htm; and Open Source Yoga Unity at http://www.yogaunity.org/.

[76] For a discussion of the technical aspects of folksonomy, see "Data mining classification: Improved annotation of the blogosphere via autotagging and hierarchical clustering" (Brooks and Montanez, 2006); "Social networks: Exploring social annotations for the semantic web" (Wu, Zhang and Yu, 2006); and "Why do tagging systems work?" (Furnas, Fake, et al, 2006).

classifying practices in order to achieve the author's specific desired revisions to how we playfully frame and engage each other and the world around us.

Huizinga once observed: "Inside the playground an absolute and peculiar order reigns. Here we come across another, very positive feature of play: it creates order, *is* order" (10). Indeed, game design can be understood as its own kind of classification and taxonomical argument. It organizes and structures the world according to its own logical pattern. Huizinga writes: "The profound affinity between play and order is perhaps the reason why play, as we noted in passing, seems to lie to such a large extent in the field of aesthetics. Play has a tendency to be beautiful. It may be that this aesthetic factor is identical with the impulse to create orderly form, which animates play in all its aspects" (10). Here, Huizinga theorizes the fundamental order of play as an aesthetic phenomenon. But I believe the emergence of ubiquitous play and performance reveals the fundamental order of play to be an opportunity to intervene, intentionally, into the social organization and interactive patterns of the world. Indeed, ubiquitous play and performance may best be theorized as a series of proliferating tools for reclassifying where, when, how, and with whom to play.

The title of this dissertation, *This Might Be a Game*, is meant in the end to evoke what I believe to be the fundamentally open classification system of ubiquitous play and performance. Ubiquitous computing infrastructure invites designers and programmers to reclassify myriad things as toys, spaces as playgrounds, and social contexts as gaming occasions. Pervasive gaming methods invite artists to reclassify public environments as game stages and spaces for collective expression. Ubiquitous gaming invites players to reclassify passive media as interactive; everyday noise as meaningful experience; closed spaces as open spaces; strangers as co-conspirators; real-world problems as real gaming opportunities—the potential reclassifications are as infinite as the gameplay is ubiquitous.

Douglas Rushkoff, who has argued that digital gaming culture develops an open source ethic among its players, observes in "Renaissance Now! A Gamer's Perspective": "Renaissances afford us the ability to rethink and redesign our world using entirely new rule sets …. I'd place my renaissance bet on the gamers' perspective: the very notion that our world is open source, and that reality itself is up for grabs. For, more than anyone else, a real gamer knows that we are the ones creating the rules" (421). Who will specify what objects, sites, spaces, and contexts will evoke and afford ludic interaction in the future? I would argue that it will be the game designers, the game players, and the game theorists who will have the opportunity to participate in what ultimately amounts to an epic act of ubiquitous reclassification, a fundamental restructuring of the everyday interactive code.

This ability to reclassify elements of everyday life as potential platforms for play represents a new kind of *critical gaming literacy*, through which the gamers are taught to read the real world as rich with ubiquitous ludic opportunity. They must then decide which recognized opportunities are fundamentally benevolent, and which opportunities may ultimately do more harm than good. As a community, they are charged with collectively developing an *ethic* of play that takes advantage of these new ludic modes of engagement, without obliterating the important distinctions between what can be played to positive effect and what can be played, but ought not to be. Huizinga, at the conclusion of *Homo Ludens,* writes: "I have tried to avoid the philosophical short-circuit that would assert all human action to be play" (211). Indeed, it is imperative that we not take ubiquitous gaming as an attempt to reconfigure all human affairs as play. Rather, by making it technologically and cognitively *possible* to reframe anything and everything for play, the ubiquitous play and performance projects I have analyzed here force us to make more thoughtful decisions about where, when, how, and with whom to play. Huizinga insists that it is the "sphere of ethics" that allows us to recognize whether an action "is a serious duty or is licit as play" (213). To this end, ubiquitous gaming reminds us that making such decisions should not, as Caillois might propose, be a matter of arbitrary social convention. The boundaries of play cannot be taken for granted, especially as the platforms and contexts for play continue to multiply and to spread so dramatically. The new intimacies between gaming and real-life must be attended to carefully and consciously. This necessary critical faculty is developed and practiced through the mindful and collaborative limit-testing afforded by ubiquitous games.

Since the turn of the twenty-first century, scientists, artists, and game developers have been adopting new ubicomp technologies, metaphors, and design philosophies to reconfigure the relationship between gameplay and our everyday experience of the material, social world. I have worked in this dissertation to document the first five years (2001-2006) of this extraordinary ludic experiment. My hope is that this research will reveal the remarkable scope and density of the present ubiquitous gaming network to many who may not yet be fully aware of their own immersion in it—so that they too can join the effort of rewriting the rules of social interaction and re-classifying the boundaries of play. Together, we face the exciting opportunity and urgent duty to define and to theorize the new future limits of digital play, as we collectively come to specify more intimate nodes of connection between the ubiquitous game network and our real-world lives.

BIBLIOGRAPHY

Aaron, Charles. “The Future of Mankind.” <u>Cloudmakers.org</u>. 19 June 2001. http://cloudmakers.org/editorials/acharles618.shtml Access 1 July 2006.

Aarseth, Espen. “Computer Game Studies, Year One.” <u>Game Studies</u> 1:1 July 2001. http://www.gamestudies.org/0101/editorial.html. Access: 20 February 2006.

--. <u>Cybertext: Perspectives on Ergodic Literature</u>. Baltimore: The John Hopkins University Press, 1997.

Abowd, Gregory D. “Software Engineering Issues for Ubiquitous Computing.” In Proceedings of the 21st international Conference on Software Engineering. Los Angeles, California, United States: 16 - 22 May 1999. International Conference on Software Engineering. IEEE Computer Society Press, Los Alamitos, CA. 75-84.

Abowd, Gregory D. and Mynatt, Elizabeth D. “Charting Past, Present, and Future Research in Ubiquitous Computing.” ACM Transactions on Computer-Human Interactions. 7: 1 March 2000. 29-58

Abrams, Janet. “Ubiquity/Urbiquity: the *B.U.G.* and other Ludic(rous) Pursuits.” Abstract. Opening Keynote for the Sixth International Conference on Ubiquitous Computing. Seattle: 8 September 2004. http://www.ubicomp.org/ubicomp2004/prg.php?show=keynote_open Access 15 March 2006.

<u>AdWeek</u> Staff Report. "Best Viral Marketing Campaign: A.I. Promotion." <u>AdWeek Online</u>. 12 November 2001. http://www.adweek.com/adweek/members/article_display.jsp?vnu_content_id=1100160 Access 6 May 6 2004.

Alethea. “Re: New anagram for wlahevrniees?” Yahoo! Cloudmakers Discussion. 22 June 2001. http://groups.yahoo.com/group/cloudmakers/message/28175 Access 1 May 2006.

Alex. "[cloudmakers] a request." Yahoo! Cloudmakers Discussion. 11 April 2001. http://groups.yahoo.com/group/cloudmakers/ message/5 Access 1 June 2006.

Alzheimers. “Re: How and Why the ARG Community Works.” Unfiction Forums. 10 January 2005. http://forums.unfiction.com/forums/viewtopic.php?p=118146 Access 1 June 2006.

Anderson, Ken, Anthony Burke, Eric Paulos, Amanda Williams. “Exurban Noir.” Full Workshop Proceedings of the Eighth International Conference on Ubiquitous Computing. Orange County: 17-18 September 2006. http://drzaius.ics.uci.edu/meta/ exurban-noir/exurbanworkshop-final.pdf Access 22 May 2006.

Anderson, P.W. “More Is Different.” Science. 177:4047 August 1972. 393–96

Atedazawk. “NEW: New TV commercial.” Yahoo! Cloudmakers Discussion. 7 June 2001. http://groups.yahoo.com/group/cloudmakers/message/21894 Access 1 May 2006.

Avedon, Elliot M. and Brian Sutton-Smith. The Study of Games. New York: John Wiley & Sons, Inc., 1971.

Banshee. “Re: [cloudmakers] From NYC.” Yahoo! Cloudmakers Discussion. 11 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44267 Access 1 May 2006.

BBC News Staff Report. "Back Story: Fill in the Gaps." BBC News Online. 4 May 2001. http://news.bbc.co.uk/2/hi/special_report/1999/02/99/e-cyclopedia/1309239.stm Access 1 May 2006.

Beacon Journal Staff Report. "Girls attempt real-life version of video game." Akron Beacon Journal. 1 April 2006. http://www.ohio.com/mld/ohio/news/14239923.htm Access 1 May 2006.

--. "Girls won't be prosecuted after bomb squad called on art project." --. Akron Beacon Journal. 7 April 2006. http://www.ohio.com/mld/ohio/living/community/14288701.htm Access 1 May 2006.

Bell, Genevieve, Eric Paulos, Tim Brooke, and Elizabeth Churchill. "Intimate (Ubiquitous) Computing." Full Workshop Proceedings of the Fifth International Conference on Ubiquitous Computing. Seattle: 12-15 October 2005. http://berkeley.intel-research.net/paulos/pubs/papers/Intimate%20Computing%20(UbiComp%202003).pdf Access 1 May 2006.

Bellebet. "SPEC: Why the Entity Chose Ilovebees." Unfiction Forums. 25 July 2004. http://forums.unfiction.com/forums/viewtopic.php?p=43966 Access 1 July 2006.

Benford, Steve. "Pushing the Boundaries of Interaction in Public." Interactions. 12: 4 July 2005. 57-58

Benford, Steve, Rob Anastasi, Martin Flintham, Adam Drozd, Andy Crabtree, Chris Greenhalgh. "Coping with Uncertainty in a Location-Based Game." IEEE Pervasive Computing. 2: 3 July 2003. 34-41

Benford, Steve, Andy Crabtree, Martin Flintham, Adam Drozd, Rob Anastasi, Mark Paxton, Nick Tandavanitj, Matt Adams and Ju Row-Farr. “Can You See Me Now?” ACM Transactions on Computer Human Interface. Forthcoming.

Benford, Steve, Mike Fraser, Gail Reynard, Boriana Koleva, and Adam Drozd. “Staging and Evaluating Public Performances as an Approach to CVE Research.” In Proceedings of the Fourth International Conference on Collaborative Virtual Environments. Bonn, Germany: 30 September 30 – 2 October 2002. New York, NY: ACM Press. 80-87

Benford, Steve, Will Seager, Martin Flintham, Rob Anastasi, Duncan Rowland, Jan Humble, John Bowers, Nick Tandavanitj, Matt Adams and Ju Row-Farr. Proceedings of the Sixth International Conference on Ubiquitous Computing. Nottingham, UK: 7-10 September 2004. 70 - 87

Berne, Eric. Games People Play: The Psychology of Human Emotions. New York: Grove Press, 1964.

“Best and Worst of 2001.” *Time Magazine* Online. December 2001. http://www.time.com/time/bestworst2001/tv.html Access 1 May 2006.

Bhabha, Homi. The Location of Culture. New York: Routledge, 1994.

Biomade. "Cloudmakers to the Rescue!" Yahoo! Cloudmakers Discussion. 12 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44311 Access 1 May 2006.

Björk, Staffan and Jussi Holopainen. Patterns in Game Design. Hingham, Massachusetts: Charles River Press, 2005.

--. “Pervasive Games Panel.” Presented at Level Up: First Conference of the Digital Games Research Association. Utrecht, The Netherlands: 4-6 November 2003.

Björk, Staffan, Jennica Falk, Rebecca Hansson, Peter Ljungstrand. “Pirates! Using the Physical World as a Game Board.” Proceedings of the Interact Conference on Human-Computer Interaction. Tokyo, Japan: 9-13 July 2001.

Björk, Staffan, Jussi Holopainen, Peter Ljungstrand, and Karl-Petter Akesson. “Designing Ubiquitous Computing Games – A Report from a Workshop Exploring Ubiquitous Computing Entertainment.” Journal of Personal and Ubiquitous Computing. 6:6 December 2002. 443-458

Björk, Staffan, Jussi Holopainen, Peter Ljungstrand, and Regan Mandryk. “Designing Ubiquitous Computing Games.” A Workshop at the Third International Conference on Ubiquitous Computing. Atlanta: 30 September - 2 October 2001.

--. Editors. Special Issue on Ubiquitous Games. Journal of Personal and Ubiquitous Computing. 6:6 December 2002.

Björk, Staffan, Sus Lundgren and Jussi Holopainen. “Game Design Patterns.” Level Up: Digital Games Research Conference. Eds. Marinka Copier and Joost Raessens. Utrecht: Universiteit Utrecht, 2003. 180-193

Bleecker, Julian. Personal interview. December 28, 2005.

--. “Pervasive Electronic Games Theory Objects For Social Play.” Lecture for the Fourth Emerging Technologies Conference. San Diego: 6-9 March 2006.

--. “Ubiquitous Computing, Entertainment and Games.” Workshop at the Seventh International Conference on Ubiquitous Computing. Tokyo: 11-14 September 2005.

Blitstein, Ryan. "More Than Zero." San Francisco Weekly. 31 May 2006. http://www.sfweekly.com/Issues/2006-05-31/news/news.html Access 1 July 2006.

Boellstorff, Tom. "A Ludicrous Discipline? Ethnography and Game Studies." Games and Culture. 1:1 January 2006. 29-35

Bolter, Jay David and Richard Grusin. Remediation: Understanding New Media. Cambridge: MIT Press, 1999.

Bonasia, Maria. "MetaMystery." Cloudmakers.org. 30 May 2001. http://cloudmakers.org/editorials/mbonasia 530.shtml Access 1 June 2006.

Bonkoif. "New trailer/ad on TV?" Yahoo! Cloudmakers Discussion. 7 June 2001. http://groups.yahoo.com/group/cloudmakers/message/21879 Access 1 May 2006.

Borriello, Gaetano, Matthew Chalmers, Anthony LaMarca, and Paddy Nixon. "Delivering Real-World Ubiquitous Location Systems." Communications of the ACM. 48:3 March 2005. 36-41

Bowker, Geoffrey C. and Susan Leigh Star. Sorting Things Out: Classification and its Consequences. Cambridge: The MIT Press, 2000.

Brand , Jeffrey E. and Scott Knight. "The Diverse Worlds of Computer Games: A Content Analysis of Spaces, Populations, Styles and Narratives." Paper presented DIGRA Conference 2003. Utrecht: Universiteit Utrecht: 4-6 November 2004.

Bridge, Tom. 18 April 2001. "Tech Addict: Clever Viral Marketing." MacSlash. http://macslash.org/article.pl?sid=01/04/19/000257 Access 1 May 2006.

Brierre, John. "META/SPEC: Multi-person social problem-solving ai." Yahoo! Cloudmakers Discussion. 2 May 2001. http://games.groups.yahoo.com/group/cloudmakers/message/8122 Access 1 June 2006.

Burns, Eric. “The Collective Detective.” 24 September 2004. Websnark.com. http://www.websnark.com/archives/2004/09/cancer_in_the_c.html Access 1 July 2006.

--. “Re: SPEC: 3rd trailer message.” Yahoo! Cloudmakers Discussion. 7 June 2001. http://groups.yahoo.com/group/cloudmakers/message/21883 Access 1 May 2006.

--. “SPEC on the New Trailer on SciFI.....” Yahoo! Cloudmakers Discussion. 7 June 2001. http://groups.yahoo.com/group/cloudmakers/message/21901 Access 1 May 2006.

Butler, Robert W. "Oh, What a Tangled Web Mystery They Weave." Kansas City Star Online. 11 May 2001. http://www.kcstar.com:80/item/pages/fyi.pat?file=fyi/3acca98e.511 Access: May 5, 2004.

Caillois, Roger. Man, Play and Games. Trans. Meyer Barash. Chicago: University of Illinois Press, 2001.

Cameron, Kristi. **“**Using a B.U.G. to Promote Urban Design.” Metropolis. Urban Journal Section. 1 March 2004.

Carroll, Lewis. Alice in Wonderland. New York: Gramercy Press, 2004.

Castells, Manuel. The Rise of the Network Society. Malden: Blackwell Publishers, 1996.

Cayalianel. “Re: For our brothers and sisters in New York and D.C.” Yahoo! Cloudmakers Discussion. 11 September 2001. http://groups.yahoo.com/group/cloudmakers/ message/44266 Access 1 May 2006.

Chalmers, Matthew, Marek Bell, Barry Brown, Malcolm Hall, Scott Sherwood, and Paul Tennent. “Gaming on the Edge: Using Seams in Pervasive Games.” Proceedings of the Fourth International Conference on Pervasive Computing. Dublin, Ireland: 7-10 May 2006.

--. “Gaming on the Edge: Using Seams in Ubicomp Games.” Proceedings of the ACM International Conference on Advances in Computing Entertainment Technology. Valencia, Spain: 15-17 June 2005.

CherryCotton. “Re: NYT Article is Up.” Unfiction Forums. 6 November 2004. http://forums.unfiction.com/forums/viewtopic.php?p=104191 Access 1 July 2006.

Ciarletta, Laurent. “Emulating the Future With/Of Pervasive Computing Development.” Online Proceedings of the Third International Conference on Pervasive Computing. Munich, Germany: 8-13 May 2005. http://www.pervasive.ifi.lmu.de/workshops/w1/ finalpapers/ ubiappws-Ciarletta.pdf Access 1 May 2006.

Classic Gaming. “Ms. Pac-Man.” GameSpy. http://pac-man.classicgaming.gamespy.com/ Pac-Games/MsPacMan/ Access 1 May 2006.

Clewley, Robin. "Robot Sites a Web of Deception." Wired News. 1 May 2001. http://www.wired.com/news/digiwood/0,1412,43422,00.html Access 1 June 2006.

Costikyan, Greg. “I Have No Words & I Must Design.” Interactive Fantasy #2. 1994. http://www.costik.com/nowords.html Access 1 July 2006.

Cps46. “OT/SPEC: This is not a game.” Yahoo! Cloudmakers Discussion. 9 June 2001. http://groups.yahoo.com/group/cloudmakers/message/22429 Access 1 May 2006.

Crawford, Chris. “A Taxonomy of Computer Games.” The Art of Computer Game Design. New York: McGraw-Hill Osborne Media, 1982. Archived online: http://www.vancouver.wsu.edu/fac/peabody/game-book/Chapter3.html. Access: 20 February 2006.

Crowley, Dennis. “An Ubiquitous Approach to Mobile Applications.” Lecture for the 2005 ACMSIGGRAPH Conference. Los Angeles: 4 August 2005. http://www.siggraph.org/s2005/pda/thur445-530.html Access 1 May 2006.

Cunningham, Ward. “What Is Wiki.” 9 June 2002. http://wiki.org/wiki.cgi?WhatIsWiki Access 1 July 2006.

Curtis, John. "Re: Cloudmakers to the rescue!" Yahoo! Cloudmakers Discussion. 12 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44331 Access 1 May 2006.

Cynthe. “Important: In Game Moment of Silence.” ChessieNet Message Realms. 13 September 2001. http://uoc.chessienet.com/view.php%3Fid%3D2448+%22 Important:+In+Game+Moment+of+Silence%22&hl=en Access 1 May 2006.

D’Angelo, Jennifer. “A.I. Scores Big with Players.” Fox News Online. 28 June 2001. http://www.foxnews.com/story/0,2933,28171,00.html Access 1 June 2006.

Daniel. “The Story We Create Ourselves in 1.1.” NeoTheo(b)log. 12 June 2006. http://neotheologue.blogspot.com/2006/06/story-we-create-ourselves-in-11.html Access 15 June 2006.

Dark97506. “Red Text in Ads.” Yahoo! Cloudmakers Discussion. 16 June 2001. http://groups.yahoo.com/group/cloudmakers/message/#25867 Access 1 May 2006.

Darklytr. “From NYC.” Yahoo! Cloudmakers Discussion. 11 September 2001. http://groups.yahoo.com/ group/cloudmakers/message/44263 Access 1 May 2006.

Dasro_Kast. “Re: From Me to You.” Unfiction Forums. 7 December 2004. http://forums.unfiction.com/forums/viewtopic.php?p=111195 Access 1 July 2006.

De Zengotita, Thomas. Mediated. New York: Bloomsbury Publishing, 2005.

Debord, Guy. “Contribution to a Situationist Definition of Play.” Trans. Reuben Keehan. *Internationale Situationniste* #1. June 1958. Archived at Situationist International Online. http://www.cddc.vt.edu/sionline/si/play.html Access 1 May 2006.

--. “Report on the Construction of Situations and on the International Situationist Tendency's Conditions of Organization and Action.” Trans. Ken Knabb. June 1957. Archived at Situationist International Online. http://www.cddc.vt.edu/sionline/si/report.html Access 1 May 2006.

--. Society of the Spectacle. Trans. Ken Knabb. Oakland: AK Press, 2005.

Debord, Guy, Constant, Asger Jorn, Helmut Sturm, and Maurice Wyckaert. **“**Situationist Manifesto**.”** Trans. Fabian Thompsett. *Internationale Situationniste* #4**.** June 1960**.** Archived at Situationist International Online. http://www.cddc.vt.edu/sionline/si/manifesto.html Access 1 May 2006.

Debord, Guy, Mohamed Dahou, Giuseppe Pinot Gallizio, Maurice Wyckaert. “Preliminary Problems in Constructing a Situation.” Trans. Ken Knabb. *Internationale Situationniste* #1. June 1958. Archived at Situationist International Online. http://www.cddc.vt.edu/sionline/si/problems.html Access 1 May 2006.

Deleuze, Gilles and Felix Guattari. Anti-Oedipus: Capitalism and Schizophrenia. Minneapolis: University of Minnesota Press, 1983.

--. A Thousand Plateaus: Capitalism and Schizophrenia. Minneapolis: University of Minnesota Press, 1987.

Delio, Michelle. “Manhattan Gets Pacman Fever.” *Wired News*. 10 May 2004. http://wired.com/news/games/0,2101,63400,00.html?tw=wn_tophead_7 Access 1 May 2006.

Dena, Christy. “Top ARGs, With Stats.” Cross-Media Entertainment. 4 June 2006. http://www.cross-mediaentertainment.com/index.php/2006/03/04/top-args-with-stats Access 15 July 2006.

Denco_1998. “SPEC: THIS IS NOT A GAME....” Yahoo! Cloudmakers Discussion. 8 June 2001. http://groups.yahoo.com/group/cloudmakers/message/22266 Access 1 May 2006.

Design Institute, University of Minnesota. “Design Institute: B.U.G.”, “How to Play”, and “Make a Move.” Big Urban Game Game System. http://design.umn.edu/bug/index.jsp Access 1 May 2006.

--. “Background”, “Blue”, “Project”, “Red”, “Rules”, and “Yellow.” Current Big Urban Game Project Website. 1 September 2005. http://design.umn.edu/go/project/TCDC03.2.BUG Access 1 May 2006.

--. “Project.” Archived Big Urban Game Project Website. December 03 2003. http://web.archive.org/web/20031203031636/http://design.umn.edu/go/project/TCDC03.2.BUG Access 1 May 2006.

Dietz, Steve. “Locative Media.” YProductions: Art, Telematics, the World. http://www.yproductions.com/info/archives/000375.html Access 1 May 2006.

Dodson, Sean. “Games Without Frontiers.” The Guardian. 30 May 30 2001. http://www.guardian.co.uk/online/story/0,3605,498589,00.html Access 1 June 2006.

Eakawie. “SPEC: Latest TV Commercial and Brutus.jpg?” Yahoo! Cloudmakers Discussion. 11 June 2001. http://groups.yahoo.com/group/cloudmakers/message/22964 Access 1 May 2006.

Eco, Umberto. “The Myth of Superman.” <u>Diacritics</u>. Trans. Natalie Chilton. 2:1. Baltimore: John Hopkins University Press, 1972. 14-22.

Elanshore. "NOT-SPEC: Belladerma Product working at DOnu-Tech." Yahoo! Cloudmakers Discussion. 2 May 2001. http://groups.yahoo.com/group/cloudmakers/message/7949 Access 1 June 2006..

Elrod, Scott, Richard Bruce, Rich Gold, David Goldberg, Frank Halasz, William Janssen, David Lee, Kim McCall, Elin Pedersen, Ken Pier, John Tang, and Brent Welch. “Liveboard: A Large Interactive Display Supporting Group Meetings, Presentations and Remote Collaboration.” In Proceedings of the Conference on Computer Human Interaction. Monterey, California: 3 – 7 May 1992. 599-607

Elrod, Scott, Gene Hall, Rick Costanza, Michael Dixon, and Jim des Rivieres. “Responsive Office Environments.” <u>Communications of the ACM</u>. 36:7 July 1993. 84-85.

Emigh, John. <u>Masked Performance: The Play of Self and Other in Ritual and Theatre</u>. Philadelphia: University of Pennsylvania Press, 1996.

Eriksson, Daniel, Staffan Björk, and Peitz, Johan. “Socially Adaptable Games.” Online Proceedings of the Second Digital Games Research Conference. Burnaby, BC, Canada: 16-20 June 2005. http://www.gamesconference.org/digra2005/viewabstract.php?id=273 Access 1 March 2006.

Evans, David. “Programming the Swarm.” March 2004. http://swarm.cs.virginia.edu/ Access 1 July 2006.

Ezcapizm. “SPEC: THIS IS NOT A GAME...” Yahoo! Cloudmakers Discussion. 11 June 2001. http://groups.yahoo.com/group/cloudmakers/message/22335 Access 1 May 2006.

Fabulich, Dan. “A.I. Game Sweeps the Web.” 13 June 2001. http://www.techtv.com/callforhelp/features/story/0,24330,3332348,00.html Access 30 August 2004.

Fabulich, Dan and Andrea Phillips. “Getting Started.” Cloudmakers.org. July 2001. http://www.cloudmakers.org/journey/getstart.shtml Access 1 May 2006.

Face. “Reconciliation.” *SFZero* Database. 25 June 2006. http://crisis.sf0.org/taskDetail/?taskID=447 1 July 2006.

Farmer. “SPEC: brutus.jpg - the material duet.” Yahoo! Cloudmakers Discussion. 11 June 2001. http://groups.yahoo.com/group/cloudmakers/message/23975 Access 1 May 2006.

Fluegelman, Andrew. The New Games Book. San Francisco: Headlands Press, 1976.

Foebea. “Re: Introducing the Seamful Game.” Pocket PC Forums. 24 March 2005. http://www.pocketpcthoughts.com/forums/printview.php?t=38699 Access 1 July 2006.

Fortugno, Nick. Personal Interview. March 22, 2006. Conducted in person.

Foucault, Michel. “Classifying.” The Order of Things. New York: Random House, Inc., 1970. 125-165.

--. This Is Not a Pipe. Trans. and Ed. James Harkness. Berkeley: University of California Press, 1983.

Fraser, Ian. Personal Interview. 18 November 2001. Conducted in person.

Fuzzymelon200. “SPEC/TRIVIA: The Familia Salla Page Meaning.” Yahoo! Cloudmakers Discussion. 19 April 2001. http://games.groups.yahoo.com/group/cloudmakers/message/3163 Access 1 July 2006.

Gadget. “Physical Representation of a Virtual Occurrence.” SF0.org. 13 June 2006. http://equivalenz.sf0.org/GadgetsHead/taskDetail/?id=59 Access 1 July 2006.

Gae, Al, Cameron Suey, Joshua Kelly. “The City as Supermarket.” SF0.org. 31 May 2006. http://art.sf0.org/Algae/taskDetail/?id=237 Access 1 July 2006.

Galloway, Anne. “Intimations of Everyday Life: Ubiquitous Computing and the City.” Cultural Studies. March/May 2004. 18 (2/3): 383-407.

--. “Postcard From The Urban Frontier.” Space and Culture. November 2004. 7(4): 446-449.

Gaver, William, Jake Beaver, and Steve Benford. “Ambiguity as a Resource Design.” In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. Ft. Lauderdale, Florida, USA: 5 – 10 April 2003. CHI '03. New York, NY: ACM Press. 233-240

Gerbino, Robert. “Review: Conspiracies.” GameZone.15 December 2003. http://pc.gamezone.com/gzreviews/r22736.htm Access 2 April 2006.

Ghettosmurf. “OT:The purpose of the game” Yahoo! Cloudmakers Discussion. 12 June 2001. http://groups.yahoo.com/group/cloudmakers/message/23272 Access 1 May 2006.

Gibson, J.J. “A Note on Substances, Surfaces, Places, Objects, Events.” Unpublished manuscript of notes for a Cornell University lecture. June 1979. http://www.huwi.org/gibson/substances.php Access 2 April 2006.

Girardin, Fabien and Nicolas Nova. “Getting Real with Ubiquitous Computing: the Impact of Discrepancies on Collaboration.” eMinds: International Journal on Human-Computer Interaction. 1:1 March 2006. 60-64

Goff, Max K. “The Scope of Network Distributed Computing.” Network Distributed Computing: Fitscapes and Fallacies. Indianapolis: Prentice Hall Professional Technical Reference, 2004. 59-71

Goffman, Erving. “Fun in Games.” Encounters: Two Studies in the Sociology of Interaction. Indianapolis: Bobbs-Merrill, 1961.

Gold, Rich. Presentation slides for “Art in the Age of Ubiquitous Computing.” Lecture presented at the Fourth International Symposium on Electronic Art. Minneapolis: 3-7 November 1993. http://web.archive.org/web/20021010095501/www.richgold.org/UBI-ART/HTML/slide1.html Access 10 March 2006.

--. “The Dialectics of PAIR: Some Old Thoughts and New Thoughts.” Lecture slides. January 2001. http://web.archive.org/web/20031208163844/www.richgold.org/PAIR-TALK/pair1.htm Access 10 March 2006.

--. “How Smart Does Your Bed Have to Be, Before You Are Scared to Go to Bed at Night?” Presentation to *Ars Electronica*. June 1994. http://web.archive.org/web/20030117222327/www.richgold.org/SMART/HTML/slide1.html Access 10 March 2006.

--. “PAIR: The Xerox PARC Artist in Residence Program.” Lecture slides. September 1996. http://web.archive.org/web/20021201021949/www.richgold.org/PAIRBOOK/ pair1.html Access 10 March 2006.

--. "Short Biography." Richgold.org. http://web.archive.org/web/20030924080534/www.richgold.org/short-bio.htm Access 10 March 2006.

--. "This Is Not a Pipe." Communications of the ACM. 36:7 (July 1993). 72

Goldberg, Ken. The Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet. Cambridge: MIT Press, 2001.

Gorlenko, Lada and Roland Merrick. "No Wires Attached: Usability challenges in the connected mobile world." IBM Systems Journal. 42:4 (December 2003). 639-651

Grau, Oliver. Virtual Art: From Illusion to Immersion. Cambridge: MIT Press, 2003.

Greenfield, Adam. Everyware: The Dawning Age of Ubiquitous Computing. New York: New Riders Press, 2006.

--. "Hiding in Plain Sight." Interview with Boxes and Arrows. Ed. Liz Danzico. 26 February 2006. http://www.boxesandarrows.com/view/hiding_in_plain_sight Access 15 March 2006.

Greenlaw, Sam. "Re: The Darkest Puzzle --- How to be useful ??" Yahoo! Cloudmakers Discussion. 13 September 2001. http://games.groups.yahoo.com/group/cloudmakers/message/44361 Access 1 May 2006.

Gunning, Tom. "An Aesthetic of Astonishment: Early Film and the (In)Credulous Spectator." Film Theory and Criticism. Editors Leo Baudy and Marshall Cohen. New York: Oxford University Press, 1998. 818-832

Hallnäs, L. and Redström, J. 2002. From Use to Presence: On the Expressions and Aesthetics of Everyday Computational Things. ACM Transactions on Computer-Human Interactions. 9:2 June 2002. 106-124

Heim, Michael. “The Cyberspace Dialectic.” The Digital Dialectic. Ed. Peter Lunenfeld. Cambridge: MIT Press, 2000. 24-45

Herold, Charles. "Game Theory: Tracking and Elusive Film Game Online." The New York Times. 3 May 3 2001. http://www.nytimes.com/2001/05/03/technology/ 03GAME.html Access 1 June 2006.

Hilder, Paul. "Cloudmakers.org." Open Democracy. 19 July 2001. http://www.opendemocracy.net/forum/document_details.asp?CatID=87&DocID=506 Access: May 6, 2002.

Hilgartner, Stephen. Science on Stage. Palo Alto: Stanford University Press, 2000.

Hills, James. “Interview with Staffan Björk—Pirates!” GameSpy. November 2001. http://archive.gamespy.com/interviews/november01/pirates!/ Access March 20 2006.

“Hivemeet.” 15 May 2005. http://www.glitterbook.com/hivemeet/ Access 1 July 2006.

Hon, Adrian. "Essay: Philosophy of Discovery." 18 April 2001. http://cloudmakers.org/ guide/#bwu Access 1 June 2006.

--. “The Guide: A Tale of the A.I. Trail.” Cloudmakers.org. July 2001. http://cloudmakers.org/guide/ Access 1 May 2006.

--. “The Hitchhiker’s Guide to the Game.” Cloudmakers.org. 14 May 2001. http://cloudmakers.org/editorials/adrian1.shtml Access 1 July 2006.

Hon, Dan. "Tuesday September 11." Yahoo! Cloudmakers Discussion. 13 September 2001. http://groups.yahoo.com/group/cloudmakers/ message/44349 Access 1 May 2006.

Huizinga, Johan. Homo Ludens. Boston: The Beacon Press, 1955.

I Love Bees Development Wiki. November 2004. http://ilb.extrasonic.com/index.php/Summary Access 1 July 2006.

Improv Everywhere. “Global Agents HQ.” Public message forum. From 2 January 2006. http://www.improveverywhere.com/mb/ Access 1 May 2006.

--. “The Mp3 Experiment 2.0.” Public comments. From 16 October 2006. http://www.improveverywhere.com/comments.php?mission_id=52 Acces 1 May 2006.

Infinite Monkey. "Re: Cloudmakers to the rescue!" Yahoo! Cloudmakers Discussion. 12 September 2001. http://groups.yahoo.com/group/cloudmakers/message/ 44333 Access 1 May 2006.

Infrastructures for Smart Cooperative Objects Research Group. “Home Page.” http://www.vs.inf.ethz.ch/res/show.html?what=infrastructures Access 8 May 2006.

InkTea. “Appropriation by Every Body.” *SFZero* Database. http://art.sf0.org/everybody/taskDetail/?id=435 Access 1 July 2006.

“Invisible Train.” *Gizmodo* blog. Editor John Biggs. 29 September 2004. http://www.gizmodo.com/gadgets/pdas/invisible-train-022320.php Access 5 May 2006.

“IPerG Vision” and “IPerG Welcome” Integrated Project on Pervasive Games. http://www.pervasive-gaming.org/index_swf.html Access 1 May 2006.

Ito, Mizuko, Daisuke Okabe and Misa Matsuda, Editors. <u>Personal, Portable, Pedestrian</u>. Cambridge: MIT Press, 2005.

Jackson, D. "Game I miss you already." Yahoo! Cloudmakers Discussion. 24 July 2001. http://groups.yahoo.com/group/ cloudmakers/message/42130 Access 1 May 2006.

Jacobson, Linda. "BattleTech's New Battleheads." Wired Magazine. 1:3 July/August 1993. Archived online at http://www.wired.com/wired/archive/1.03/battletech.html Access 1 May 2006.

"Jeanine Salla Publications." The Beast. April 2001. Archived by the Cloudmakers. http://bangaloreworldu-in.co.cloudmakers.org/salla/publications.asp Access 1 July 2006.

Jenkins, Henry. "Games, the New Lively Art." Handbook of Computer Game Studies. Cambridge: The MIT Press, 2005. 175-192

Jeoung, Ezra. "Ubiquitous Computing: Its Prevalent Attribute." UbiComp.org Message Forum. 12 November 2004. http://www.ubicomp.org/forum/discussion/view-thread.jsp?forum=1&thread=83&startHistory=27 Access 1 May 2006.

Johnny5. "SPEC: Flea: Friend, Foe, or Something Else?" Unfiction Forums. 30 September 2004. http://forums.unfiction.com/forums/viewtopic.php?p=79835 Access 1 July 2006.

Johnson, Steven. Emergence: The Connected Lives of Ants, Brains, Cities, and Software. 2001. New York: Scribner, 2001.

Jones, Gerard. Men of Tomorrow: Geeks, Gangsters, and the Birth of the Comic Book. New York: Basic Books, 2004.

Jörnmark, Jan. "Wherever Hardware, There'll be Games." Online Proceedings of the Second Digital Games Research Conference. Burnaby, BC, Canada: 16-20 June 2005. http://www.gamesconference.org/digra2005/viewabstract.php?id=243 Access 1 March 2006.

Joseph, Barry. "Editorials: When the Media is the Message." Cloudmakers.org. 25 May 2001. http://cloudmakers.org/ editorials/bjoseph525.shtml Access 1 July 2006.

Joystick101 Staff Report. “The *A.I.* Web Game.” Joystick101.org. 6 June 2001. http://www.joystick101.org/story /2001/6/4/234/32364 Access 30 August 2004.

Jubei. “SPEC: Beekeepers?” Unfiction Forums. 17 September 2004. http://forums.unfiction.com/forums/viewtopic.php?p=73181 Access 1 July 2006.

Juul, Jesper. Half-Real: Video Games Between Real Rules and Fictional Worlds. Cambridge: MIT Press, 2006.

--. “The Repeatedly Lost Art of Studying Games.” Game Studies. 1:1 July 2001. http://www.gamestudies.org/0101/juul-review/ Access: 20 February 2006.

Kahn, Michael. “High Tech Go Game is Scavenger Hunt of the Future.” Reuters. 2 May 2002. Archived at http://www.thegogame.com/brownie/about/reuters.asp Access 1 July 2006.

Kangasharju, Jussi. “Peer to Peer and Ubiquitous Computing.” Lecture Notes in Computer Science. Special Issue on Peer-to-Peer Systems and Applications. Eds. Ralf Steinmetz, Klaus Wehrle. Issue 3485. New York: Springer, 2005. 457-469

Karlsen, Faltin. “Media Complexity and Diversity of Use: Thoughts on a Taxonomy of Users of Multiuser Online Games.” Paper presented at Other Players 2005, IT University of Copenhagen, Denmark. http://www.itu.dk/op/papers/karlsen.pdf Access: 20 February 2006.

Kaye, Jonathan Jofish and Liz Goulding. “Intimate Objects.” In Proceedings of the 2004 Conference on Designing Interactive Systems: Processes, Practices, Methods, and

Techniques. Cambridge, MA, USA: 1-4 August 2004. DIS '04. ACM Press, New York, NY. 341-344.

Kaye, Jonathan Jofish, Mariah K. Levitt , Jeffrey Nevins , Jessica Golden , Vanessa Schmidt. “Communicating Intimacy One Bit at a Time.” In CHI '05 Extended Abstracts on Human Factors in Computing Systems. Portland, OR, USA: 2-7 April 2005. CHI '05. ACM Press, New York, NY. 1529-1532

Kearns, Katie. “Re: [cloudmakers] a very odd thing... (re: New York WTC Attack).” Yahoo! Cloudmakers Discussion. 12 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44299 Access 1 May 2006.

Kershaw, Baz. The Radical in Performance. New York: Routledge, 1999.

KG785. “Re: MOVIE SPEC: Re: AI Trailer during NBA Finals.” Yahoo! Cloudmakers Discussion. 11 June 2001. http://groups.yahoo.com/group/cloudmakers/message/23122 Access 1 May 2006.

--. “Re: NEW: New TV commercial.” Yahoo! Cloudmakers Discussion. 7 June 2001. http://groups.yahoo.com/group/cloudmakers/message/21897 Access 1 May 2006.

Kizu-Blair, Ian. Personal Interview. 25 June 2006. Conducted by telephone.

Klevjer, Rune. “In Defense of Cutscenes.” Computer Games and Digital Cultures 2002 Conference Proceedings. Utrecht NL: Tampere University Press, pp. 191-202.

Kornblum, Janet. “The intricate plot behind 'A.I.' Web mystery.” *USA Today*. 21 June 2001. http://www.usatoday.com/life/movies/2001-06-22-ai-plot.htm Access 1 May 2006.

Korzybski, Alford. Science and Sanity. 5th Edition. Forth Worth: Institute of General Semantics, 1995.

Koster, Raph. A Theory of Fun. Scottsdale: Paraglyph, 2004.

Krog002. "Re: New trailer/ad on TV?." Yahoo! Cloudmakers Discussion. 7 June 2001. http://groups.yahoo.com/group/cloudmakers/message/21885 Access 1 May 2006.

Krystyn. "Re: SPEC Hive Mind." Unfiction Forums. 26 July 2004. http://forums.unfiction.com/forums/viewtopic.php?p=44902 Access 1 July 2006.

Kuhn, Thomas. The Structure of Scientific Revolution. Chicago: University of Chicago Press, 1996.

Kyonowatoredesu. "SPEC: This is not a game." Yahoo! Cloudmakers Discussion. 13 June 2001. http://groups.yahoo.com/group/cloudmakers/message/23956 Access 1 May 2006.

Lakoff, George and Mark Johnson. Metaphors We Live By. Chicago: University of Chicago Press, 1980.

--. Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought. New York: Basic Books, 1999.

Lammers, Susan. "Interview with Toru Iwatani." Programmers at Work. 1986. Archived at http://www.geocities.com/SiliconValley/Heights/5874/iwatani.htm Access 1 May 2006.

Lane, Giles. "Urban Tapestries." 4th Wireless World Conference. Surrey, UK: 17-18 July 2003. http://research.urbantapestries.net/UniS_WW_paper.html Access 1 May 2006.

Lanier, Jaron. "Digital Maoism: The Hazards of the New Online Collectivism." Edge. 30 May 2006. http://www.edge.org/3rd_culture/lanier06/lanier06_index.html Access 1 July 2006.

Lantz, Frank. “Big Games.” Decision Problem. September 2005. http://decisionproblem.com/big/index.html#section2 Access 1 May 2006.

--. Personal Interview. March 23, 2006. Conducted in person.

Latour, Bruno. “A Collective of Humans and Nonhumans.” Pandora’s Hope: Essays on the Reality of Science Studies. Cambridge: Harvard University Press, 1999. 174-215

--. “A Dialog on ANT.” Bruno Latour’s Web Site. May 2004. http://www.ensmp.fr/~latour/articles/article/090.html Access 10 March 2006.

--. The Pasteurization of France. Trans. Alan Sheridan. Cambridge: Harvard University Press, 1988.

Lavine, Sam. “Information Insertion.” 27 May 2006. SF0.org. http://bartpa.sf0.org/spl/taskDetail/?id=82 Access 1 July 2006.

Leary, Timothy. Info-Psychology: A Revision of Exo-Psychology. Phoenix: New Falcon Publications, 1987.

Leboeuf-Little, John. "911: My Thoughts." Yahoo! Cloudmakers Discussion. 13 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44346 Access 1 May 2006.

Lee, Elan. Personal Interview. 10 May 2003. Conducted by phone.

--. Personal Interview. 3 April 2004. Conducted by phone.

--. Personal Interview. 22 December 2005. Conducted by phone.

--. “Lecture: This Is Not a Game.” Design track lecture for the Game Developers Conference. San Jose: 19 – 24 March 2002.

--. “Essay: What Not to Do.” Essay handout for the Game Developers Conference. San Jose: 19 – 24 March 2002.

Levy, Pierre. Collective Intelligence. Trans. Robert Bononno. Cambridge: Perseus, 1997.

Leichman, Abigal. “iPod Means Tuning Out of the World around You.” CNET News. 13 March 2006. http://www.cnet.com.au/mp3players/0,39028967,40061024,00.htm Access 1 May 2006.

Lichty, Patrick. “Locative Media, Notes on Creative Uses and Social Concerns.” TCM Locative Reader. March 2005. http://www.locative.net/tcmreader/index.php?endo;lichty Access 1 March 2006.

Lim, Andrew. “Review: The Legend of Myst.” Computer Times. 29 September 2004. http://computertimes.asia1.com.sg/reviews/story/0,5104,2861,00.html Access 26 April 2006.

Linkola, Joonas. “Grim Fandango Walkthrough.” 2001. http://home.hetnet.nl/~jupiterr/grim/grim.htm Access 1 April 2006.

Lowood, Henry. “Death in the City: Computer Games and the Urban Battlefield.” Games Without Frontiers - War Without Tears. Computer Games as a Sociocultural Phenomenon. Ed. Andreas Jahn-Sudmann & Ralf Stockmann. Göttingen: Georg-August-Universität, Zentrum für interdisziplinäre Medienwissenschaft, 2006.

Lumsden, J. and Brewster, S. 2003. “A Paradigm Shift: Alternative Interaction Techniques for Use with Mobile & Wearable Devices.” In Proceedings of the 2003 Conference of the Centre For Advanced Studies on Collaborative Research. Toronto, Ontario, Canada: 6-9 October 2003. IBM Press. 197-210

MacLeod, Colin. “Re: master image list.” Unfiction Forums. 8 October 2004. http://forums.unfiction.com/forums/viewtopic.php?p=84631 Access 1 July 2006.

Madashamlet. “CMs, beware.” Yahoo! Cloudmakers Discussion. 13 June 2001. http://groups.yahoo.com/group/cloudmakers/message/23950 Access 1 May 2006.

Magerkurth, Carsetn, Adrian David Cheok., Regan L. Mandryk, and Trond Nilsen. “Pervasive Games: Bringing Computer Entertainment Back to the Real World.” Computing in Entertainment. 3: 3 July 2005. 4.

Magerkurth, Carsten, Timo Engelke, and Maral Memisoglu. “Augmenting the Virtual Domain with Physical and Social Elements: Towards a Paradigm Shift in Computer Entertainment Technology.” In Proceedings of the 2004 ACM SIGCHI International Conference on Advances in Computer Entertainment Technology. Singapore: 3-5 June 2005. ACE '04, Vol. 74. ACM Press, New York, NY. 163-172

MageSteff. “Player Etiquette (A Bit of a Rant).” 23 November 2003. Unfiction Forums. http://forums.unfiction.com/forums/viewtopic.php?p=31703 Access 1 June 2006.

Mahadev, Satyanarayana. “From the Editor-in-Chief: A Catalyst for Mobile and Ubiquitous Computing.” Pervasive Computing. 1:1 January – March 2002. 2-5

Maillist. “911.” Yahoo! Cloudmakers Discussion.13 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44342 Access 1 May 2006.

--. “911 Information.” Yahoo! Cloudmakers Discussion.13 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44341 Access 1 May 2006.

Manbehindthecurtain@visionary.net. “Surfacing.” Email message. 24 July 2001. Archived at http://cloudmakers.org/guide/index4.shtml#10.2puppet Access 1 May 2006.

Marech, Rona. “Ready, Set, Go Game!” San Francisco Chronicle. 15 March 2002. http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2002/03/15/EB105169.DTL Access 1 July 2006.

Mattadcock. “.” Yahoo! Cloudmakers Discussion. 11 June 2001. http://groups.yahoo.com/group/cloudmakers/message/22377 Access 1 May 2006.

McGaw, Charles J. Acting is Believing. New York: Holt, Rinehart and Winston, 1965.

McGonigal, Jane. “SuperGaming! Ubiquitous Play and Performance for Massively Scaled Community.” Modern Drama. 48:3 Fall 2005.

--. “This Is Not a Game: Collective Aesthetics and Immersive Play.” Fine Art Forum. 17: 8 August 2003.

McKenzie, Jon. Perform or Else: From Discipline to Performance. New York: Routledge, 2001.

Messeter, Jorn, Eva Brandt, Joachim Halse, and Martin Johansson. “Contextualizing Mobile IT.” In Proceedings of the 2004 Conference on Designing interactive Systems: Processes, Practices, Methods, and Techniques. Cambridge, MA, USA: 1-4 August 2004. DIS '04. ACM Press, New York, NY. 27-36.

Mgarlan. “Re: Spec: This is not a game.” Yahoo! Cloudmakers Discussion. 22 June 2001. http://groups.yahoo.com/group/cloudmakers/message/27916 Access 1 May 2006.

Microsoft Press Release. “Microsoft Signs Exclusive Licensing Deal With Warner Bros. to Create Games Franchise for *AI* Movie.” Los Angeles: May 16, 2001. http://www.gamesfirst.com/previews/xbox/ai.htm Access 1 May 2006.

Mielke, Victoria. ""Persistence of Vision – The State of Movies After 9/11." <u>9/11: Pop Culture and Remembrance</u>.18 March 2002. http://septterror.tripod.com/movies.html Access 1 May 2006.

Milgram, Stanley. "Behavioral Study of Obedience." <u>Journal of Abnormal and Social Psychology</u>. 67. 371-378

--. <u>Obedience to Authority: An Experimental View</u>. New York: Harper Collins, 1974.

Miller, Pat. "No subject." E-mail to Flash Mob Supercomputer mailing list subscribers. info@flashmobcomputing.org. 1 Apr. 2004.

Miss Sphinx. "Re: Tuesday September 11." Yahoo! Cloudmakers Discussion. 13 September 2001. http://groups.yahoo.com/group/cloudmakers /message/44352 Access 1 May 2006.

Mitchell, William. <u>Me++: The Cyborg Self and the Networked City</u>. Cambridge: MIT Press, 2003.

Mjohn3654. "Evan Chan Murder Investigation File: SPEC Sargasso Sea." <u>A-EYE: The Artificial Private Eye</u>. June 2001. http://webpages.charter.net/waldoj/sargasso.html Access 1 May 2006.

"Mobiquitous 2004 Conference Program." Boston, Massachusetts, USA, 22-26 August 2004. mobiquitous.org/2004/program.html Access 15 April 2006.

Molesworth, Mike and Dengeri-Knott. "The Pleasures and Practices of Virtualised Consumption in Digital Spaces." Paper presented at DIGRA 2005, Simon Fraser University, Burnaby, BC, Canada. Available at http://www.gamesconference.org/ digra2005/viewabstract.php?id=60 Access: 20 February 2006.

Montola, Markus. “Exploring the Edge of the Magic Circle: Defining Pervasive Games.” CD-ROM Proceedings of Digital Arts and Culture. Copenhagen: 1-3 December 2005.

--. “Participant Roles in Socially Expanded Games.” Online Proceedings of the Third International Workshop on Pervasive Gaming Applications. Dublin: 7 May 2006. http://www.ipsi.fraunhofer.de/ambiente/pergames2006/final/PG_Montola_Roles.pdf Access 1 May 2006.

Moonlore. "Re: Cloudmakers link on Salla page." Yahoo! Cloudmakers Discussion. 3 May 2001. http://groups.yahoo.com/group/cloud makers/ message/11912 Access 21 June 2006.

Moriwaki, Katherine. “Ubicomp Keynote.” Eyebeam reBlog. September 8 2004. http://www.eyebeam.org/reblog/archives/2004/09/ubicomp_keynote_1.html Access 15 March 2006.

Mullins, Todd. "Re: The Darkest Puzzle." Yahoo! Cloudmakers Discussion. 11 September 2001. http://groups.yahoo.com/group/cloudmakers/ message/44295 Access 1 May 2006.

--. "The tragic events." Yahoo! Cloudmakers Discussion. 11 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44272 Access 1 May 2006.

Neoshark. “New trailer/ad on TV?.” Yahoo! Cloudmakers Discussion. 8 June 2001. http://groups.yahoo.com/group/cloudmakers/message/21916 Access 1 May 2006.

Ng, Eric. "Editorials: The Integrated Game." Cloudmakers.org. 28 June 2001. http://cloudmakers.org/editorials/eng628.shtml Access 1 July 2006.

Nicko. “OT/SPEC: This is not a game.” Yahoo! Cloudmakers Discussion. 9 June 2001. http://groups.yahoo.com/group/cloudmakers/message/23947 Access 1 May 2006.

Nirrian. “Candlelight Vigil on Luclin.” Everlore Message Board. 13 September 2001. http://www.everlore.com/Comments.asp%3FID%3D492988%26pg%3D2%26sortby%3D4+%22candlelight+vigil+on+luclin%22&hl=en Access 1 May 2006.

Norah. "Re: Tuesday September 11." Yahoo! Cloudmakers Discussion. 14 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44375 Access 1 May 2006.

Norman, Donald. “Affordances and Design.” Essays. 2004. http://www.jnd.org/dn.mss/affordances_and.html Access 10 March 2006.

--. “Affordance, Perceived Affordance, and Interaction Design.” ACM SIGCHI WWW Human Factors (Open Discussion). 28 November 1998. http://listserv.acm.org/scripts/wa.exe?A2=ind9811D&L=chi-web&P=R1958 Access 1 April 2006.

--. The Design of Everyday Things. New York: Doubleday, 1998.

North, Ryan. “Poster Child Mario Question Blocks!” Qwantz.com. 10 April 2006. http://www.qwantz.com/posterchild/ Access 1 May 2006.

NovaStarJ. “.” Yahoo! Cloudmakers Discussion. 11 June 2001. http://groups.yahoo.com/group/cloudmakers/message/22425 Access 1 May 2006.

Omicron. “A Few Words of Mourning.” Guardians of Light Message Board. 11 September 2001. http:// www.guardians-of-light.com/+9/11/2001+%22ultima+online%22&hl=en Access 1 May 2006.

PacManhattan Project Website. “About”, “Press”, “Rules”, “Videos”. April 2004. http://www.pacmanhattan.com/ Access 1 May 2006.

Parker, Pamela. "Who Killed Even Chan?" ChannelSeven.com. 8 May 2001. http://www.channelseven.com/adinsight/commentary/ 2001comm/comm. 20010508.shtml Access 5 May 2002.

Pat. “SPEC: THIS IS NOT A GAME....” Yahoo! Cloudmakers Discussion. 9 June 2001. http://groups.yahoo.com/group/cloudmakers/message/22337 Access 1 May 2006.

Paulos, Eric, Ken Anderson, Anthony Townsend. “UbiComp in the Urban Frontier.” The Sixth International Conference on Ubiquitous Computing. Nottingham: 7-10 September 2004. http://www.urban-atmospheres.net/UbiComp2004/ Access 22 May 2006.

Paulos, Eric and Tom Jenkins. “Urban Probes: Encountering Our Emerging Urban Atmospheres.” Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. Portland, Oregon, USA, April 02 - 07, 2005. CHI '05. ACM Press, New York, NY, 341-350.

Pearce, Celia, Tracy Fullerton, Janine Fron, Jacqueline Ford Morie. “Sustainable Play: Towards a New Games Movement for the Digital Age.” Digital Arts and Culture Conference Proceedings. IT University of Copenhagen, Denmark, December 2006.

Phaedra. “Re: From Me to You.” Unfiction Forums. 7 December 2004. http://forums.unfiction.com/forums/viewtopic.php?p=111201 Access 1 July 2004.

--. “Re: Newbies and Timing Their Entrance.” Unfiction Forums. 21 September 2004. http://forums.unfiction.com/forums/viewtopic.php?p=210858#210858 Access 1 May 2006.

Phillips, Andrea. “Deep Water.” Cloudmakers.org. 26 July 2001. http://cloudmakers.org/editorials/aphillips726.shtml Access 1 June 2006.

--. “UPDATE: Statue Security Conversation.” Yahoo! Moderated Cloudmakers Discussion. 26 June 2001. http://movies.groups.yahoo.com/group/cloudmakers-moderated/message/959 Access 1 June 2006.

Piltz, Marci. “Ravenna teens’ game ends with bomb squad.” Ravenna Record Courier. 1 April 2006. http://www.recordpub.com/article.php?pathToFile=archive/04012006/news/&file=_news1.txt&article=1&tD=04012006 Access 1 May 2006.

PLAYTIME. *SFZero*. “Add Task”, “Score”, “SF0 About”, “Tasks”. Sf0.org. Access 1 July 2006.

PKD. "IF YOU WANT TO RESPECT THE WORK THAT WENT INTO THIS READ THIS POST." 11 April 11 2001. http://www.aintitcool.com/tb_display.cgi?id= 8659#277084 Access 1 June 2006.

“Post-Game Chat with the I Love Bees Puppetmasters.” 7 November 2004. Chat log archived at http://forums.unfiction.com/forums/files/_apocalypso_ chat_116.txt. Access 1 June 2006.

Poster Child. “Profile.” 12 December 2005. http://www.fotolog.com/posterchild/ Access 1 May 2006.

Prior, K. "RE: 911: My Thoughts." Yahoo! Cloudmakers Discussion. 13 September 2001.http://groups.yahoo.com/group/cloudmakers/ message/44347 Access 1 May 2006.

Raffle, Hayes Solos. You're In Control (Urine Control) Photo Documentation – Fabrication. 16 December 2002. http://www.media.mit.edu/physics/pedagogy/fab/fab_2002/personal_pages/hayes/mit.edu/urinecontrol-photos2.html Access 1 May 2006.

RazorDullWit. “What we CAN do.” Yahoo! Cloudmakers Discussion. 13 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44343 Access 1 May 2006.

Redl, Fritz. “The Impact of Game Ingredients on Children’s Play Behavior.” Ed. B. Schaffner. Group Processes, Transactions of the Fourth Conference. New York: Josiah Macy, 1959. 33-80

Rhodes, Burgundy. “Blair Witch 2: The Truth is in the Footage.” Truth in Stuff. http://www.truthinstuff.com/Cinema/blairwitch103100.html Access 30 August 2004.

Rico. "LINK TO CLOUDMAKERS BBS FROM GAME." Yahoo! Cloudmakers Discussion. 3 May 2001. http://groups.yahoo.com/group /cloudmakers/message/8211 Access 1 July 2006.

Riekki, Jukka, Timo Salminen, and Ismo Alakärppä. "Requesting Pervasive Services." IEEE Pervasive Computing. 5:1 (Jan-Mar 2006). 40-46

Robertson, Josh. "A.I. and I." Yahoo! Internet Life Magazine. 1 July 2001. http://www.yil.com/features/feature.asp?volume=07&issue=07&keyword=aiandi Access 5 May 2002.

RobMagus. “SPEC Hive Mind.” Unfiction Forums. 26 July 2004. http://forums.unfiction.com/forums/viewtopic.php?p=42937 Access 1 July 2006.

Römer, Kay and Svetlana Domnitecheva. "Smart Playing Cards: A Ubiquitous Computing Game." Personal Ubiquitous Computing. 6: 5-6 January 2002. 371-377

Rose. "Define This." Argspeak.com. 17 January 2006. http://argspeak.blogspot.com/2006/01/define-this.html Access 1 July 2006.

--. "Letter to a Puppet Master." Personal email correspondence. Received 3 August 2005.

Rosenbloom, Andrew. "A Game Experience in Every Application: Introduction." Communications of the ACM. 46: 7 July 2003. 28-31

Rthomas68. "FAQ reaction." Yahoo! Cloudmakers Discussion. 24 July 2001. http://groups.yahoo.com/group/cloudmakers/message/ 42166 Access 1 June 2006.

Rushkoff, Douglas. "Renaissance Now! The Gamers' Perspective." Handbook of Computer Game Studies. Editors Joost Raessens and Jeffrey Goldstein. Cambridge: MIT Press, 2005. 414-422

Said, Edward. Orientalism. New York: Vintage Books, 1979.

Salen, Katie. "Every Little Thing She Does Is Magic." Living Game Worlds: Design Process and Mixed Reality. Georgia Tech University, Atlanta: 16 February 2006. Video http://gameworlds.gatech.edu/2006/presentations.html. Access 1 May 2006.

Salen, Katie and Eric Zimmerman. Rules of Play: Game Design Fundamentals. Cambridge: The MIT Press, 2004.

"Salla Family Homepage." The Beast. April 2001. Archived by the Cloudmakers. http://familiasalla-es.cloudmakers.org/ Access 1 July 2006.

Sasser, Cabel. "The Trail." Yahoo! Cloudmakers Discussion.12 April 2001. http://groups.yahoo.com/group/cloudmakers/message/23 Access 1 June 2006.

Schechner, Richard. Performance Studies: An Introduction. New York: Routledge, 2002.

Schiller, Friedrich. Works—Aesthetical and Philosophical Essays. Ed. Nathan H. Doole. Boston: The Wyman-Fogg Company, 1902.

Schmidt, Albrecht. “Interacting with the Ubiquitous Computer.” Keynote lecture at the Fifth International Symposium on Human Computer Interaction with Mobile Devices and Services. Udine, Italy: 8-11 September 2003. http://www.comp.lancs.ac. uk/~albrecht/pubs/pdf/keynote_mobileHCI03.html Access 1 May 2006.

Schmidt, Albrecht, Nigel Davies, James Landay, and Soctt Hudson. “Rapid Prototyping for Ubiquitous Computing.” Pervasive Computing. 4:4 October-December 2005. 15-17

Schrader, Andreas, Bernhard Jung, Darren Carlsen. “Tangible Interfaces for Pervasive Gaming.” Online proceedings of the Second Digital Games Research Conference. Burnaby, BC: 16-20 June 2005. Available at http://www.gamesconference.org/ digra2005/viewabstract.php?id=248 Access 1 May 2006.

Schupp, Jason. “Make a Task: The Task.” *SFZero* Database. 15 March 2006. http://equivalenz.sf0.org/jaschu/taskDetail/?id=166&big=2 Access 1 July 2006.

Seely Brown, John and Paul Duguid. The Social Life of Information. Boston: Harvard Business School Press, 2000.

“SETI About.” http://setiathome.berkeley.edu/sah_about.php Access 1 July 2006.

Shad0. “Re: SPEC Hive Mind.” Unfiction Forums. 26 July 2004. http://forums.unfiction.com/forums/viewtopic.php?p=44898 Access 1 July 2006.

Shadowfyr55. “Re: The Darkest Puzzle --- How to be useful ??” Yahoo! Cloudmakers Discussion. 14 September 2001. http://groups.yahoo.com/group/cloudmakers/ message/44371 Access 1 May 2006.

Shaun5. “Re: SPEC: cloudmakers' involvement.” Yahoo! Cloudmakers Discussion. 13 June 2001. http://groups.yahoo.com/group/cloudmakers/message/24030 Access 1 May 2006.

Shazbot. “Information Insertion.” SF0.org. 14 June 2006. http://bartpa.sf0.org/Shazbot/taskDetail/?id=82 Access 1 July 2006.

Sieberg, Daniel. “Reality Blurs, Hype Builds with Web 'A.I.' Game.” CNN News. 13 June 2001. http://www.cnn.com/SPECIALS/2001/coming.attractions/stories/ aibuzz.html Access 1 May 2006.

Sirius, Anton. “META PM Revealed… So What?” Yahoo! Cloudmakers Discussion. 16 May 2001. http://groups.yahoo.com /group/cloudmakers/message/14771 Access 1 June 2006.

Skillet. “NYC Gathering with Dana.” Unfiction Forums. 27 November 2004. http://forums.unfiction.com/forums/viewtopic.php?p=109437 Access 1 July 2006.

Skyhawk0000. “Final Thoughts.” Unfiction Forums. 28 February 2005. http://forums.unfiction.com/forums/viewtopic.php?p=123204 Access 1 July 2006.

Smith, Ian, Sunny Consolvo, and Anthony LaMarca. “The Drop: Pragmatic Problems in the Design of a Compelling, Pervasive Game.” Computers in Entertainment. 3: 3 July 2005. 1-14

Spectecjr. “Re: The Name Poll.” Unfiction Forums. 26 July 2004. http://forums.unfiction.com/forums/viewtopic.php?p=45132 Access 1 July 2006.

Spector, Nancy. “Cremaster 3.” Exhibition notes for Matthew Barney: The Cremaster Cycle. Solomon R. Guggenheim Museum. New York: February 21–June 11, 2003.

Stacey, Sean. “Unfiction Glossary.” Unfiction.com. December 2002. http://unfiction.com/glossary/ Access 1 June 2006.

Stahl, Ted, Editor. "Timeline Video Games." The History of Computing Project. http://www.thocp.net/software/games/games.htm Access 1 April 2006.

Starner, Thad, Bastian Leibe, Brad Singletary, Kent Lyons, Maribeth Gandy, and Jarrell Pair. “Towards Augmented Reality Gaming.” Proceedings of IMAGINA 2000 Conference. Monaco: 31 January-2 February 2000.

Stephenson, Neal. “Neal Stephenson Responds With Wit and Humor.” Slashdot.org. 20 October 2004. http://interviews.slashdot.org/article.pl?sid=04/10/20/1518217&tid=192&tid=214&tid=126&tid=11 Access 1 May 2006.

--. Snow Crash. New York: Random House, Inc, 1992.d

Sterling, Bruce. “The Internet of Things.” Keynote lecture for the 2006 Emerging Technologies Conference. San Diego: 6-9 March 2006. Transcript available at http://www.viridiandesign.org/2006/03/viridian-note-00459-emerging.html Access 10 March 2006.

Stewart, Sean. “The A.I. Web Game.” 17 January 2004. http://www.seanstewart.org/beast/intro/ Access 1 July 2006.

--. “Laia’s Mediation #8.” *The Beast*. 24 July 2001. http://familiasalla-es.cloudmakers.org/meditations8.htm Access 1 May 2006.

--. Personal interview. Davis, California: 20 April 2003. Conducted in person.

--. Unpublished fan interview. Released on Cloudmakers listserv. 12 October 2001. http://groups.yahoo.com/group/cloudmakers/message/44783 Access 1 June 2006.

Stoehr, Rich. “Re: Cloudmakers Tuesday September 11.” Yahoo! Cloudmakers Discussion. 14 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44389 Access 1 May 2006.

--. " Only Solutions." Cloudmakers.org. 26 July 2001. http://cloudmakers.org/editorials/rstoehr726.shtml Access 1 May 2006.

Strupp, Christoph. Johan Huizinga: *Geschichtswissenschaft als Kulturgeschichte*. Göttingen: Vandenhoeck und Ruprecht, 2000.

T. "We are one, we are all." 25 July 2001. Yahoo! Cloudmakers Discussion. http://groups.yahoo.com/group/cloudmakers/message/42523 Access: January 21 2006.

T-Toe. “Re: SPEC: Beekeepers?” Unfiction Forums. 18 September 2005. http://forums.unfiction.com/forums/viewtopic.php?p=73194 Access 1 July 2006.

Taher, Abul. “Pac-Manhattan.” This Is London. Metro Section. 12 May 2004. http://www.thisislondon.co.uk/lifeandstyle/articles/10698383 Access 1 May 2006.

Team Clue. Personal interview with team members Bryan H. and Brian L. 12 July 2003. Conducted in person.

Team Pop Shop Squad. Personal interview with team members Kelli M., Colin M., Brian K. 19 January 2002. Conducted in person.

Techboy. “Hello again.” PacManhattan Forum. Protein Calendar. 7 May 2004. http://calendar.proteinos.com/viewtopic.php?t=49 Access 1 May 2006.

Terdiman, Daniel. “Collaborative Gaming Takes to the Streets.” CNET News. 14 April 2006. http://news.com.com/Collaborative+gaming+takes+to+the+streets/2100-1043_3-6061171.html Access 1 July 2006.

Theimer, Martin, Alan Demers, Karin Petersen, Mike Spreitzer, Douglas Terry, Brent Welch. “Dealing with Tentative Data Values in Disconnected Work Groups.” In Proceedings from the IEEE Workshop on Mobile Computing Systems and Applications. Santa Cruz, California: 8-9 December 1994. 192-195

Thomas, David. “The Yawning Gap of Game Studies.” Buzzcut. 12 July 2004. http://www.buzzcut.com/article.php?story=20040712214250529 Access: 20 February 2006.

Thompson, Brooke. “This Is Not a Game.” Alternate Reality Gaming Network. 27 April 2005. http://www.argn.com/archive/000247this_is_not_a_game.php Access 1 June 2006.

Todd, Charlie. “The Mp3 Experiment 2.0.” Improv Everywhere Mission Archive. 16 October 2005. http://improveverywhere.com/mission_view.php?mission_id=52 Access 1 May 2006.

--. Personal Interview. May 5, 2006. Conducted in person.

Townsend, Anthony. “Digitally Mediated Urban Space: New Lessons for Design.” Praxis: Journal of Writing and Building. April 2004. 6: 100-105.

Tsivian, Yuri. “The Reception of the Moving Image.” Early Cinema in Russia and its Cultural Reception. Chicago: University of Chicago Press, 1998.

Turan, Kenneth. "Movie Review: Return of the Blair Witch." Los Angeles Times. 27 October 2000.

"Unfiction Chat on SPEC." Internet Relay Channel #unfiction. 31 May 2006. 09:43 – 10:28 PST. 47 participants.

Urthstripe. "Re: Code in a Classic SciFi Story." Unfiction Forums. 28 July 2005. http://forums.unfiction.com/forums/viewtopic.php?p=178525 Access 1 July 2006.

Vampr0se. "Terrorisim affecting whole country." Yahoo! Cloudmakers Discussion. 11 September 2001. http://groups.yahoo.com/group/cloudmakers/message/44271 Access 1 May 2006.

Varin. "Re: SPEC: Why the Entity Chose Ilovebees." Unfiction Forums. 25 July 2004. http://forums.unfiction.com/forums/viewtopic.php?p=43995 Access 1 July 2006.

Wagner, Daniel, Thomas Pintaric, Florian Ledermann, Dieter Schmalstieg. "Towards Massively Multi-User Augmented Reality on Handheld Devices." Proceedings of the Third International Conference on Pervasive Computing. Munich, Germany: 8-13 May 2005. 208-219

Walton, Kendall L. <u>Mimesis as Make-Believe: On the Foundations of the Representation Arts</u>. Cambridge: Harvard University Press, 2005.

Weiser, Mark. "The Computer for the 21st Century." <u>Scientific American</u>. September 1991. 94-100

--. "Open House." <u>ITP Review</u>. 2.0 (March 1996) New York: Interactive Telecommunications Program of New York University. Archived at http://www.ubiq.com/hypertext/weiser/wholehouse.doc Access 10 March 2006.

--. "Phenomenological post-modernism explained and related to computer science, in cartoons." http://www.ubiq.com/hypertext/weiser/PersonWorldDistinction4Up.gif Access 1 March 2006.

--. “Some Computer Science Issues in Ubiquitous Computing.” Communications of the ACM. 36: 7 July 1993. 75-84

--. “Virtual Reality vs. Ubiquitous Computing.” Self-published cartoon. 1996. http://www.ubiq.com/hypertext/weiser/VRvsUbi.gif Access 1 May 2006.

--. “The World is not a Desktop.”ACM Interactions. 1:1 January 1994. 7-8

--. “Ubiquitous Computing.” 17 March 1996. http://www.ubiq.com/hypertext/weiser/UbiHome.html Access 10 March 2006.

Weiser, Mark and John Seely Brown. “The Coming Age of Calm Technology.” Technical Report for Xerox PARC, October 1996. http://www.ubiq.com/hypertext/weiser/acmfuture2endnote.htm Access 1 April 2006.

--. “Designing Calm Technology.” Paper draft. 21 December 1995. http://www.ubiq.com/weiser/calmtech/calmtech.htm Access 1 March 2006.

Weisman, Jordan. “Alternate Reality Gaming: Thinking Outside the (x)Box.” Lecture for the International Game Developers Association. San Francisco: 26 April 2005.

Wellman, Barry. “Designing the Internet for a Networked Society. Communications of the ACM. 45:5 May 2002. 91-96

Wellner, Pierre, Wendy Mackay and Rich Gold. “Computer-Augmented Environments: Back to the Real World.” Communications of the ACM. 36:7 (July 1993). 24-26

Wendland, Mike. "Maze of Internet Sites Makes 'A.I.' Buzz Real." The Detroit Free Press Online. 18 May 2s001. http://www.freep.com/money/tech/ai18_20010518.htm Access 5 May 2002.

West End Games. “Introduction to Being a Gamemaster.” Downingtown, PA: Purgatory Publishing, Inc, 2004. http://www.westendgames.com/d6/gmintro.pdf Access 1 July 2006.

Wink Back, Inc. “Cities”, “Game Described”, “How It Works”, “How It’s Played”, “Mission Statement”, “Outcomes”, “Press”, “Sample Game”, “Superhero”, “Team Index”. The Go Game. www.thegogame.com Access 1 July 2006.

Winnicot, D.W. Playing and Reality. New York: Routledge, 1979.

Xhylph. “Flea++ Translation.” Unfiction Forums. 5 November 2004. http://forums.unfiction.com/forums/viewtopic.php?p=103756&highlight=flea#103756 Access 1 June 2006.

Xtrymist. "The Darkest Puzzle." Yahoo! Cloudmakers Discussion. 11 September 2001. http://groups.yahoo.com/group/cloudmakers/message/ 44287 Access 1 May 2006.

Yan, Jeff and Brian Randell. “A Systematic Classification of Cheating in Online Games.” Paper presented at IMB NetGames Conference 2005, TJ Watson Research Center, Hawthorne, New York, USA. http://www.research.ibm.com/netgames2005/papers/ yan.pdf Access: 20 February 2006.

Yarm, Mark. “Best Real-Life Video Game.” Village Voice. 5 October 2004. http://www.villagevoice.com/specials/bestof/2004/detail.php?id=4497 Access 1 May 2006.

Yauch 6 May 2006. “Re: Player Etiquette (A Bit of a Rant).” Unfiction Forums. http://forums.unfiction.com/forums/viewtopic.php?p=237308&highlight=#237308 Access 1 June 2006.

Zartman, Doug. “Please stop sending mail to Doug Zartman!” Yahoo! Cloudmakers Discussion. 13 May 2001. http://groups.yahoo.com/group/cloudmakers/ message/12065 Access 1 June 2006.

ZeresThex. “Vigil held on Tunare in Memory.” Everlore Message Board. 13 September 2001. http://www.everlore.com/Archives.asp%3Farch%3Dmonth%26tp%3D8/1/ 2001%26page%3D8+%22candlelight+vigil+on+luclin%22&hl=en Access 1 May 2006.

Zimbardo, Phillip G. “The Human Choice: Individuation, Reason, and Order versus Deindividuation, Impulse, and Chaos.” Eds. W. J. Arnold & D. Levine. Nebraska Symposium on Motivation. Vol. 17. Lincoln, NE: University of Nebraska Press, 1969. 237-307

Zimmerman, Eric. “Play as Research.” Design Research. Ed. Brenda Laurel. Cambridge: MIT Press, 2003. 176-184

Zoller Seitz, Matt. “Welcome to the 9/11 Show.” New York Press. 19:17 26 April 2006. http://www.nypress.com/19/17/news&columns/MattZollerSeitz.cfm Access 1 May 2006.