Imagining Geography through Interactive Visual Media
A special volume edited by Leigh Schwartz and Paul C. Adams

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Introduction to “Imagining Geography through Interactive Visual Media”

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When Shadow of the Colossus for the Playstation 2 was released in 2005, the following advertisement was displayed on its back cover:

Some mountains are scaled. Others are slain. [...] Experience an unforgettable journey into a land forgotten by time... a seamless world filled with miles of majestic terrain... a story of companionship and undying love... and mythical giants to discover, unearth, and destroy.

(Sony Computer Entertainment Inc. 2005)

Although this quotation merely advertises the game, it also keys into important themes of virtual environments: escape to faraway lands, experience myth or legend through exploration and dominance, and feel wonder at the environment. While these are lofty claims, the game was developed by the same team that had previously released ico (2001), a game noted for “presence” or a sense of reality in its spatial design (for more on presence, see McMahan 2003). The advertisement focuses on these themes as fundamental reasons for exploring virtual environments—rewards that the game promises to deliver. Not all virtual environments offer the same appeal. However, they do provide spaces for socialization, exploration, fantasy, productivity, or other activities; although intangible, virtual environments are used by actual people and are also real (see Shields 2003).

As an important element in the daily lives of many, popular media has a powerful influence on the way that people view the world around them. Representations of environments in media such as literature, film, and games communicate ideas, perspectives, and ideologies about fictional and actual spaces and places. Media representations contribute to the social construction of tangible places which are also, in this sense, imaginative landscapes. Within and beyond geography, it is important to
investigate imaginative representations and how they shape human understanding and interaction with the external environment.


While video gaming now offers detailed, expansive, three dimensional landscapes for interaction and play, geographers have largely overlooked these environments, focusing mainly on other (although closely related) visual and interactive media. However, even in relation to visual media, such as film and television, and interactive media, such as the internet, video games and similar applications differ from these other types of virtual spaces in that they provide interactive, visual environments that can be explored at will. This results in a traditionally geographical experience of exploration and discovery of fantastic or distant lands (for a discussion of exploration and discovery being the basis of geography, see Parsons 1977). In addition, video gaming has become a very popular medium, earning more than $18.8 billion in 2007, a figure which includes video and computer games but not other types of software (Riley 2008). Further, the average game player is 33 years old, and 24% of Americans over age 50 played video or computer games in 2007 (Entertainment Software Association 2008). Clearly, as scholars examine the geographical meanings that are communicated through media landscapes, interactive virtual environments should be examined as well as other forms of media representation. This special issue compiles contributions from both geographers and non-geographers for an interdisciplinary approach to the geographical aspects of interactive visual media.

The articles in this special issue examine topics ranging from representation within game landscapes, to the scales of virtual and physical places of gaming, to spatialization within the work and play spaces of computer operating systems. While the articles are varied, each explores the issues of representation and spatiality of intangible landscapes, spaces where the imagination becomes a reality to be explored and used for
socialization, that are nevertheless integrated into the material environment through social interaction, meanings of space and place, and infrastructure.

The issue opens with Harry J. Brown’s “A Plague in Montiel: Plague, Quarantine, and Social Space in Role-Playing Games,” which examines the spatial representation of disease in computer role-playing games. Brown draws upon historical views of disease to demonstrate the influence of discourses of control in social space on the representation of plague and quarantine in games. Through this analysis, Brown connects the construction of social space within games to larger discourses of illness, showing that game environments reinforce historical views of plague and distance the player from the infected.

The issue continues with Michael W. Longan’s “Playing With Landscape: Social Process and Spatial Form in Video Games,” which, similarly to the previous article, also examines socially constructed meanings of space through the utopian and dystopian environments of video games. Longan points out that like other forms of landscape representation, game environments produce social meanings, but unlike other forms of media, games allow interaction with the virtual environment and the social meanings embedded within it. Focusing on games as landscape representation, Longan investigates the portrayal of processes of production and suggests that the interactive representations of games not only communicate meanings about landscape and process but also propose new ways of conceiving meanings of landscape and process.

Following is Claudia Breger’s “Digital Digs, or Lara Croft Replaying Indiana Jones: Archaeological Tropes and ‘Colonial Loops’ in New Media Narrative,” which investigates imperialism in representations of archaeology in Tomb Raider games and films. Breger critiques colonial themes evident in the series, finding that while the games present a colonial narrative of ‘tomb raiding,’ the films both reinforce imperialist themes while also incorporating postcolonial elements into the narrative and environment. Similarly to the previous three articles, Breger shows how popular media can challenge or, in this case, reinforce larger discourses.

Though the first three articles of the special issue focus on the meanings communicated within or through game environments, the following article, Jeremy W. Aber’s “Spatial Scales of the Arcade Collecting Community: A Photo Essay” leads the issue in a new direction by examining the use of physical and virtual space in social events of arcade game collection. While the landscapes of interactive software play a valuable role in discourse, Aber argues that games are also played within physical space and examines them within this context. Aber demonstrates collectors’ use of both virtual spaces such as the internet to stay connected, and physical spaces such as regional and national events to gather, socialize, and trade over the virtual spaces of arcade games.

Similarly to the previous article, Giacomo Andreucci’s “3D Graphical User Interfaces on Personal Computers: Space-Place Building Processes in Virtual Environments” points in another interesting direction by exploring the graphical user
interfaces (GUIs) of computer operating systems as virtual environments. Although GUIs do not typically present a landscape in the traditional form of hills, trees, and buildings, Andreucci shows that three dimensional GUIs create work and play spaces that can also be explored, modified, and shared. Andreucci focuses on themes of space and place, utility versus visual appeal, and visualization of abstract information in the form of a spatial environment.

This issue begins with analyses of the discourses of game environments, and also covers other topics in the physical spaces of interactive media and the abstract spaces of three dimensional software. This special issue addresses important themes of interactive visual media, placing them with other media as forms of spatial representations and as virtual spaces. These spaces are used for social interaction, exploration of ideas, and more generally for work or for play. As these articles demonstrate, the virtual environments of interactive media are part of the larger external environment through discourse, infrastructure, and activities. In addition, the three dimensional landscapes of interactive media and gaming differ from other forms of media in their combination of an audio-visual environment with the interactivity of computer software. The environments both communicate ideas about spaces and places, and also function as spaces and places. While the external environment is also socially constructed, virtual environments bring the imagination to life through sensory and spatial metaphors in a space that lacks the physical constraints of the material environment. Each of the following articles highlights the communicative and spatial natures of the landscapes of imagination.

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References


A Plague in Montiel: 
Plague, Quarantine, and Social Space in Role-Playing Games

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Abstract
Analyses of virtual spaces have frequently cited cinema as the primary influence on the configuration and perception of game worlds. This essay takes a different approach, examining the influence of historical ideologies of space on current game design. In Discipline and Punish, Foucault defines the modern social space as a configuration of private domiciles and public precincts ordered to facilitate surveillance, indexing of social data, and population control. The reordering of pre-modern social space was directly motivated by the bubonic plague. Stopping the spread of disease meant exercising strict control over social interaction and over the spaces in which that interaction occurred. Once the emergency had passed, the new configuration remained in place, gradually evolving from an ad hoc defensive system to a permanent disciplinary system. The rules of Foucaultian disciplinary space extend to the simulated spaces of role-playing games, in which the player’s encounters with disease are determined by the maintenance or violation of spatial boundaries within the game world. Quarantine boundaries separate qualitatively distinct game spaces, marked by differences in graphic environments, non-player character types found within them, and the rules governing game play; the player incurs penalties for violating these boundaries. At the same time, the game Morrowind represents a more utopian vision. With disease banished, the game depicts an instantaneous reintegration of quarantined space with social space. Foucault sees no such reintegration; the spatial divisions designed to contain the infection remain even when the threat of infection does not.
The Lord said to Moses: “Order the Israelites to expel from camp every leper, and everyone suffering from a discharge, and everyone who has become unclean by contact with a corpse. Male and female alike, you shall compel them to go out of the camp; they are not to defile the camp in which I dwell.” The Israelites obeyed the command that the Lord had given Moses; they expelled them from the camp.

Numbers 5: 1-3 (NAB)

On the Plain of Montiel

Occasionally, I have felt vaguely displaced after quitting a game, as if I could not find my way all the way home. On certain gray mornings, after hours of playing Neverwinter Nights or Morrowind, my misty, Midwestern front lawn has seemed more like the shrouded landscape of Faerûn or the Ashlands of Vvardenfell. Like travelers returning from a strange country, we often return from virtual space with a subtly altered perception of more familiar surroundings. Images, patterns of thinking, stay with us, if only as fleeting impressions, passing disorientation, or a mild but persistent sense of unreality or wonder, as if we have migrated from one dream world to another, only believing that we have awoken.

Edward Soja (1996) finds a similar blurring of the real and imagined in the “Exopolis,” a “copy of a city that has never existed” (19). Kansas, Soja suggests, is not in Kansas anymore. Digital games present a simulacrum even more enchanting than Soja’s Exopolis, one that takes root in the mind and reproduces itself in our view of the world. In a February 2004 Esquire article, Tom Chiarella profiles “Suicide Bob,” an addicted gamer who works nights as a FedEx loader, so that he can spend his days playing Grand Theft Auto iii. Each night, leaving his Playstation 2 behind, he follows a familiar path from the airport parking lot, through a tunnel, over a bridge to a waiting area, where a truck carries him to the tarmac. For Suicide Bob, though, this dull trek to work does not seem so much an exile from his game world as an extension of it. “I just try to get from point a to point b,” he says. “Everyone has a bunch of doors to get through. It’s not unlike a game, really” (Chiarella 2004, 91).

Controversialists routinely cite the more destructive consequences of confusing the virtual and actual worlds. In a March 2005 broadcast, 60 Minutes reported the story of a teenage triple murderer who, when captured by police, told them, “Life is like a video game. Everybody has got to die sometime” (“Grand Theft Auto” 2005). Ed Bradley explains that Devin Moore, a neglected foster child, played Grand Theft Auto iii “day and night for months” (“Grand Theft Auto” 2005). When Fayette, Alabama, police arrested him on suspicion of stealing a car and brought him to the station for questioning, Moore snapped, swiping a Glock from one of his captors, killing two officers and a police dispatcher, and fleeing in a stolen squad car. As he relates the details of the crime, Bradley walks through the rooms and corridors of the Fayette police station, tracing Moore’s path as he killed the three men. A scenario in Grand Theft Auto iii, he explains,
likewise takes the player into a police station, where he frees a jailed convict, guns down cops, and escapes in a stolen squad car. This segment of game, juxtaposed by 60 Minutes editors to Bradley’s walk through the actual killing zone, demonstrates an uncanny similarity between the rooms and corridors in the game and those where Moore killed three men. Moore’s virtual and actual environments, like Suicide Bob’s, appear to have momentarily overlapped.

While Devin Moore’s actions are appalling, they do not defy explanation, according to those familiar with the dizzying charm of simulacra. In The Production of Space, for instance, Henri Lefebvre (1974) suggests that modern social space “ceases to be indistinguishable from mental space” (27). In Soja’s Exopolis, “representations of everyday reality...substitute for the reality itself” (Soja 1996, 19). Similarly, Michael Heim (1996) has described Alternate World Disorder (AWD), a condition, he writes, that causes “images and expectations from an alternate world...[to] distort our functioning in the current world... The virtual world obtrudes upon our activities in the primary world, and vice versa” (4). In the most extreme cases, the virtual world not only obtrudes on the primary world but replaces it entirely. In Narrative as Virtual Reality, Marie-Laure Ryan (2001) identifies the “loss of the capacity to distinguish textual worlds...from the actual world,” as the deepest level of immersion in a fictional world (99).

Ryan herself calls this condition “Don Quixote Syndrome,” tracing its ravages to Cervantes’ tale of a bored old man who develops a habit for chivalric romances, becoming so immersed in them “that he spent whole days and nights over his books; and thus with little sleeping and much reading, his brains dried up to such a degree that he lost the use of his reason” (Cervantes 1605, 58). As he rides a flea-bitten nag across the dull landscape of La Mancha, he narrates to himself the story of his first sally:

> Scarcely had the rubicund Apollo spread over the face of the vast and spacious earth the golden tresses of his hair, and scarcely had the little painted birds with their tuneful tongues saluted in sweet and melodious harmony the coming of rosy Aurora, who leaving the soft couch of her jealous husband, revealed herself to mortals through the gates and balconies of the Manchegan horizon, when the famous knight Don Quixote of La Mancha, quitting his downy bed of ease, mounted his renowned steed, Rocinante, and began to ride over the ancient and memorable plain of Montiel.

(Cervantes 1605, 62-63)

Quixote’s “syndrome” is a pleasant madness that transfigures his whole world. The once arid plain now glows in the golden dawn, and birdsongs welcome the gods themselves to this “ancient and memorable” place—formerly a forgettable corner of Spain where nothing much ever happened. Even the shabby inn where he spends the night “assumed in his eyes the semblance of a castle with four turrets, the pinnacles of which were of glittering silver” (Cervantes 1605, 64).
Digital games have become our own plain of Montiel, a place of confusion and transformation where the imaginary overflows into the mundane, wondrously or pathetically. As the inn becomes a glittering castle and the plain “ancient and memorable,” our own landscapes become charged, animated, and thrilling, “like a game,” as both Suicide Bob and Devin Moore tell us. Most of us, however, even those who play games regularly, identify more closely with Sancho Panza than with Don Quixote. Most of us think that we have enough common sense to recognize the difference between the dream and the reality. We tend to regard the confusion of virtual and actual spaces as an individual pathology, the pitiable condition of a rudderless night loader, a lonely foster child turned cop killer, or a deluded old man who jousts with windmills. Heim and Ryan speak of a “disorder” and a “syndrome.” A psychologist on 60 Minutes speaks of “risk factors,” like abuse, anger, and emotional stress, which can contribute to a teen’s break with reality (“Grand Theft Auto” 2005). Speaking of this condition as a disorder and isolating its more visible sufferers from the rest of us who court unreality, however, obscures the fact that digital games have the potential to influence perception not only individually but socially. Don Quixote does not represent an individual pathology but rather a general condition that has emerged as games have grown in complexity and become a more integral part of mass culture. As we play games, games play us.

**Plague and the Transformation of Social Space**

I became interested in the more specific ways games can influence our perception of social space when I noticed that three of the most complex and critically celebrated role-playing games released in the last several years—Bioware’s *Neverwinter Nights* (2002) and *Star Wars: Knights of the Old Republic* (2003), and Bethesda Softworks’ *The Elder Scrolls III: Morrowind* (2002)—simulate plague and quarantine. Why does plague emerge as a consistent theme in these games? If they propose to simulate reality, then what devices do they use to simulate a world seized by plague? In turn, what potential do they have to influence our view of actual disease and quarantine? In 1974, Lefebvre presciently described his proposed “science of space” as “a sort of computer simulation of the future, or of the possible, within the framework of the real” (9). Games now serve as these simulations, and we might consider them analytical tools of Lefebvre’s science of space, models to help us answer these questions. *Neverwinter Nights, Knights of the Old Republic,* and *Morrowind* allow us to experience movement within quarantined space and, in some cases, to experience the isolation and ostracism of the infected. Patterns emerge, but to discover the meaning of these patterns, we must momentarily turn away from the games, back to the world the games recreate.

In considering the profound social repercussions of bubonic plague in the late medieval and early modern periods, historians have emphasized a fundamental shift in the philosophy of government that occurred in response to the crisis. In order to preserve society against annihilation, governments took unprecedented measures to control
the movement and social interaction of the populace. Eventually, these interventionist policies provided for a complete reorganization of social space. In *Discipline and Punish*, Foucault (1977) describes this new social space as a configuration of private domiciles and public precincts organized to enable surveillance, enforce discipline, and facilitate the indexing of social data:

First, a strict spatial partitioning: the closing of the town and its outlying districts, a prohibition to leave the town on pain of death, the killing of all stray animals; the division of the town into distinct quarters, each governed by an intendant. Each street is place under the authority of a syndic, who keeps it under surveillance; if he leaves the street, he will be condemned to death. The syndic himself comes to lock to the door of the house from the outside; he takes the key with him and hands it over to the intendant of the quarter. ...Only the inendants, syndics, and guards will move about the streets and also, between the infected houses, from one corpse to another, the "crows," who can be left to die: these are the "people of little substance who carry the sick, bury the dead, clean and do many vile and abject offices." It is a segmented, immobile, frozen space. Each individual is fixed in his place. And, if he moves, he does so at the risk of his life, contagion, or punishment. (195)

This transformation of social space, as Foucault suggests, operated on the principle of isolation. Historian J. N. Hays (1998) writes, “Within the affected town, families of plague victims would be confined to their houses, with the doors locked and barred from the outside. ...Objects used by the sick and the deceased were seized and burnt” (54). In addition, Hays explains, cities might establish a cordon sanitaire, or sanitary corridor, “stopping traffic on roads and demanding health passes travelers, or perhaps halting all people and goods at their border entirely” (1998, 54). With the appearance of the Black Death at the Italian seaports of Pisa and Lucca in the summer of 1348, for example, Pistoia closed its gates to all travelers, forbidding even its own citizens to return home, and in Milan the despotic Archbishop Giovanni Visconti not only closed the city gates but entombed the diseased within their own homes. Under the draconian policies imposed by Visconti, Milan remained virtually unstricken by the plague (Tuchman 1978, 108).

Other cities gradually adopted such quarantines as those that saved Pistoia and Milan, and successive waves of infection found Europe more prepared. Ragusa instituted the first official quarantine in 1377. By the fifteenth century, the Italian city states developed these directives into systematic quarantine protocols, establishing lazarettos, or pesthouses, and severely restricting movement between and within cities, sometimes under pain of torture or death. While earlier quarantine practices derived from Mosaic laws prescribing the removal of lepers from the community, Girolamo Fracastoro proffered the first modern theory of contagious disease in 1546. Rejecting astrology, herbal remedies, and even prayer, Fracastoro recommended simply that in
order to stem the plague, the healthy should avoid contact with the sick. As Fracastoro’s ideas became more widely known, authorities assumed that social interaction fostered contagion and acted decisively to limit such interaction.

The pesthouses represented the most visible demonstration of these policies of isolation. First established in Venice in 1423, they became a prominent feature of many European cities by the eighteenth century. Usually situated beyond the city walls, on an outlying island or peninsula, the location of the lazaretto isolated the infected from the larger communities. Within their walls, they contained distinct subsections for the seriously ill, for travelers arriving from infected cities, and for those simply suspected of carrying the plague. In the Genoa pesthouse, for example, those subject to the *quarantena brutta*, or ugly quarantine, manifested unmistakable symptoms of plague and lingered in complete isolation for forty days or until their deaths. Those under the *purga di sospetto*, or quarantine of suspicion, who showed no sign of infection but had come from places where plague had been reported, also found themselves in the lazaretto (Cipolla 1981, 39). John Howard, an eighteenth-century British prison reformer who toured Mediterranean pesthouses, found them generally “very dirty, and no less offensive than the sick wards of the worst hospitals. …The walls…not having been cleaned probably for half a century, were saturated with infection” (Hirst 1953, 379). Hays concludes that “forcible removal to the pesthouse was a horror that…was often perceived—with reason—as a death sentence” (1998, 55).

The plague further divided the rich from the poor, igniting riots, driving the rich to protected country estates, and leaving the poor to die in the close quarters of the city. In *The Decameron*, the most famous literary account of the Black Death, Boccaccio (1353) follows a group of patricians to one such refuge:

> They gathered in small groups and lived entirely apart from everyone else. They shut themselves up in those houses where there were no sick people and where one could live well by eating the most delicate of foods and drinking the finest of wines. …They believed that drinking excessively, enjoying life, going about singing and celebrating, satisfying in every way the appetites as best one could, laughing and making light of everything was the best medicine for such a disease…and they would often make merry in private homes, doing everything that pleased or amused them the most. This they were able to do easily, for everyone felt he was doomed to die. (8)

Within these retreats, Boccaccio imagines a grim orgy, the young protected from the plague by their distance from cities and roads, but nevertheless marking the days until the pest found them. The poor, on the other hand, more commonly died in the lazaretto. Surveying the meticulous records of the 1630 outbreak in Pistoia, Carlo Cipolla (1981) finds that all of those admitted to the lazaretto belonged to laboring class; seven of every ten people taken to the lazaretto died there. (77, 79)
By the seventeenth century, quarantine protocols became more integrated into the social fabric, as local bureaucracies arose throughout Europe with the purpose of maintaining the separation between the healthy and the sick. Sheldon Watts (1998) describes an emergent “ideology of order” that “justified intervention into the lives of ordinary people” (16). Such intervention primarily manifested itself in the reorganization of social space, the restriction of movement between and within infected cities, as well as the creation of isolated zones like the pesthouse where the disease could be safely contained. Defeating the plague, governments realized, meant exercising strict control over social interaction and the spaces in which that interaction occurred. In many cases, these measures worked, but once the emergency had passed, the new bureaucracies and social configurations remained, gradually evolving from an ad hoc defensive reaction into a permanent disciplinary system. This new, “segmented, immobile, frozen space,” segregating the sick from the healthy and the rich from the poor, engendered the new social ecology simulated by role-playing games.

Plague and Virtual Ecology

Marie-Laure Ryan describes an ideal of total immersion, the experience of moving and acting within a virtual space indistinguishable from actual space. The most sophisticated virtual spaces, she argues, do not simply render photorealistic detail but replicate environmental responses to individual action. Ryan (2001) writes:

The difference between “being in space,” like things, and “inhabiting” or “haunting space,” like the embodied consciousness, is a matter of both mobility and virtuality. … The ultimate test of the material existence of things is the ability to perceive them under many angles, to manipulate them and feel their resistance. … Whether actual of virtual, objects are thus present to me because my actual or virtual body can interact with them. … The ideal vr system is conceived here as an ecology, in which every object is a tool that extends the user’s body and enables her to participate in the ongoing creation of the virtual world. (71)

Games attempt to create this sense of “inhabiting space,” not only by enabling the player to project his consciousness into an avatar who may respond to the environment, but also by simulating an environment that responds to the player. The more closely these simulated responses mimic causality as experienced in the actual world, the more convincing the sense of inhabiting the virtual world.

The most complex responses simulate a complete interrelationship between the virtual environment and the player: an ecology. While Ryan speaks of spatial, temporal, and emotional immersion—states that correspond to setting, plot, and character, the three basic elements of narrative—Neverwinter Nights, Knights of the Old Republic, and Morrowind invite phenomenological immersion, a sense of being and acting in the game world, by simulating the quarantine practices that have fundamentally determined the way we think about social space and subjectivity.
In *Segmented Worlds and Self*, Yi-Fu Tuan (1982) argues that the segmentation of social and domestic space bears a direct “relation to developing consciousness and the idea of the self” (3). Like Foucault, Tuan traces this systematic spatial partitioning and the consequent shift in the “idea of the self” to the late Middle Ages, but he finds its cause in a broad “trend toward increasing privacy and intimacy,” not in the acute historical circumstance of the plague (68). Tuan argues that the division of social space had a profound effect on subjective consciousness, creating discrete private spheres in which families could withdraw from the larger community, and individuals could withdraw from the family. Domestic roles became more clearly defined, leading to more enlightened social relations: “The status of women improved. Parents showed an increasing concern for the proper way to raise and formally educate children. … Individuality was recognized as an attribute not only of men, but of women and even of children” (Tuan 1982, 68).

Foucault recognizes the division of social space as an exercise in control and the plague as “the trial in the course of which one may define ideally the exercise of disciplinary power” (198). For Foucault, the effects of this exercise were not, as Tuan claims, more enlightened attitudes toward women and children but rather the internalization of disciplinary structures and the subjection of consciousness. In *The Psychic Life of Power*, Judith Butler (1997) further explores this relation between subjection and subjectivity, arguing that “power is not simply what we oppose, but also, in a strong sense, what we depend on for our existence and what we harbor and preserve in the beings that we are. … ‘Subjection’ signifies the process of becoming subordinated to power as well as the process of becoming a subject” (2). In the model developed by Foucault and Butler, the exercise of power, specifically the partitioning of social space, determines the way we think about ourselves and our relations with others; it creates both an ecology and an individual consciousness.

These segmented spaces and the subjectivities they form underlie the virtual phenomenology in *Neverwinter Nights*, *Knights of the Old Republic*, and *Morrowind*. The virtual worlds respond to our actions and give us a sense of presence, as Ryan claims, but they also give us a sense of psychic familiarity; they feel more real in the way they erect quarantine boundaries and the way they give us pause when they compel us to cross them. Our actions and reactions in the virtual world are shaped by the ways we have internalized the disciplinary structures of the real world.

**Neverwinter Nights**

Generally game narratives involve three disease scenarios: the player must destroy the infected agents; the player must search for a cure; the player becomes infected and subject to the effects of the disease. In all three scenarios, encounters with disease are determined by the maintenance or violation of spatial boundaries within the virtual world, a pattern that reflects the disciplinary logic of quarantined space. In many games, these quarantine
boundaries separate qualitatively distinct game spaces, marked not only by differences in graphic environments and non-player character and creature types, but also in the rules governing game play. Although many games feature combinations of the three scenarios, genre most often determines the degree of environmental responsiveness. First-person shooters like *Half-Life* (1998), *Deus Ex* (2000), and *Halo: Combat Evolved* (2000) only require that the player use massive firepower to splatter infected critters all over the walls. The player may not spread the disease, work to stop it, or contract it and experience its effects. In such games disease functions mainly as narrative ornament, not as an environmental response. In more plot-driven action games such as *The Suffering* (2004) and *Resident Evil: Outbreak* (2004), the player combats infected agents in an effort to contain the disease and may also play as an infected character, gaining enhanced abilities in combat. Both of these games feature dark and claustrophobic game spaces, the former a derelict prison; and the latter a hospital, research facility, and hotel, all abandoned, dim, and zombie-infested. While these haunted spaces emphasize the separation from safer, sunlit social spaces, and the player may indeed transform into the object his own loathing, the games do not script the possibility of true contagion; that is, the spread of the disease beyond its quarantined world to a larger social space.

Role-playing games develop more interactively complex disease scenarios and locate infection within the context of social space, in the sense that Foucault describes it. In *Neverwinter Nights*, the player begins in the quarantined city of Neverwinter with a mandate to discover the origin of the Wailing Death, a pestilence that ravages the population. Lady Aribeth and Lord Nasher, the rulers of the city, have established a *cordon sanitaire*, barring the city gates. They have converted the Hall of Justice, a government center, into a pesthouse, where nurses tend to moaning victims. In squares throughout the city, guards torch piles of diseased corpses; the player may gain twenty-five experience points for helping to torch the corpses. Like the traders in Pistoia forbidden to leave the city, travelers in Neverwinter, unable to return to their homes, wander the streets in desperation, begging the player for help.

The city itself has been segregated into five sections, a City Core with four gates barring passage to four separate districts: the Peninsula, the Docks, the Beggar’s Nest, and Blacklake. In the City Core, dialogue with non-player characters reveals that the Wailing Death, like historical epidemics, has fueled class conflict throughout the city. The Neverwinter nobility claim that the plague originated in the slums of the Beggar’s Nest, while commoners accuse the Blacklake aristocrats of guarding a cure while the rest of the city suffers. The player learns that the reagents necessary for the serum are scattered throughout the city, one in each of the four districts. As the player searches for the reagents, becoming familiar with Neverwinter’s quarantine zones, he finds that measures taken to ensure security have only fostered chaos in each of the districts. In the Peninsula, a prison break has filled the streets with vicious thugs. Pirate gangs have taken control of the Docks, and in the Beggar’s Nest, the undead and disease-crazed
goons, embodiments of the plague, infest the wrecked streets. In Blacklake, however, life seems more peaceful. There is no mayhem in the streets, no undead in the sewers, and no outlaw gangs in the taverns. Of the four districts outside the City Core, only Blacklake offers the player refuge from random encounters with enemies. Even the soundtrack, a pleasant, pseudo-Baroque melody, signals a contrast with the tense and foreboding musical themes in the Peninsula, the Docks, and the Beggar's Nest.

This apparent oasis of order within a diseased, chaotic city most strikingly simulates Foucault's segmented spaces, in which "the plague is met by order" (1977, 197). The disciplinary power exercised in these spaces function to "sort out every possible confusion. …It lays down for each individual his place, his body, his disease, and his death, his well-being, by means of an omnipresent and omniscient power that subdivides itself in a regular, uninterrupted way" (Foucault 1977, 197). This "omnipresent" power manifests itself most immediately in the guards who man the gates and the streets maintaining the quarantine boundaries: "Inspection functions ceaselessly. The gaze is alert everywhere" (Foucault 1977, 195-96). The Blacklake nobles have, in fact, sealed themselves from the rest of the city, creating a cordon sanitaire within Neverwinter by abandoning a part of the district to diseased bandits and sealing themselves from this no man's land behind a second gate. In addition to the city guards manning the primary gate, Blacklake's own militia hold the secondary gate and patrol the district itself. Within this wealthy, privately policed sanctuary, Meldanen, a powerful, reclusive mage, has erected still another barricade, closing himself within his estate above Blacklake, like the blithe patricians in The Decameron. Fermosa, a wealthy but socially conscious young woman, represents the only voice of disorder in the district. A crowd of listeners gather around her in a small amphitheatre as she incites them against Meldanen. When the player engages her, she says that the wizard has horded food in a private vault and enlists the player to kill Meldanen, take the key to his vault, and distribute the food to the people. Because one of the reagents is protected within Meldanen's estate, the player is compelled to accept Fermosa's offer and becomes embroiled in the class conflict simmering below Blacklake's serene surface.

**Star Wars: Knights of the Old Republic**

While the districts of Neverwinter, with their enclosures within enclosures within enclosures, simulate Foucault's "segmented, immobile, frozen space" in the quarantined city, they do not vividly illustrate the effects of the Wailing Death on non-player characters, nor do they threaten the player himself with contagion. *Knights of the Old Republic* demonstrates the effects of contagion more graphically and presents the player with the ethical dilemmas inherent in quarantine policy. Shortly after the prelude, when the player escapes an embattled Republic warship to the surface of the ultra-urbanized planet Taris, he learns of a horrible disease that transforms people into subhuman, cannibalistic creatures called rakghouls. The Sith garrison on Taris has quarantined the
disease within the Undercity, a barren subterranean slum like Neverwinter’s Beggar’s Nest, populated by the urban poor and strictly isolated from the Upper City by guard posts at the lifts providing access to the Undercity.

As in Neverwinter, class tensions seethe in Taris. In the Upper City, haughty citizens complain of the offensive alien immigrants that have contaminated their city from above and the diseased “outcasts” that rot their foundations below. When the player infiltrates the quarantine boundary by impersonating a Sith guard and accesses the Undercity, he discovers the outcast camp, a motley community of grifters, dreamers, and unlucky souls led by Gendar, who steadfastly holds the frontier against the rakghouls. Like the Blacklake nobles, the outcasts, themselves isolated by the quarantine, have erected a secondary barricade, a fortress wall protecting them from the rakghouls that have infested the Undercity. Within this fortress, the outcasts have established a makeshift lazaretto, a small pen containing those known to be infected by the rakghouls. Here, the player may watch the gruesome spectacle of transformation.

In the morally consequential universe of *Knights of the Old Republic*, where certain actions gain “light side” and “dark side” points, the player faces a number of choices that simulate the ethical and administrative difficulties of quarantine policy. In this sense, the game draws the player into a deeper level of immersion than *Neverwinter Nights* does, positioning him to exercise disciplinary power in the manner of Foucault’s syndics, intendants, and guards. When the player first arrives in the Undercity, for example, he encounters Hendar, an outcast desperately fleeing a pack of rakghouls in the no man’s land beyond the fortress wall. The guards, though horrified at the fate of their comrade, resolve not to open the gates, lest the rakghouls slip through the breech and infect the entire camp. The player may force the guards to open the gate and rush to Hendar’s rescue, thus jeopardizing the entire group, or he may maintain their safety and watch Hendar die. The welfare of the one weighs against the welfare of the many. Later, when the player has discovered the rakghoul serum on the corpse of a Sith soldier, he faces a number of choices. He may cure the outcasts in the lazaretto; aid an infected Republic soldier lost in the Undercity; give the serum to Zelka Forn, a doctor maintaining a hospital in the Upper City; or sell it to Zax, a crime boss, for a profit. Unlike *Neverwinter Nights*, *Knights of the Old Republic* conveys the responsibilities and dilemmas of the health officials who maintained the “ideology of order” deemed necessary to overcome the plague.

**The Elder Scrolls III: Morrowind**

While the player must infiltrate the diseased Undercity of Taris to find the rakghoul serum and advance the narrative, the violation of the quarantine boundary in *Knights of the Old Republic* does not result of the spread of the disease to the upper levels of the city, and the player, when infected, suffers only a steady loss of hit points, not qualitative changes in graphical representation or abilities, though non-player characters change into
Morrowind features a more complex disease scenario, a more widely responsive virtual environment, in that game narrative depends on the player’s infection, isolation, and eventual cure. In fact, the player may contract a variety of diseases as he travels the land of Vvardenfell, including Porphyric Hemophilia (vampirism), lycanthropy, and a leprosy-like disease called Corprus. Initially, each disease is contained within specific game space: a vampire enclave, a remote forest village, and a “Corprusarium.” When the player enters these spaces, however, the diseases, as well as the virtual environment, become more fully interactive than those in Neverwinter Nights and Knights of the Old Republic. The player may experience the effects of infection through diminished or enhanced movement or abilities, as well as graphical metamorphoses. Most significantly, players can carry these infections into the larger social space of the game world, eliciting disease-specific reactions from non-player characters. If a player has Corprus, for example, he cannot engage others in conversation. If he has Porphyric Hemophilia, he cannot travel by daylight but gains dramatic physical and magical enhancements. If he has lycanthropy, he likewise gains superhuman combat abilities, but if imperial guards discover that he is a werewolf, they will try to kill him.

The messianic narrative in Morrowind requires the player to gain immunity to Corprus in order to prove himself the long-prophesied savior, Nerevar. After contracting the disease from a minion of the evil overlord Dagoth Ur, the player is shunned by non-player characters until his mentor advises that he visit the physician-mage Divath Fyr in the Corprusarium, a pesthouse on the remote island of Tel Fyr. In the Corprusarium, Divath Fyr tells the player that he has created an experimental cure. Before he surrenders it, however, the player must secure a magical artifact in the Corprusarium’s dungeon, where bestial and horribly deformed victims of the disease are confined by a *quarantena brutta*. One of the most memorable characters in the game, Yagrum Bagarn, a morbidly obese dwarf whose diseased legs have been replaced by mechanical spider legs, presides over the dungeon and provides the player with the magical artifact he needs to get the cure from Divath Fyr. The cure inoculates the player against Corprus, removing the effects of the disease and immunizing him against all further infection, including common diseases and vampirism.

The inoculation prepares the player to venture into the Ashlands, a barren, blighted wasteland of volcanic hills and magma fissures in the center of Vvardenfell. In the heart of the region, beneath the Red Mountain, Dagoth Ur lurks, spreading disease-laden dust storms throughout the region and marshalling hordes of infected creatures. In order to contain the blight, the Elven kingdoms of Vvardenfell have erected the Ghostfence, a massive, magical *cordon sanitaire* around the Red Mountain, maintained by a garrison of warriors at the Ghostgate. If the player enters the Ashlands prior to gaining disease immunity at the Corprusarium, he risks falling victim to Dagoth Ur’s germ warfare, contracting “common disease” or “blight disease.”
Like *Neverwinter Nights* and *Knights of the Old Republic*, the diseased ecology of *Morrowind* recreates Foucault’s “immobile, frozen, space,” where the player moves “at the risk of life, contagion, or punishment.” But the player’s sense, as Ryan says, of “inhabiting” Vvardenfell, of being and acting in the virtual world, becomes more intense as we feel the effects of pestilence not only in the divisions of virtual space but also in the programmed reactions of non-player characters. In *Morrowind*, plague is a spatial and a social phenomenon, and the disciplinary power exercised on the player character simulates Butler’s model of the way “Power not only acts on a subject but…enacts the subject into being” (13). Being sick in Vvardenfell compels the player to think of his character in a new way, to act and move differently from one who is well. Cities that previously welcomed him now become hostile, and quests that seemed important now become less important than finding a cure—or, in the case of vampirism, finding another victim to sate his thirst for blood. Plague not only creates a spatial and social ecology but also, in Butler’s words, “enacts” the player character into being.

**World of Warcraft and Genre**

The continuity between historical plagues, the consequent reordering of social spaces according to the disciplinary model, and the design of virtual spaces reveals that game design has been influenced in part by events beginning in the fourteenth century. The same historical conditions that have shaped the spaces we inhabit every day have also shaped our virtual spaces, contributing to the lingering sense, as Michael Heim observes, that “the virtual world obtrudes upon our activities in the primary world.” In Suicide Bob’s more direct words, life is “not unlike a game.” This spatial correspondence between the virtual and the real worlds invites us to apply Foucault’s spatial analysis to both, as the lazaretto, the *cordon sanitaire*, and patterns of partitioning in urban spaces are replicated in the simulated worlds of role-playing games.

In September 2005, the massively multiplayer online role-playing game (MMORPG) *World of Warcraft* (2004) presented an opportunity to test this method of analysis with a different genre. Blizzard Interactive, the game’s developers, added a high-level quest scenario in which players entered a dungeon, Zul’Gurub, to confront a powerful demon, Hakkar, the “God of Blood.” In his death throes, Hakkar spews a deadly pestilence, Corrupted Blood, which infects all players in the vicinity and inflicts damage so large that only characters at the highest levels can contract the disease without dying instantly. Blizzard intended to confine Corrupted Blood to Zul’Gurub, but when players contrived to carry the plague outside the dungeon into the larger game world of Azeroth, Corrupted Blood spread, killing hundreds of avatars.

The event received attention beyond the gaming community, as some viewed it as a reliable simulation of the spread of real epidemics. Brian Martin, a security consultant, cites the *World of Warcraft* plague as a lesson about our vulnerability to actual computer viruses: “Giving it the ability to propagate at all beyond a limited environment definitely
reminds us that self-propagating code is likely to bite us...without careful consideration and planning" (Lemos 2005). Jeremy Reimer (2005), a writer for the online magazine *Ars Technica*, speculates that epidemiologists might find “that this event was worth studying as a kind of controlled experiment in disease propagation.” Like the Wailing Death, rakghoul disease, and Corprus, Corrupted Blood mimics the pathology and social effects of actual diseases—and like historical plagues, it emerges through the violation of a *cordon sanitaire*, as players carry the plague beyond the lazaretto of Zul’Gurub into to the wider social world of Azeroth.

At the same time, there are qualitative differences between the *World of Warcraft* plague and the plagues simulated by *Neverwinter Nights*, *Knights of the Old Republic*, and *Morrowind*. These differences arise mostly from the generic disparity between the closed systems of single-player role-playing games and the more expansive and social *mmorpgs*. While *Morrowind*, like *World of Warcraft*, simulates the social effects of disease, Corprus spreads as a function of the game program. Corrupted Blood, on the other hand, spreads in an unprogrammed way, through the interactions between multiple players rather than the interaction between a single player and the game program. In a virtual world populated by many thousands of player characters rather than just one, the effects of Corrupted Blood are purely social, manifested in its means its propagation rather than in the construction of Azeroth’s cities.

Within a few weeks after the first appearance of the virtual pestilence in Azeroth, Blizzard eradicated it from the game programming, banishing Corrupted Blood from Azeroth with much greater ease than the perplexed nobles, clergy, and physicians banished the Black Death. Unlike Azerothians, Europeans could not rely on a benevolent programmer-god to write their horror out of existence. As Foucault explains, they had to accommodate the pest, isolate it through the division of their world, and make a home for it the lazaretto: the plague, “called for multiple separations...and organization in depth of surveillance and control. ...Those sick of the plague were caught up in a meticulous and tactical partitioning in which individual differentiations were the constricting effects of a power that multiplied, articulated, and subdivided itself” (198). Likewise, plague in *Neverwinter Nights*, *Knights of the Old Republic*, and *Morrowind*, does not merely kill, it defines the construction of the world and our movement and consciousness within it. In these games, as in the real world, plague is not a short-term anomaly to be corrected by programmers but rather a fundamental condition of life and a design principle.

**Discipline, Reintegration, and Utopia**

Marie-Laure Ryan emphasizes a crucial break of Renaissance artists from their medieval predecessors, when they discovered the laws of perspective and created the illusion of three dimensions in painting. Looking at these art works, Ryan explains, “the spectator experiences the depicted objects as virtually present, though the flat surface of the
painting erects an invisible wall that prevents physical interaction” (3). While perspective painting only entices the viewer to enter its sumptuous world with the illusion of three-dimensional space that stretches beyond the canvas, digital games dissolve the “invisible wall,” allowing the viewer to “enter” a simulated three-dimensional space. The “trick of the eye” of the trompe l’oeil technique becomes a trick of the mind. Like Baroque frescoes, they simulate the existence of a world beyond view, but as interactive environments, they also simulate an ecology, a world that is responsive to the movement and action of the player. They employ the same visual cues as perspective painting, creating the illusion of three dimensions, but they also conceive a phenomenological perspective, the illusion that our action as well as our vision extends into their world. Like the Renaissance artists who experimented with novel visual effects, creators of these digital games have developed scripts to sustain the illusion of “inhabiting” the simulated world, where real and imaginary spaces converge. Although we remember Devin Moore, that unfortunate, latter-day Don Quixote, we cannot forget “those moments of sheer delight,” as Ryan describes them, when “the reader develops an intimate relation to the setting as well as a sense of being present on the scene of represented events” (122).

In these role-playing games, however, a plague has come to Montiel, as if Quixote, in his contemplation of Apollo and Aurora, has happened upon a worm-eaten corpse. Simulated diseases have infected these dream spaces, segmenting and restricting them, but also convincing us more surely of their reality and subtly influencing the way we perceive actual disease and social space. By associating disease with social isolation and the underclass, with criminality and physical deformity; and by banishing it to the slums, sewers, and dungeons of the Beggar’s Nest, the Taris Undercity, and Tel Fyr; Neverwinter Nights, Knights of the Old Republic, and Morrowind condition us to dissociate ourselves from the afflicted. On the other hand, by simulating the biological and social effects of disease on player characters, as well as the ethical problems of quarantine, they also foster empathy with the afflicted. Most consistently, though, these games reinforce our consciousness of our world as that “segmented, immobile, frozen space” that Foucault describes. Neverwinter, Taris, and Vvardenfell seem real because their infected precincts are configured and governed much like the world we occupy everyday.

The conclusion of Morrowind, however, represents a significant difference between actual and virtual environments. When the player destroys Dagoth Ur in the heart of Red Mountain, the blight and dust storms abate, the Ghostfence disappears, and the perpetual gray penumbra over the Ashlands turns to blue sky. While most games follow the logic of disciplinary space to their conclusion, enforcing quarantine boundaries and scripting dramatic consequences of violating these boundaries, Morrowind represents a vision different from Foucault’s. With disease banished from Vvardenfell, the game depicts a happy and instantaneous reintegration of quarantined space with social space. In his survey of the reorganization of social space since the late Middle Ages, Tuan notes an analogous countermovement in utopian communes in the nineteenth and
twentieth centuries that works to de-segment public and private spaces in order to foster a more collective consciousness. These “utopias,” Tuan writes, “are conscious attempts at reconstituting social wholes,” countering the “forces of withdrawal” and segmentation with “those of reintegration” (177, 182). Game design, in this sense, is a kind of utopian planning. As Morrowind imagines the instantaneous reintegration of social space by the magical dissolution of the quarantine boundary, the game actualizes within the virtual world the utopian fantasy of communal reintegration. The Ashlands, the great lazaretto of Vvardenfell, becomes a part of the happy island commune.

Foucault sees no such possibility of reintegration. Nevertheless, the city—segmented, systematized, and subjugated in the wake of the plague—also represents a kind of “political dream,” the “utopia of the perfectly governed city” (Foucault 1977, 198). The reintegrated commune and the perfectly governed city, taken in opposition, represent two distinct visions of utopia: Tuan’s vision of the reintegration of social spaces and the renewal of pre-modern communal consciousness; and Foucault’s vision of perfect order achieved through segmentation and surveillance. The disappearance of the Ghostfence, the final departure from Foucault’s spatial model in Morrowind, marks a significant impasse between virtual worlds and our own. In the former, the sick can be made well, and society made whole. In the latter, the boundaries designed to contain the sickness remain even when the sickness does not, and the well go on living as if they were sick.

References


Playing With Landscape: Social Process and Spatial Form in Video Games

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Abstract
Video games not only incorporate representations of landscapes, they are themselves a form of landscape representation that communicates ideas about how the world is and how it should be. Like traditional forms of landscape representation, video games use tricks of perspective and realistic graphics to represent real world places or to create worlds that appear to be real. Through their interactivity, video games also give their players a sense of power and control over the spatial form of the landscape. However, unlike traditional forms of landscape representation, video games offer opportunities to subjectively enter the space of the game and explore the social processes that help to produce the virtual landscape. For instance, many video games highlight the role of labor in the production of landscape. Video games may therefore help their players to understand the taken-for-granted social processes that produce real world landscapes and to explore alternative utopian or dystopian social and spatial arrangements. Nevertheless, video games remain a landscape form of representation because they do not fully reveal the labor of programming and design that goes into their creation. Like traditional landscapes, video game landscapes incorporate the moral ideologies of their producers and therefore limit or direct the kinds of lessons about the real world that players might learn. Video game landscapes may therefore reinforce the dominant ideologies that govern the production of real world landscapes as much as they challenge them.

Introduction: Gentrification on Monkey Island
Though it is set in the world of Caribbean pirates, the adventure game Escape from Monkey Island (LucasArts 2000) offers a biting critique of gentrification and capitalist landscape production. It represents and contests the process by which the vernacular world of places is made into a landscape of capitalist accumulation (Zukin...
Melee Island, a traditional home for pirates, is on the verge of being transformed by a suspicious Australian land developer into a Caribbean resort, complete with a “Starbuccaneer’s” coffee shop, and a “Planet Threepwood restaurant.” The real pirates turn out not to be the pirates themselves but rather capitalists in the service of the evil “demon zombie ghost pirate LeChuck.” Like the homeless of contemporary cities (Mitchell 2003), the real, grog-drinking, sea shanty-singing, and swashbuckling pirates have been banished out of sight, to Monkey Island, so that they do not disrupt the sanitized landscape of capitalist consumption. Escape from Monkey Island offers a plot driven by conflict over competing ideas about order in the landscape. Unlike real world gentrification which is rarely stopped, the vernacular pirate landscape wins out over gentrification in the game.

The purpose of this article is to ask questions about what kinds of geographies video and computer games might help their players to imagine, for there is much that is both utopian and dystopian about the worlds of video games. Though they present visions of perfect worlds or worlds marked by oppression and strife and literally exist no place, they also by necessity represent aspects of our own world. Because of this, video games might be tools for learning about how the world works and for imagining both dystopian and utopian alternatives to current geographies. Specifically this article examines the potential for video games to represent the often hidden social processes behind the production of real world landscapes. Because they are interactive, video games have the potential to directly involve players in the production of virtual landscapes and therefore to help players begin to imagine and recognize the labor required to produce the concrete landscapes they see when they go outside.

To explore these possibilities, the article employs theories of landscape developed in cultural geography to analyze video games. Landscapes are clearly an integral part of many video games. They enhance game play, communicate useful information, and help to tell a story. For example, in adventure games, including Escape from Monkey Island, players explore a variety of scenes presented in a landscape form. The goal of first-person shooter games is to bring order and control to a chaotic landscape overrun with enemy soldiers or monsters. Finally many simulation and strategy games, including SimCity (Maxis 1989), involve the player in transforming, or producing, a virtual landscape. That video games incorporate landscape forms of representation is readily apparent. However, analyzing games using theories of landscape suggests that video games do not just incorporate landscapes but are themselves a form of landscape representation. Unlike traditional forms of landscape representation that offer an objective view from a single perspective, video games offer players the subjective experience of being in the scene and players may even help to shape the landscape itself through their virtual labor. Despite these differences, video games remain a form of landscape representation because they do not reveal the labor behind their own production. Video games offer opportunities to imagine alternative ways of arranging our own world, but only within the limits imposed by their designers.
Subjective and Objective Qualities of Landscape

Cosgrove’s (1984) re-examination of the landscape idea marked a significant change in the way that geographers understand landscape and provides a basis for understanding video games as a form of landscape representation. Cosgrove identified two sets of ambiguities present in the landscape idea that are also present in video game representations of the world. The first concerns the tension between the objective and subjective status of the landscape idea. Geographers once considered landscape to be a portion of the earth’s surface that could be objectively studied. However, landscapes are also invested with symbolic and cultural meaning by people who produce and view them. “Landscape is not merely the world we see, it is a construction, a composition of that world. Landscape is a way of seeing the world” (Cosgrove 1984, 13). Landscape is a medium “in which cultural meanings and values are encoded whether they are put there by the physical transformation of a place in landscape gardening and architecture, or found in a place formed, as we say, ‘by nature’” (W.T.J Mitchell 1994, 14). Because of this, landscape is a “unity of materiality and representation” encompassing both the land and its representation (Mitchell 1996, 28).

Landscape representations are not “mimetic” copies of reality (Barnes and Duncan 1992). Instead they are visions of the world, or “texts,” that are filtered through an ideological lens. In Renaissance Europe, “The boundary between reality and fantasy was not clearly defined; in the theater, for example, it is consciously obscured. In landscape painting, landforms, trees and buildings could be altered in position and scale, introduced or removed in order to structure and compose an apparently realistic and accurate scene” (Cosgrove 1984, 20). Though they are made to appear as objective reality, traditional forms of landscape representation often play games with reality through a variety of tricks including framing, perspective, color, scale, and omission or inclusion.

Many more tricks can be played in video games and the possibilities for realistic representation of both real world and fictional landscapes are extended. Technology allows for the creation of virtual landscapes that quite literally take on the postmodern quality that Daniels and Cosgrove identified as characteristic of traditional landscapes. “From such a post-modern perspective landscape seems less like a palimpsest whose ‘real’ or authentic meanings can somehow be recovered with the correct techniques, theories or ideologies, than a flickering text displayed on the word-processor screen whose meaning can be created, extended, altered, elaborated and finally obliterated by the merest touch of a button” (Daniels and Cosgrove 1988, 8). Both traditional and video game landscape representations might therefore be considered a form of virtual reality; they are “ideally real” or “real but not actual” (Shields 2003, 25).

Because of their status as games and the inclusion of fantasy elements, the casual observer might initially dismiss the idea that video games claim to represent reality. However, closer examination reveals that video game landscapes are indeed designed
to appear as a naturally given objective reality. Designers make the virtual world as convincingly real as possible through the use of three-dimensional, high-definition graphics and real-world physics. Fantasy elements are incorporated through reliance on suspension of disbelief (Schwartz 2006). Furthermore, many video game landscapes explicitly seek to represent or simulate real places as well as realistic situations. The effort to create realistic worlds is connected with similar efforts in the realm of landscape painting as well as more general claims about the objectivity of landscape (Cosgrove 1984). However, video games, because they are classified as games, are more easily dismissed as unremarkable fantasy spaces that have little of importance to say about the real world.¹ Whereas Cosgrove needed to emphasize the subjective elements of landscape to argue that landscapes embody ideologies, here there is a need to emphasize the potentially objective elements of video game landscapes which have not been taken seriously by the critical infrastructure that mediates the boundaries between popular and high culture (Zukin 1991, Mitchell 2000).

The assessment that computer games should be taken seriously as having something to say about the world outside the game is gaining ground. Critics increasingly recognize that video games have become sophisticated enough to qualify as a serious form of art, on par with painting, literature, and cinema, though the debate is far from settled (Au 2001, Ebert 2006).² McLuhan (1964, 208) asserted that “Games are popular art, collective, social reactions to the main drive or action of any culture.” Geographers have taken games and simulations seriously as research and pedagogical tools since the quantitative revolution in the 1960s (Walford 1995, Adams 1998). Whether or not video games are art, they should be taken seriously as a popular form of landscape representation for, as in the case of other forms of landscape representation that have been examined in cultural geography and landscape studies, there is an increasing recognition that video games communicate ideas about how the world is and should be. They communicate these ideas through the shape that their virtual worlds take and the prospects and perspectives through which we are given access to virtual worlds. By arguing that video games are a genre of landscape representation, this article draws out the ways that they are not just games but rather representations of reality that have something to tell their players about their everyday world.

The Observer/Player and the Observed/Character

The second tension embedded in the landscape idea that Cosgrove identified concerns the relation between the view of the individual observer of the scene and the everyday social experiences of participants in the scene. Cosgrove argued that to view the world as landscape, one must step out of the scene itself and become an observer rather than a participant. Doing so has two consequences. First, becoming an observer means that the social relations that help to produce the landscape, as well as the collective cultural meanings embedded in the landscape, become inaccessible. Viewing the world
as landscape emphasizes visual form over social process (Cosgrove 1984, 32; Harvey 2000). As a result, the landscape appears to be an inevitable outcome of natural forces. Landscape representations have a tendency to reify or hide the facts of their production including the labor and laborers involved. As Raymond Williams (1973, 120) observed, “A working country is hardly ever a landscape. The very idea of landscape implies separation and observation.” While looking at a landscape can provide clues to culture (Lewis 1979), landscapes are often designed specifically to obscure their origins. A garden may be designed to look “natural” for instance. “Apart from knowing the struggles that went into its making (along with the struggles to which it gives rise), one cannot know a landscape except at some ideal level, which has the effect of reproducing, rather than analyzing or challenging, the relations of power that work to mask its function” (Mitchell 1996, 33).

The second consequence of viewing the world as landscape is that the individual observer, divorced from the world being viewed, becomes free to impose his or her own personal meanings upon the landscape. “Landscapes transform the facts of place into a controlled representation, an imposition of order in which one (or perhaps a few) dominant ways of seeing are substituted for all ways of seeing and experiencing” (Mitchell 1996, 27). For example, in renaissance landscape painting a sense of control and ownership of the scene was created by the artist through the use of linear perspective which was seen to be a property of nature itself. Perspective worked to give “representations the appearance of being virtually real” (Shields 2003, 42).

In video games the relation between the observer and the participant is more complex than in more traditional forms of landscape representation because players are simultaneously participants and observers. Whereas in landscape painting linear perspective gives an illusion of control, in video game landscapes players directly exert control through the keyboard or game pad. The same tricks of perspective used in painting supplement this direct control (Poole 2000, 129). Because game designers offer players the ability to directly modify the landscape represented on the screen, players may become not just observers of the scene, but also participants in it.

However, that participation is almost always mediated through characters on the screen. In landscape paintings, “[t]he people who occupy the landscape and cheer the citizens by their antics do not themselves participate as subjects responsible for their world; they are puppets controlled by the artist through the same techniques as nature itself is controlled” (Cosgrove 1984, 25). A similar dynamic is at work in video games. Like laborers in a landscape painting, a character that is too well defined may disrupt the player’s sense of identification with the character as well as the sense of control in the game (Poole 2000). Character development happens not on the screen but in the mind of the player.3

As a result most video games are not primarily about character development but rather landscape development. “Game designers don’t simply tell stories; they design
worlds and sculpt spaces” (Jenkins 2002). Unlike a novel or a film in which characters typically undergo a significant transformation, video games offer spatial stories in which the landscape narrates a character’s journey. For instance, in *Sonic the Hedgehog* (Sega Enterprises 1991), Sonic changes very little, but the psychedelic landscape in the background continually changes as the player progresses from level to level in the game. Characters are “vehicles” that players use to move through and to manipulate the world (Fuller and Jenkins 1995). The sense of subjective involvement in the production of landscape that characters provide is perhaps the greatest trick that video games play. Interactivity gives the player access to a subjective perspective at the same time that it offers an objective sense of control over the scene, but only within the limits determined by a game’s designer.

Nevertheless, to the extent that the game designers grant players a high degree of control and the sense of being a character in the scene rather than an observer, video games may offer the ability to represent not only the spatial form of a landscape, but also the social processes that go into a landscape’s production. Whereas a landscape painting or photograph offers a completed scene, at the beginning of a typical video game the landscape is incomplete, unfinished, broken, or disharmonious. The challenge of the game is to create harmony, to solve problems and riddles, and to attain a state of order and control—to produce a landscape. In essence most all video games are about landscaping. The conflict that provides the occasion or backdrop for many games, including *Escape from Monkey Island*, is often explicitly one of landscape production. As Mitchell (1996) argues, the production of landscapes is always a contested process. Landscapes are at best a temporary imposition of order and control over the scene and are continually shattered and reformed through processes of political struggle. Because video games represent the struggles that go into the creation of their virtual landscapes, they are also examples of a form of utopian landscape representation that may have the potential to inspire the creation of more socially just landscapes.

**Utopias of Social Process and Spatial Form in Video Games**

Shields’ (2003) discussion of “the virtual” helps to explain the common association between virtual worlds found in video games and ideas about utopia. The idea of the virtual is connected with meanings of virtue such that virtual worlds may appear to be “virtuous” or utopian. Furthermore Shields (2003, 29) constructed a conceptual framework in which the virtual, that which is real but not concrete, is opposed to the possible, that which does not exist but could. The opposition between the virtual and the possible is a “soft” one such that “the virtual might feed and nurture the possible.” In turn the possible might be similarly made concrete.

David Harvey (2000) suggested that utopian representations of the world might play an important role in transforming the world in ways that promote social justice because they help one to understand what is possible. Utopias are valuable because
they allow for “imaginative free play” with alternative arrangements for organizing the world. Arriving at utopia, Harvey argues, is an incremental struggle that will never be achieved, but utopian visions of alternative worlds are nevertheless important for inspiring that struggle. However, the problem with utopias is that they tend either to ignore the social processes that must by necessity accompany new spatial orderings of society or they ignore the spatial forms that result from new ways of organizing social processes. In his search for alternatives to the current social and spatial order that do not self-destruct when they meet that order, Harvey advocates a dialectical utopianism that takes into account both spatial forms and social processes (Harvey 2000, 182). Though he did not offer a satisfying solution to the problem to utopia, he observed that in contemporary utopian novels, utopias are never fully realized but are “shaped by continuous processes of struggle… The static and finally achieved spatial/institutional forms of classical utopias are jettisoned as either unachievable or, if achieved, unstable and still in transition to something else yet to be defined” (Harvey 2000, 189). In Kim Stanley Robinson’s Mars Trilogy, Harvey wrote, the reader is not “introduced to a stable world already made and discovered, but is taken through the dialectics of making a new socio-ecological world.” Like the contemporary utopian novel video games may also be powerful tools for representing forms of utopia that take into account both spatial form and social process.

According to Gee (2003, 139), “One of the things that makes video games so powerful is their ability to create whole worlds and invite players to take on various identities within them.” Because video games are simultaneously simulations of and alternative representations of our own world, they have the potential to reinforce a player’s taken-for-granted beliefs about the world and to challenge those beliefs (Gee 2003). Most video games involve the player in creating not just a new visual order on the screen but also a new moral order in the virtual world. Good or evil usually triumphs over its opposite in the end. In this way, video game landscapes may be powerful tools for making claims about how the world works, as well as about how the world ought to work. Such claims are made not just through characters in the game, but through arguments built into the virtual landscape.

**The Evolution of the Representation of Virtual Labor**
The most important social process associated with the production of landscape is the social process of labor, and yet, as was suggested above, labor is absent or incidental in most representations of landscape. In seeking to discover “why the landscape looks the way that it does and who made it look that way,” Mitchell (1996:28) asserts that landscapes are produced in two ways. First, human laborers physically shape the morphology of the landscape. Second, “the re-presentation of the products of labor as a landscape represents an attempt to naturalize and harmonize the appropriation of that labor and to impose a system of domination, consent, control, and order within the
view.” In this sense landscape “hides,” or at the very least does not reveal the conditions of its production. It is both a “work and an erasure of work” (ibid. 6). Mitchell therefore argues that representations of California’s agricultural landscape helped to naturalize the system of labor that made the landscape possible. One does not think about labor strikes and bloody violence while contemplating a beautiful orchard. The extent to which video games represent laborers and their labor might be used as one way to examine the degree to which video games represent both social process and spatial form.

Simulation and strategy games usually involve the player in the production of a landscape viewed from above. In early games, like the original Sim City (Maxis and Will Wright 1989), the labor involved in the production of landscape was largely invisible. Creating a thriving city in Sim City required not the hard labor of digging in the dirt or riveting i-beams, but rather that of management. In addition, conflict or contest, especially conflict between management and labor, rarely interrupted the production of landscape in these early games. Thus, even though players of these games were involved in creating a landscape, they were shielded from the conditions under which the landscape was produced. These early video game landscapes operated similarly to real landscapes which hide the labor behind their production. This is especially ironic because of claims by both designers and critics that these games are designed to highlight rather than obscure the processes that create real landscapes.

As games became more sophisticated, labor became more visible. In Sim City 3000 (Maxis 2000a) the player hears hammering and sawing and can watch scaffolding going up as “sims” start building in the zones designated by the player. Furthermore, Sim City 3000 and Sim City 4 (Maxis 2003a) more accurately represented labor relations. If the player does not allocate enough “simoleons” in the budget for transit, workers complain and eventually go on strike. Significantly, this is not just represented by the abstract devices of newspaper headlines or messages from city advisors, but is dramatized in the landscape by picket lines on the sidewalk. It was perhaps in Sim Theme Park (Bullfrog Productions 1999) that labor first became the most visible. Hiring and managing labor is a central part of this game. Janitors, security guards, costumed characters, gardeners, and scientists all need to be hired, trained, and managed. Workers threaten to quit if they are not adequately compensated for their labor. These laborers have names, even if in appearance they are virtual clones of one another, and players can literally see them work in a way that is invisible in a real theme park. Janitors mop up vomit, gardeners water plants, and security guards patrol the park looking for trouble makers. Furthermore, the player sees the workers get tired, frustrated, and apathetic as they deal with the mess and stress of the theme park. Though hidden behind a cartoonish veneer, it was possible for the player to see and perhaps understand that landscaping under capitalism requires laborers whose working conditions may be more or less exploitative.

On first inspection it would seem that the initial lack of representation of labor resulted from the lack of sophistication of game designers. It might be that they were
concerned more with the look of the landscape rather than its production. While Sim Farm (Sim-Business and Eric Albers 1993), for perhaps the first time in a simulation game, represented the human labor required to maintain a productive landscape, it also glossed over the sometimes brutal labor relations in the agricultural industry and particularly in the strawberry industry (Schlosser 1995). The farmer-player pays for the labor and receives the income from the sale of the strawberries. Thus while labor temporarily interrupts the landscape, just as it would on a real farm, the game represented neither the specificity of the laborers’ lives (where they come from, their ethnicity, their gender, their class) nor the conditions under which they work. Yet, the appendix to the Sim Farm manual included an essay titled “Real Farms” that not only acknowledged the shortcomings of the representation of farming in the game, but also highlighted some of the contemporary social, political, and economic crises in agriculture (Perrin 1993). For example, it acknowledged that “Tenant farming can become a variety of slavery when the rents are so high that they can be barely paid” (131). A factory farmer is defined as “a farmer who applies the efficiency—and callousness—of industrial production lines to farming” (132). Furthermore, the conclusion acknowledges that despite technological progress, agriculture is a contested practice. “There have been a number of backlashes to the factory farming techniques, demonstrated by a vocal consumer market insisting on ‘free range’ animals, organic foodstuffs, and ‘green’ legislation to inhibit use of chemicals, pesticides, and animal hormones and antibiotics” (135). This essay and others like it in game manuals seem to acknowledge that the game designers are aware, and want to make players aware, of the extent to which their simulated landscapes do not fully represent the conditions of their production.

Another explanation for the lack of visibility of labor in these virtual landscapes may have to do with the games’ status as commodities. Not all labor is fun, and simulations of most jobs probably would not sell well. As Poole Writes, “After all, a sense of pleasurable control implies some modicum of separation: you are apart from what you are controlling. You don’t actually want to be there, performing the dynamically exaggerated and physically perilous moves yourself; it would be exhausting and painful” (Poole 2000, 63). Nevertheless, some games have been very successful despite their representations of the drudgery of everyday labor. In The Sims (Electronic Arts 2000), a sim earns a job promotion by developing skills in cooking, athletic ability, creativity, logic, and charisma. Gaining a skill point in athletic ability involves directing a sim to lift weights for several virtual hours. Watching this can be quite tedious, as can watching a sim sleep. Nevertheless, The Sims is one of the best selling games, and it is clear that even the most mundane forms of labor can be made to seem fun. In perhaps the most interesting case of labor getting in the way of fun, players who wanted to earn an honest living in Ultima Online had to spend hours accomplishing repetitive tasks (via repetitive mouse clicking) in order to hone their skills and earn an honest wage. Meanwhile less honorable “player-killers” took the easy route and literally made a killing by murdering
other players and taking their hard won possessions (Kim 1998). Not surprisingly many, if not most, players choose to have fun.

**Increased Computing Power and Representation of Subjectivity**

That more recent games represent labor to a greater degree than older ones suggests that one of the most important factors leading to the increased visibility of labor in landscaping games might be the increasing sophistication of home computer systems and gaming consoles. Technical limitations as well as aesthetic considerations affect the design of spaces in video games (Wolf 1997). With the increase in processor speeds and 3D video accelerator cards it is not only possible to represent landscape more realistically; it also becomes increasingly possible to represent individual actors in the landscape. Early video games were limited to depicting blocky characters. In *Donkey Kong*, Mario wore a hat because of the difficulty of depicting hair, and his head was enlarged in relation to his body in order to emphasize his humanity (Poole 2000). In the cases of games where the landscape was the central character it was much easier to represent the landscape from the point of view of a manager than to represent it from the point of view of a laborer. Increased computing power makes it possible to more fully represent intimate local scales and therefore the places where the manual labor of construction, harvesting, and policing takes place (Herod 1991). Indeed, *The Sims*, which represents the scale of social reproduction in the home, was made possible by advances in computing power. The prospect and perspective from which virtual landscapes can be viewed therefore has implications for the kinds of social relations that can be represented.

One result of an increase in computing power is that video games can better represent the subjectivity of the laborers who construct the virtual landscape. However, this doesn’t necessarily make for a progressive model of society. For instance, the very entertaining game *Startopia* (Mucky Foot Productions 2001), in which the player becomes the administrator of a space station, inadvertently imports a racialized division of labor. While each individual alien has a unique personality and biography, the aliens’ species or “race” rather than abilities determine their job on the space station. For instance, the purple skinned and green haired Karmarama aliens can only be employed on the Bio-Deck as gardeners, while the tall, brutish Kasvagorian’s are employed in security. Indeed, the labor for which each alien is suited is apparent in the design of his or her body. Take away the veneer of fantasy, and this game could be depicting the same racialized agricultural labor system that Mitchell (1996) and McWilliams (1971) described in their studies of California’s agricultural landscape.

On the other hand, a game might explicitly try to jettison traditional divisions of labor. In *Tropico* (Pop Top Software 2001), a game that simulates the political economy of a developing country, individual laborers have names and histories. However, the designers deliberately did not include realistic gender divisions of labor in the game. While not all jobs can be done both by women and men, largely due to the constraints of
budget and technical limitations, the designers argued, women take on non-traditional jobs as engineers, journalists, top level bureaucrats, and laborers (Steinmeyer 2000). This is one of only a few games to incorporate gender so fully into the subjectivities of the individual virtual characters. While *Tropico* offered a progressive vision of social process, its sequel, *Tropico 2: Pirate Cove* (Frog City Software 2003), emphasized gendered divisions of labor. “Wench jobs” required female workers for example. Moreover, because its workers were unpaid captives, it was essentially a slavery simulator.

The addition of increased computing power allowed more resources to be used for integrating artificial intelligence (AI) into games. The result is that the subjectivity of the virtual laborers is better represented because they gain a more lifelike sense of agency. *Black and White* (Lionhead Studios 2001), perhaps more than in any other game, represented the laborer as a sentient, thinking, feeling, and indeed living being. The player takes on the role of a god who must manipulate the landscape of the game world in order to increase the belief of villagers that populate the world. While much of this landscaping can be done by the player/god him or herself, the player/god requires the help of a giant creature (a tiger, cow, or ape) in order to make much progress. Through AI programming, the creature has the capability to learn from the player and exhibit emergent rather than programmed behavior. The player can teach the creature to work the landscape through a system of punishment and reward. The player may reward the creature with a scratch under the ear or a pat under its stomach (resulting in moans of pleasure). The creature can also be punished by slapping it silly, after which the creature sobs profusely and sulks producing pangs of guilt in all but the most callous of players.

Unlike in previous games, the player must directly manage the labor of the creature in order to shape the landscape. Not only are there struggles between the creature and other creatures and gods (played by the computer AI or by other people/gods in an online environment), but there is also a struggle between the player/god and his or her creature. Getting the creature to do the player/god’s will is a difficult task. The creature has to be fed, or trained not to get hungry. If not trained properly it may lounge around the landscape ignoring the needs of both the villagers and the player/god. If it is not treated well by its player/god, it may obstinately refuse to work, in effect go on strike. Thus, more so than other games, *Black and White* represents the production of landscape as a contested process. It allows the player an opportunity to explore the social relations of landscape production at a very intimate scale.

**The Moral Landscapes of Virtual Cities**

The possibility that video games can teach us something about our own geographies may be explored by looking at two video games that have virtual cities at their center. The two most famous (or infamous) urban simulation games are *Sim City* (Maxis and Will Wright 1989; Maxis 1994, 2000, 2003a) and *Grand Theft Auto III* (*GTA III*) (Rockstar Games 2002). While in *Sim City* the player takes on the role of a mayor in
order to construct his or her own vast urban metropolis, in *GTA III* the player takes on
the identity of a street thug working his way to the top of the crime world of Liberty
City. Both games are utopian in that they allow for imaginative free play. At the same
time the ultimate object of both games is to create an ordered urban landscape. In *Sim
City*, it is the ordered landscape of a smoothly functioning city. In *GTA III*, the ordered
landscape is one of a city controlled not by its citizens but by a criminal family. For
the main character, Liberty City is a criminal utopia, but for the virtual citizens who
suffer in the streets, and hopefully for the players on the other side of the screen, it is
dystopian.

*Sim City* is more traditionally utopian in that the player influences social change by
constructing the physical landscape. It concentrates on alternative spatial forms. A mayor
who wants wealthy citizens to move into his or her city needs to encourage high-tech
industry by providing numerous parks, schools, and cultural facilities. Nevertheless, one
of the innovations in later versions of *Sim City* is the ability to influence social process
by enacting ordinances, such as pollution control or subsidized health care. Fine control
over tax rates introduced in *Sim City 4* allows a mayor the freedom to create systems of
taxation that may benefit the poor at the expense of the rich or vice versa.

*Sim City* is indeed a very effective tool for learning about how cities work because
of its open-ended nature and the way it encourages imaginative free play with an
alternative world. The latest version, *Sim City 4*, is notable for its ability to simulate both
urban decay and gentrification as well as to realistically simulate regional urban systems.
The look of the landscape also reflects these processes. When areas of the city go into
decline, junk cars appear in yards and buildings start to appear run down. In addition,
as the city ages, new buildings evolve with different architectural styles, meaning that
the city gains a more historically layered appearance. There is little doubt one can gain
some understanding about the relation between social process and spatial form through
playing *Sim City*, though it emphasizes the spatial form of the city.

*GTA III*, in contrast, is primarily a dystopia of social process. The player can do little
to directly modify the built environment, but can do much to alter the political power
structure of the city through his criminal activities. It imagines a totally privatized city
where criminal gangs rather than a public composed of citizens is in control and where
there are few consequences for criminal activity. The game also allows for imaginative
free play. One of the most innovative aspects of *GTA III* is the supposed freedom that it
offers players through its non-linear storyline and the ability to explore Liberty City at
will. It is possible simply to explore the city, work as a taxi driver, fight fires, or deliver
patients to the hospital in an ambulance. This potential for imaginative free play lies
at the heart of the games’ popularity and critical acclaim as well as its condemnation
by parents and politicians who criticize its violence and overtly racist content. Yet *Sim
City*, too, is not without its dystopian elements. Players have long had the ability to burn
down houses or destroy the city with a volcano or a giant robot. *Rush Hour* (Maxis
an expansion pack for Sim City 4, even echoes some of the dystopian elements of free play from GTA III, giving the mayor opportunities to earn money by engaging in criminal mischief.

**Video Games Are Landscape Representations**

Because both games allow for imaginative free play and represent both spatial form and social process, they seem to take on the character of entire virtual worlds rather than landscapes. It is easy, therefore, to forget that they are indeed forms of landscape representation. The freedom in both games is an illusion perpetrated through the use of a clockwork landscape. The uncritical player, who is willing to be controlled by this landscape, if such a player truly exists, cannot play the game in a way other than the way its designers intended. In this sense the game plays the player. In GTA III, the very landscape itself makes playing as a “good guy” difficult. There is indeed no way to buy a car in the game, and to work as a taxi driver one must steal a taxi. Driving anywhere without running over pedestrians takes patience. Similarly, playing Sim City as an evil mayor leads quickly to disaster. Fail to provide adequate power or water and your city dies out. “One of the limitations of the contemporary video game is that it provides only prestructured forms of interactivity, and in that sense, video games are more like playgrounds and city parks rather than wild spaces. For the most part, video game players can only exploit built-in affordances and preprogrammed pathways” (Jenkins 1999, 272). Video games remain forms of landscape representation because the places and the processes that they represent are themselves only the surface expression of the computer code and design documents that go into their making and that are hidden from the view of the player.

It is through this computer code that the programmers and designers ultimately control and limit what it is that a player may do in the world. That is, while video games may make social processes, including virtual labor, more visible, they also obscure the concrete labor of the programmers and designers who created the game. Depending upon the conditions under which they labor, programmers and designers may have more or less control over the design of video game worlds. Concerns about profitability on the part of publishing companies, for example, may limit the range of possible forms that virtual worlds might take and the kinds of labor that might be represented. At the same time, programmers and designers may attempt to resist the conditions under which they work by inserting unauthorized code into games. Understanding the conditions under which games are produced is therefore important for understanding how particular moral ideologies about the world are built into video game landscapes.

Deciphering these moral ideologies and their potential effects is far from an easy process. In the case of GTA III, the model of social process offered is based on a corrupt moral ideology. Commenting in part on GTA III, Leonard (2002) wrote, “Contributing to our ‘racial common sense,’ and our understanding of what is meant by
black or by women, while also justifying contemporary social policy (prison industrial complex, war on terrorism, militarization of the border), modern-day video games do a tremendous amount of ideological work, especially in regard to race and gender.” However, a commentary by Thompson (2007) on a controversial game titled _Super Columbine Massacre rpg!_ suggested that there may be an alternative way to understand the ideological work that video games do. The game simulates the Columbine High School Shootings in Littleton, Colorado, in 1999. While the very idea of such a game is abhorrent, Thompson argues that the game’s author offers a critical commentary on the massacre and on video game culture via its retro style. “It’s a neat stab at the mindset of the killers, who, for all their bombast about being objectified by their tormentors, did precisely the same thing to their victims. They didn’t see them as individuals: They were just metaphoric targets for their hatred. Indeed, in the game, as the killers did in real life, you don’t target any particular kids. You just wander around killing randomly.” The “exuberant” conventions of video game culture clash with reality of the situation being simulated and the game “highlights just how psychotic and disconnected from reality the conventions of video games can sometimes seem.” The effectiveness of these games as critical commentary depends upon viewing them as landscape rather than as accurate models of reality. Uncritical players, who do not stand outside the game and resist the tendency of the virtual to appear virtuous, risk confusing dystopia with utopia. If such games are viewed as virtual worlds rather than landscapes they may simply reinforce dominant ideas about the city. If, however, players are conscious of these games as landscapes they may serve as a dramatic visualization of a dystopian world to avoid creating. Whether players understand the social process in these and other games in utopian or dystopian terms is an important question for further research.

With or without such research, it is clear that designers believe that the medium of video games has great potential to impart explicit moral messages and educational lessons. A relatively new genre of “serious games” has emerged, made possible by the lowered cost of production and distribution of games. Importantly, these games are often accompanied by supporting educational materials that seek to make sure that players learn the correct lessons from the games. _A Force More Powerful_ was designed to teach strategies of nonviolent conflict. “Created by BreakAway Games, the game leads players through simulations of real-life events, such as Gandhi’s struggle for Indian independence, the civil rights movement in the American South, and Otpor’s protests in Serbia” (Kohler 2005). The United Nations World Food Programme created _Food Force_ in order to represent the day-to-day tasks of the agency. It was inspired by the success of _America’s Army_, which the United States Army created as a recruiting tool (Kohler 2006). The web site for _Food Force_ includes articles about the reality of the World Food Programme, features on how the game is being used by students, a teacher’s guide, as well as information on how “you” can help (unwfp 2007). Similarly, the game _Darfur is Dying_ puts players in the role of a refugee in Darfur in order to
inspire activism (Boyd 2006). At the same time, however, a variety of groups are making games that celebrate and seek to educate about hate. A game called Kaboom simulates suicide bombing. “Dressed in a jacket, the bomber walks down the street until the player double-clicks on him. Then he opens the jacket and explodes. The score is tallied depending on how many men, women and children are around him and whom he maims or kills” (Mandel 2002).

As the ability to create games and distribute them becomes more widespread, the likelihood is that they will play an increasing role in public discourse. To a certain degree they already play a large, yet unacknowledged role. What is clear is that the content of video and computer games reflects the cultural moment. Game makers mine recent history and “hot” geographies as subjects for their games. As they become more sophisticated and as children who grew up with them become adults, video games may increasingly help to create the cultural moment, to shape public discourse, and to shape cultural landscapes.

Conclusion
What is enticing about video games as utopian landscapes is the possibility that they may serve as tools that their players can use to imagine a better world. To varying degrees, video games offer players the ability to control the spatial form of virtual landscapes as well as to virtually experience the social processes of landscape production. Players can learn much from video games about how real world landscapes are produced, and games offer powerful tools for visualizing alternative social and spatial arrangements of the world. Yet if we believe that Sim City might have something to teach us about creating better cities or that GTA III might offer warnings about the dangers of actions without consequences, we also need to be open to the possibility that these games may reinforce existing negative stereotypes about the city. What worries parents and critics of GTA III is the possibility that those who play the game might see Liberty City as a utopia rather than a dystopia. Video games do indeed communicate particular moral messages about how landscapes should be constructed. These messages are all the more convincing because video games create the illusion that the player makes the moral decisions about the landscape rather than the game designer. Recognizing that video games represent the world as landscape helps us to understand their potential as well as their limitations as tools for learning about how the world works and for visualizing how it should be.

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Endnotes
1The dismissal of games as frivolous entertainment is a central argument in court cases concerning laws restricting the sale of games to minors. In one decision that was overturned on appeal a
judge concluded that video games do not constitute protected speech under the First Amendment because like poker or other card games they do not express ideas or tell a story (Au 2002; Interactive Digital Software Association v. St. Louis County 2003).

Though the debate about video games as art is not the central focus of this article, the arguments presented here may have some relevance. Ebert’s rejection of video games as art centers on issues of interactivity and lack of control by the artist. The arguments presented below suggest that he may overestimate the extent to which the artist relinquishes control to the player.

While it is true that in role-playing games characters gain new skills, physical abilities, and weapons, they rarely have epiphanies, change attitudes, or come to a new understanding of their relationships with others. Even when they do, video games do not explore the process through which these developments occur in much depth. For example, in The Sims (Electronic Arts 2000), a game that attempts to simulate character development and interpersonal relationships, players witness but are not privy to the conversations that lead up to a first kiss and must supply their own narrative.

This argument is somewhat difficult to make for abstract games that do not depict an actual landscape or sports or fighting games in which the landscape serves as a backdrop. However, even these games involve attempts to create some kind of order and therefore share much with the process of landscaping.

One of the most famous examples involved a programmer who sought to challenge heterosexual attitudes in his workplace as well as the implicit heterosexual content of video games by inserting kissing male Sims into the game Sim Copter (Silberman 1996).

References


Digital Digs, or Lara Croft
Replaying Indiana Jones:
Archaeological Tropes and “Colonial Loops”
in New Media Narrative

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Abstract
This article investigates how the spatial narratives of contemporary game culture relate to the legacy of the imperialist imagination. In new media scholarship, the navigational practices of gaming have been associated with both critical deterritorialization practices and the exploratory processes of colonization. Using the influential Tomb Raider franchise as a case study, the article unfolds these tensions by investigating the archaeological logic of this and other adventure and action-adventure games. As historical practice, as well as epistemological model, the exploratory practices of archaeology are ambiguously embedded in both imperialist histories and their postmodern critique. The interplay of game architecture and narrative in the scenarios of Lara Croft’s archaeological adventures aesthetically develops these ambiguities. On the one hand, the games are designed according to a colonial logic of penetration and appropriation, and they replay highly offensive tropes of the imperialist imagination. On the other hand, the gaming experience partially exceeds the logic of colonial mastery and brackets its representational narratives. Comparing the Lara Croft games with the films highlights how the latter aim to reconcile the heroine’s shady tomb raiding business with postcolonial sensitivities. However, in doing so, they also re-introduce romantic tropes from the imperialist imagination.

Introduction
In his, by now, classic *The Language of New Media*, Lev Manovich suggests that “many computer games” represent “the human experience of being in the world” as a “continuous navigation of space (think, for example, of Tomb Raider)” (2001, 214-215).
This article contributes to the critical investigation of the politics of these navigational practices. Manovich’s game example, *Tomb Raider*, suggests quite specific spaces, and, no less specific, navigational goals. The adventures of Lara Croft, who was modeled on Indiana Jones, consist in exploring mostly “exotic” environments, with the explicit purpose of collecting the cultural treasures of past civilizations hidden in them. Like many other videogames, these adventures invite the question, How do their worlds relate to the structures of modern imperialism and its postcolonial critique?

Early scholarship on new media, at the time particularly hypertext aesthetic, emphasized the critical, democratic potential of the ways users relate to digital spaces. In this context, Jaishree K. Odin postulated the affinity of digital navigational practices with postcolonial experience. According to Odin, the navigation of digital space transforms the “‘monadic’ subject of the modernist era into a ‘nomadic’” one (1997, 601). “Territorialized” knowledge, which “deals with colonizing and mastering the unknown by setting the unknown as the other that must be appropriated,” is replaced with “deterritorialized knowledge” (614, referring to Trinh). While territorialized knowledge “involves fixing people and places into stable configurations where the interrelations among the individual constituents are already mapped out,” deterritorialization shifts the focus from “maps to itineraries” (614). In de Certeau’s words, it does not map static places, but rather actualizes fluid spaces (603; de Certeau 117).

As Odin points out at the end of her article, however, this postcolonial potential is not automatically realized in any new media environment. Rather, assessing its realization in particular new media texts requires that we address the interrelatedness of media with other social technologies (627-28). Pursuing these relationships, Manovich suggests a somewhat different perspective on the connections between new media and the postcolonial. He as well describes new media’s, in many ways, “postmodern” aesthetic of “spatial wandering,” but he does not prototypically embody it in a postcolonial subject. Rather, Manovich associates the subject with an early modern colonizer Robinson Crusoe (2001, 78). Later in his book, Manovich traces two precedents of moving through virtual space in modern Western culture: Whereas the *flâneur* wanders through a city crowd, the explorer “builds character” by moving “through spaces of nature” (270-271). Although commenting on the name of a notorious internet browser (273), Manovich primarily associates the web with the first model: the Net surfer “is a reincarnation of Baudelaire’s *flâneur*” (271). On the other hand, “the user navigating a virtual space assumes the position of the nineteenth-century explorer, a character from Cooper or Twain. This is particularly true of the navigable spaces of computer games” (271). Whereas hypertext encourages a “Data Dandy,” who has developed a more democratic relationship to the crowd than his nineteenth-century predecessors (270), the immersive space of games seems to ask for a subject that resonates with colonial, rather than, postcolonial experiences.
As I argue here, this does certainly not mean that videogames, or even particular game genres, are per se necessarily imperialist. Rather, the structural affinity between these games and spatial exploration can play out very differently, depending on the ways in which cultural codes and narratives are implemented in their design. At the same time, the dominant uses of the medium up to this point suggest their discussion in terms of imperialist fantasies. Summarizing previous research, notably Fuller and Jenkins’ early dialogue on Nintendo®, Newman points out that a typical videogame presents space “must be traversed, explored, utilized, mastered and perhaps even conquered;” “play is at least partly an act of colonization” (2004, 33, 109). Importantly, such imperialist connections do not necessarily preclude that games also question, displace, or significantly modify the hegemonic narratives of European imperialism. In this article, I look more closely at these relations; In which ways, or to what degree, do games “loop back” into the imperialist imagination? Or how do they actualize its scenarios in different, post-imperialist ways?

Game scholars have largely neglected to ask critical follow up-questions to their observations regarding the colonization of space in videogames. Overall, questions of race, ethnicity, and colonial power differentials have remained oddly absent in an emerging field divided between mostly celebratory approaches on the one hand, and often sweeping critiques of games in terms of gender and violence on the other (Leonard 2003 below). Ironically, notions of “imperialism” and “colonialism” have simultaneously played a significant role in the border wars around the new discipline, where they designated the “narrativistic,” semiotic, or simply “academic colonialism” of film or literary scholars on the “virgin soil” of game studies (Aarseth 2004, 49, 45; see Frasca 2003). With these “border wars” having mostly died down, however, it may be time to pursue the effects of imperialism on game culture itself.

A number of ludologists agree that it is a precondition of any critical understanding of and practice in game culture to read games also in terms of their textual nature and their participation in cultural discourse (Moulthrop 2004a). Narrativity is a crucial aspect of this textuality.1 While some of the ludologists’ skepticism regarding the ideological functions of narrative is clearly warranted (Moulthrop 2004b), the history of computer games suggests that we should not underestimate the significance of narrative in contemporary culture. Obviously, this does not mean that games use narrative in the same ways as other media do. As Aarseth suggests, a major difference between novels and games is that games “focus on self-mastery and exploration of the external world, not exploration of interpersonal relationships” (2004, 51). Similarly, Manovich compares the exploratory journeys of new media practice to ancient, “pre-psychological” narrative, as well as with the “classical American mythology in which the individual discovers his identity and builds character by moving through space,” in contrast to European narratives, which locate the action in psychological rather than physical space (2001, 246, 271). Finally, Fuller and Jenkins had already discussed the
Nintendo® gaming experience in 1995 in terms of its similarity with early modern, space—rather than plot—or character-driven travel narrative.

These geographical and temporal mappings suggest that games do come with the potential of actualizing their exploratory scenarios in ways that differ from modern European imperialist stories. Importantly, however, the distinctions made are relative rather than absolute. Modern European novels exhibit different degrees of plot coherence and explicit psychological discourse as well. Complicating matters further, Jenkins also points to “popular” as opposed to high-cultural traditions that emphasize spatial exploration over causal event chains or which “seek to balance the competing demands of narrative and spectacle” (Jenkins 2004, 121; Fuller and Jenkins 1995). More generally, structuralist and post-structuralist theories of narrative have highlighted the spatiality of narrative per se. For example, de Certeau suggests that “every story is a travel story a spatial practice” (1984, 115). While arguably problematic, such generalizations are helpful in highlighting the crucial function of spatial practices throughout European modernity, including the nineteenth century, an era obsessed with history (Soja 1996, 155, referencing Foucault). Many modern European novels develop their plot, characters, and concepts of history through the imagined movement in physical space.

In particular, such interplay of time and space is constitutive of the tales of European as well as American imperialism, and more generally cultural superiority, as developed in the spheres of literature, philosophy, and art. In Herder and Hegel, Flaubert and Nerval, Kipling and Rider Haggard, as well as the museums of Western cities, concepts of European historical “progress” were articulated through the exploratory mapping of “other” cultures as presumably a-historical, or simply backward (Fabian 1983). In the second half of the twentieth century, the space-time hierarchy operating in these narratives was, at least partially, reversed through the critique of progress narratives and postmodern culture’s fascination with space. In this cultural context, computer games emerged as a powerful medium whose designers are, in some respects, better understood as “narrative architects” than “storytellers” (Jenkins 2004, 121). While this circumstance suggests close critical attention to game settings, it does not imply that the two other categories are entirely out of the picture. Just like space in the historical novel, time and story often play crucial roles in the spatial scenarios of contemporary culture. Analyzing the interplay of game architecture, plot, and character in the scenarios of exploration will allow me to look more closely at the ways in which the spatialized narrative of new media functions in continuity with hegemonic paradigms of European modernity, along with the ways in which it shifts or breaks from these contexts, developing a “postimperialist” imaginary which may recall “premodern” forms of narrative. In the following sections of this article, I develop these ideas in a close reading of the Tomb Raider series. After setting up the significance of this series and its archaeological fantasies in relation to the imperialist imagination (section two), a closer look at the interplay of narrative
and performance in these games as compared to the films (three) leads me into the
discussion of the games’ logic of spatial appropriation (four). Finally, this allows me to
develop a fuller account of the different, although equally ambiguous, ways in which the
games and the films negotiate the postimperialist condition (five).

**Tomb Raiding Business: Lara Croft, Archaeology, and Imperialism**

As quoted above, Manovich mentions *Tomb Raider* as an example of how spatial
navigation works in games more generally. Following this hint, I believe that we can
ascribe a paradigmatic status to at least some of the ways in which space works in
this particular series. Its aesthetics of exploration, as characterized specifically by the
“archaeological” practices that I analyze here in detail, is constitutive of other games as
well—namely those in the adventure and action-adventure tradition, but in some respects
also fantasy-world Role Playing Games (RPGs) like *Baldur’s Gate*. The little existing
research on colonial or imperialist fantasies in videogames concentrates on a different
group of games. In the *Civilization* series or *Tropico*, the player is explicitly charged with
spatial development and government, in short; colonization tasks. Compared to these
games, the archaeological narratives of the *Tomb Raider* series complicate matters of
power and domination; as I show, they ambiguously negotiate colonial and postcolonial
impulses rather than simply channeling imperialist desires. Precisely for this reason,
however, they are even more relevant for the project of theorizing the ways in which
imperialist legacies continue to inflect the contemporary imagination.

No less importantly, the Tomb Raider series itself was—and continues to be—
very influential in the history of the medium, as well as the history of globalizing-
media society at the turn of the twenty-first century. Soon after the release of the first
*Tomb Raider* game in November 1996, its sales were among the highest on the market
(Deuber-Mankowsky 2005, 2). In 1999, its publisher, Eidos, was named Britain’s most
successful company in any industry (Poole 2000, 7), and in 2006, the franchise continued
to rank among the best selling ones “of all time,” with more than twenty-eight million
copies sold (*BBC News*). The extraordinary success of the series was both enabled by and
contributed to the unprecedented growth of the game industry and the diversification
of audiences after the launching of PlayStation® (Newman 2004, 51). *Tomb Raider*
thus played a major role in the process of creating “the mainstream or casual gamer”
which would change the games themselves while preparing the ground for the medium
to rival cinema box office returns at the turn of the twenty-first century (ibid., 3). In
unprecedented ways, the game heroine was transformed into a “cultural icon” of the
new-media society (Deuber-Mankowsky 2005, 2; Rehak 2003, 481). With fan sites
predominantly in French, German and Dutch, but also Portuguese, Spanish, Czech,
Russian, and Italian (Case 2005, vii), her “fame” transcended the English-language-
dominated world in which the game originated.
Previous scholarship suggests that apart from the improved graphics of the game, this transnational and transmedial success story was primarily enabled by the heroine’s sex, that is, by whatever precise mixture of Lara’s qualities as sex object and female hero a critic sees in effect (Carr 2002; Deuber-Mankowsky 2005; Kennedy 2002; Mikula 2003). While questions of gender are clearly central to explanations of the Lara Croft “phenomenon,” it is ironic that the fact that the games have been discussed so exclusively in terms of gender perpetuates the category’s special—rather than conceptually integrated—status in new media studies. More importantly for my context, this exclusive focus also effects disregard of the ways in which gender intersects with other social differentials (race and culture) in the production of game fantasies. The extraordinary resonance of Lara Croft’s adventures in the globalizing imagination at the turn of the twenty-first century cannot be reduced to the “mysteries” of her feminine masculinity—by which I mean here the overdetermined configuration in which she is both phantasmatically empowered as heroic subject and simultaneously sexually objectified—but needs to be related also to the appeal of exploratory fantasies in contemporary mediascapes. Arguably, the complete failure of the 2003 Angel of Darkness installment in conjunction with the 2006 “comeback” Lara Croft Tomb Raider: Legend indicates precisely this significance of archaeological fantasy. The Angel of Darkness was not only widely considered to be “unplayable,” but also moved the game’s emphasis away from the spectacular sites and challenging explorations of ancient civilizations which initially constituted its fame. The calculated return to precisely these scenarios in Legend had the desired effect with both critics and consumers.

The (relative) failure of the film adaptations to live up to the success of the games is a phenomenon worthy of investigation in itself. Apart from some speculation in this regard, comparing the films to the games will allow me to discuss both specifics of the game genre and its role in a larger socio-symbolic context. In many respects, the Tomb Raider text figuration suggests a “merging” of cinematic and game languages in the contemporary mediascape (King and Krzywinska 2002, 1). With progressively improved graphics and filmic “cut scenes” before or after (later within levels), the player engages in a partially cinematic experience, which leaves little room for interactivity on the level of the larger game plot (King 2002). It is well known that the Indiana Jones films provided Tomb Raider with its basic story formula as well as countless architectural details. In addition, later game installments point to more contemporary films, including The Mummy (Tomb Raider IV: The Last Revelation) and, of course, Angelina Jolie’s Lara Croft performance (Tomb Raider VI: The Angel of Darkness and Lara Croft Tomb Raider: Legend). Conversely, the Lara Croft films are closely modeled after the games, their iconography and camera angles. However, critics have noted that the films’ use of game structures is not as radical as, for example, that of Tom Tykwer’s Run, Lola, Run (Stables, as quoted in King and Krzywinska 2002, 18). The experiences of game playing and film watching remain, in many ways, different within the Tomb Raider figuration. At
the same time, there are also differences between the game and film texts which arguably reflect less the “nature” of the respective medium than different socio-symbolic contexts of production and reception. But first of all, back to the beginnings.

Long before the intervention of Hollywood, or even her character-obsessed fans (Rehak 2003, 482-484), Lara Croft had something like an “official” identity. The “Introduction” provided in the Tomb Raider I booklet, which became the basis of fan biographies, references the histories of European imperialism quite explicitly. Unlike her predecessor, Indiana Jones, who is an American adventurer and professor, Lara has the background of a British aristocrat. After a plane crash in the Himalayas, however, she “realized that she was only truly alive when she was traveling alone.” Acquiring “intimate knowledge of ancient civilizations across the globe,” Lara became known for “discovering several sites of profound archaeological interest.” Soon, the “prodigal daughter” found herself disinherited by her family. Narratively embedded in a story of gender and class rebellion, archaeology is thus presented as a subversive displacement of the traditional Indian adventures of privileged British travelers. Mikula comments, unfortunately without further explanation, “Lara thus brings together the aspirations of modernism—the imperial pursuit of power and global prestige—and their postmodern problematization and fragmentation. Paradoxically, she critiques neo-imperialism by enacting her own complicity with it” (2003, 83). How does this “paradox” unfold?

The game exposition resonates with a larger discursive configuration, which puts archaeology in a twofold relationship to European imperialism. As the use of the archaeological metaphor in recent cultural theory may suggest, archaeological practice bears certain affinities to postmodern, and possibly postcolonial, paradigms. Unlike the anthropological pursuit of access to an “authentic other,” the archaeological “encounter” is never immediate. Rather, the lack of presence is its precondition. Searching for the “lost” and fragmentary leftovers of more-or-less-forgotten, but once-mighty cultures, the archaeologist is familiar with the incoherent, multilayered, and shifting character of hegemony and identity. Long before the advent of postmodern paradigms, archaeologists were aware of the degree to which their cultural narratives were based on a process of active re-construction (Zintzen 1998). However, this very feature of archaeology may have contributed to its popular appeal in a modern condition marked by recurring desires to regain “lost” cultural value and coherence. Ever since the excavation of Tutankhamen’s grave in the 1920s, European and North-American mass audiences have been fascinated with the heroic acts, and golden treasures uncovered, by archaeologists all over the world. In the era of decolonization, archaeology has also been praised as morally superior exploration: Rather than using military force for political conquests, archaeologists re-create cultural value in their relentless fight against the forces of time, climate, and willful destruction (Ceram 1968).

At the same time, controversies about who owns the uncovered treasures (Greenfield 1996) have highlighted that archaeology has not merely worked in the
service of “human” culture. Throughout modernity, the archaeological imagination has been actively participating in imperialist politics. Dislocated in the process of colonization, the objects collected for the museums of European, and North-American, cities have helped to construct the identities of both cultures of origin and countries of appropriation (Barringer and Flynn 1998). As part of the imperialist imagination, archaeological discourse asserted that its scientific explorers were bearers of the “burden of civilization” in regions fallen into cultural decay and prey to the “barbarian” acts of native tomb raiders (for example, Carter 1923). But with the growing awareness of colonial exploitation, the shadow of the tomb raider began to fall on the archaeological heroes themselves. While academic explorers continued to defend their higher mission, popular culture staged the ambiguities in increasingly explicit ways. In the early 1980s, Indiana Jones was not much more than a tomb raider, and at the turn of the twenty-first century, Lara Croft is explicitly identified by this label. Somewhat cynically, we may be tempted to ask whether precisely this loss of legitimacy has enabled the re-gendering of the archaeological hero in the popular imagination. In any case, the name of the Lara Croft series literally suggests that in the postmodern imagination the imperialist shadow of archaeology has caught up with its very essence.

**Between Media: Plot Development and Game Performance**

The archaeologists’ transformation into tomb raiders does not mean that questions of legitimacy are no longer an issue. Rather, such questions assume an even more central function for the development of plot and closure, while at the same time, they are bracketed to the degree that these categories are displaced in the games. Most of the *Tomb Raider* installments in both media replay a version of the story that cinema audiences have been familiar with since Indiana Jones’s first Nazi adventure, *Raiders of the Lost Ark* (1981). The archaeological hero needs to save the world by preventing the “bad guys” from uncovering a tremendously powerful artifact, and putting it to horrible use. Of course, the tomb raider’s heroism is of an ambivalent nature. Like other problematic action heroes and femmes fatales in hegemonic (that is, racist), Western culture, Lara is iconographically presented as somewhat racially ambiguous, even while both her social background and visual confrontations with black characters suggest she is white. The game plots develop these visual hints by variously aligning Lara with the “bad guys.” In *Tomb Raider i* and *iii*, she is in turn hired by the evil forces, Jacqueline Natla, from Natla Technologies, and Dr. Willard, the Scottish scientist from whom she will eventually have to rescue a dangerous artifact. In *Tomb Raider iv*, Van Croy, Lara’s own archaeological mentor, becomes the enemy when he is possessed by the evil god Seth whom he had released. *Tomb Raider vi*, *The Angel of Darkness*, turns the tables to have Lara accused of murdering Van Croy. In the 2006 *Legend*, Lara’s major opponent is her former friend, Amanda, who turned to a shady creature-mastering business after Lara failed to save her in a shared youth adventure. In accordance with Hollywood
scripts, the films provide more substantial character development regarding gender and heterosexual romance. Here, the ambivalence of Lara’s heroism plays out in her relationships with problematic men; both her father and her “friend” Alex West in the first film; and her ruthless, traitor-partner Terry in the second film, who defines their relationship as that of “opposite sides of the same coin.”

The ethical ambivalence of the archaeologist-tomb raider reflects not only contemporary sensitivities, but also resonates with the logic of the game medium. Here, however, it unfolds through a displacing of the question of legitimacy. Lara Croft only plays “for sport” (Lara in the introductory scene of Tomb Raider i) or “glory” (Alex in Lara Croft: Tomb Raider). The performance logic of the games is reflected in the absence of moral development, even in the mythology surrounding the character (Mikula 2003, 83). Does this mean that we should read the trope of her saving the world as a simple excuse for play and spectacle? The first film, which mimics the games by framing its plot with training situations on the Croft Estate, suggests this possibility when Bryce, Lara’s computer expert, sighs, “[O]h well, time to save the universe again then, isn’t it?” Like similar contemporary Hollywood productions (e.g. The Mummy and The Mummy Returns), the film self-referentially announces its status as a text that replays a familiar story, and thereby brackets the ethical challenge of the dramatic plot. Both the games and films seem to participate in the larger configuration of a contemporary culture that is marked by “a shift from narrative to ludic engagement with texts” (Moulthrop 2004b, 57).

However, the media difference is quite crucial in this regard. In the films, the dramatic development of the plot may overtake our awareness of the playful character of things. The scenario of threat and its spectacular solution are unfolded within an uninterrupted two hour immersion period (without reloading or heroine-resurrection on the screen). In the end, the world is saved, if only on a mildly self-referential screen. In the games, the “second act” between narrative exposition and resolution is “massively extended” (King and Krzywinski 2002, 25, referencing Lindley). To be sure, this does not render the larger story frame altogether irrelevant. In Tomb Raider iii, for example, the initial film sequence introduces us to an Antarctica-scenario involving Polynesian natives, Charles Darwin’s sailors, and the contemporary research company rX Tech. Only the game booklet indicates how these events relate to the world in which the player begins her actual exploration; the findings of rX Tech point to a place in India where Lara is currently searching for “the legendary Infada artifact,” without knowing anything about its “true history.” Through this use of gaps, narrative development is explicitly installed as a promise, a prospective reward of game performance: “Soon, she will discover a lot more…”

But first the player is thrown into an Indian jungle and may temporarily forget about the yet-undeveloped, larger context of this adventure. If we want to compare her experience to any cinematic pleasures, “the intense modes of visuality that Tom Gunning associated with the early ‘cinema of attractions’” may be better candidates
than the sensations of suspense carrying the narrative logic of classical cinema (Walton, 218). Initially lacking any clue regarding the most effective way of progressing through the adventure, the player's immersion will probably be predominantly spatial, that is, a “response to the setting” (Ryan 2001, 121). The three-dimensional, lush jungle entices her with spectacular views and undefined areas to be explored. Without a map, or even a clear sense of how the computer graphics translate into traversable topographies, the steep, complex space around Lara is both fascinating and overwhelming. The third person-format of the game, which has been broadly discussed in terms of the gendered ambiguities of identification and objectification it creates, permits the vulnerability of Lara's body in this space to be emphasized. At moments, the camera shows her as a tiny figure which, dressed in colors more or less corresponding to the landscape around her, is utterly lost in its vastness.

Initially, Lara's player-directed movements will likely “take the shape of an aimless ‘stroll,’” comparable to, albeit more active than, the walks of a flâneur (Grieb 2002, 162). During these “nomadic” itineraries, the player is easily distracted from her larger goal by the pleasures and dangers of exploration for its own sake. Rather than straightforwardly pursuing the causal narrative embedded in the game by its designers, she enacts a primarily sequential one (Ryan 2001, 244; Jenkins 2004). If there is a larger goal to this incoherent series of micro-stories, it may be simply that of not having to restart the game. As Jenkins puts it, we may no longer “care whether we rescue Princess Toadstool,” or, in our case, understand how exactly the Infada object is connected to “primitive” Polynesians and modern explorers; “all that matters is staying alive” (Fuller and Jenkins 1995, 60) through the successful navigation of deadly spikes, treacherous quicksand, and mastery of the first attacking tigers.

At the same time, the opposition between the larger plot and the micro-stories of survival enacted by Lara should not be overstated. First of all, the task of survival is performed by the very “archaeological” behavior that provides the larger narrative frame of the game. The eventual completion of a larger task is mirrored, and made possible, by countless small acts of object collection. Flares allow for the successful navigation of dark spaces, weapons and ammunition help the player to fight threats to Lara's life, and the “medipacks” restore her own health after enemy, or hazard, encounters. Moreover, the simple game formulas (a small medipack restores half of Lara's health) in nuce contain a story thematically related to the larger plot of the games. As the player will learn many levels ahead, Lara's employer-adversary Dr. Willard is engaged in projects that accelerate evolution. As Natla put it with respect to her analogous project in Tomb Raider i, the mutants they produce are “survivalists,” super-performers like Lara herself. Miss Leigh, the boss of the London levels in Tomb Raider iii, even tests immortality powers. Enhancing Darwin's nature, Lara's adversaries negotiate technologies of, as Foucault put it, “bio-power,” or the “power over life” (1990, 133). In semiotic terms, the medipack is a relatively traditional form of exercising this modern power (health care
including poison antidotes); but its almost unlimited power of immediately undoing any damage inflicted by the game events links it to contemporary technologies—namely those of new media. Both the simple medipack formula and the larger plots reflect the digital powers of “undoing” time and “creating” life in hitherto unknown ways, for example by compositing moving images of non-existing worlds.

Secrets To Be Found: The Logic of Penetration and Appropriation

In other words, game logic and game narrative are more intimately intertwined than we may spontaneously be inclined to think. Local player actions and the larger plot frame follow an analogous logic, according to which projects of “survival” proceed through the mastery of space; that is, the appropriation of its treasures. Made for this very purpose, the space of the game’s Indian jungle and all following levels is, of course, not as unmapped and fluid as it may initially appear to the player. It is designed according to Lara’s move capacities; and as long as no bug interferes, it always offers the possibility of finding its secrets. Beyond the “simple” pleasures of looking at, and moving through, this space, exploring it predominantly means opening, and penetrating, its hidden depths and closed areas. Again and again the player enacts micro-narratives of finding keys and turning door switches of various kinds. In this sense, the “archaeological” practice of exploring is not the one outlined in Foucault’s postmodern use of the notion, which emphasizes archaeology’s attention to the materiality of the object for its own sake, as opposed to its function as a medium of establishing narrative coherence (Foucault 2002). Rather, exploring with Lara corresponds to Freud’s “modern” use of the archaeology metaphor for the project of opening up, and narrativizing, the secrets of the human psyche (Ruhs 1998).

Following Henri Lefebvre and Edward Soja, this quest can be described in terms of a desire for transparency, for illuminating space and making it intelligible (Soja 1996, 63). Importantly, such transparency is not a feature of the game space as experienced by the player. While its design may be driven by the scientific “illusion of transparency” (ibid.), the challenges of hidden depth and secrecy constitute its actualization. Along with Lefebvre, Soja associates “the partial unknowability, the mystery and secretiveness” with the “thridspace” of representation, which is linked with art (as opposed to science) and the “clandestine or underground side of social life” as a site of potential resistance (1996, 67). I find these oppositions to be too clear-cut. As suggested above, the complexity of space can emphasize the avatar’s (and potentially the player’s) vulnerability, but it also functions as an incentive for mastery. Foucault has shown that the installation of a secret can play a crucial role in the economy of knowledge (1990, 69-70). Such an epistemology of the secret is crucial to the deployment of a modern imperialism that marks its fictions, as well as its scientific enterprises. In Lara’s Indian jungle, the act of positing the secret mediates the narrative of heroic penetration and appropriation.
Interestingly, both of the films problematize this logic of penetration and appropriation. Their plots develop the idea that the power of the hard-fought-for artifacts is inherently problematic; and they cast the desire to uncover them in terms of a temptation which must be overcome. The second film explicitly stages this as a learning process. Initially, a defiant Lara claims that “everything lost is meant to be found.” At the end of her fight against the villain scientist, who wants to release the biological warfare-powers of “Pandora’s box” into the world, she buries this object in the depth of the mountain, having understood that “some things are not meant to be found.” In accordance with hegemonic gender codes, the female tomb raider has become a tomb protector.

In this way, the film plots explicitly develop the critique of archaeology, which lurks in the tomb raider story with its dramatic conflict between evil artifact hunters and ambivalent archaeological heroes. The consequent call for renunciation distinguishes them from both their filmic predecessors and the games. When Indiana Jones fought the Nazis for the ark that would make their army invincible, he won it for his country’s archive of “top secret things.” The Lara of the games lacks such loyalty to a higher social order. She gets to take most of the objects home. Even the Atlantean Scion of Tomb Raider I, which is destroyed at the end of the game, will show up in her treasure room on the training level of Tomb Raider III. Of course, this means that her collection, which also contains an object from subsequent games, is not designed according to the laws of non-game realism. We are reminded that we are in a world of play—just as we are every time we encounter some useful ammunition in a random hideout where it has no meaningful history or function except that of serving Lara. Arguably, this game world is farther away from “real life” and therefore freer than the realm of Hollywood which, in some respects, remains burdened with the legacy of realist norms.

At the same time, game rules do reflect, and mediate, socio-symbolic scripts; they “naturalize certain historical and cultural contingencies” (Douglas 2002, 23). In the Tomb Raider games, the logic of spatial penetration and appropriation is generally not challenged. Only Tomb Raider IV, with its new cinematic affiliations, begins to investigate the issue more substantially, opening, on the training levels, with an adolescent Lara who challenges the unconditional appropriation mentality of her archaeological mentor. More characteristically, Lara ferociously defends her appropriation of ancient treasures, as at the end of Tomb Raider II, when, upon her return, the mansion is attacked by leftover enemies. Furthermore, on the way the player learns quickly that she should have Lara pick up whatever she possibly can. No game rule implements choices by specifying, for example, that Lara can only carry a certain number of weapons without losing flexibility, or by installing rewards for acts of tomb protection in the exploration process. Interestingly, Tomb Raider II does emphasize that there is a moment of choice regarding the use of violence. In this case, Lara is punished if she kills one of the Buddhist monks that protect the dagger, which she will take home. Regarding the picking up of objects,
the player’s only consideration is Lara’s life and health insofar as some items are difficult
to collect or guarded by dangerous animals. But if you are a true player you perform
heroically and make sure you find all the secrets so that you can eventually have access
to the bonus level. In case you die play again.

Imperialist Tropes Replayed
If the games thus fail to break with the imperialist logic of penetration and appropriation,
the alternative tomb protector ethic of the films does not yet make them into critically
postcolonial works. The warning that ancient tombs would be better left alone has been
powerfully present in the Western imagination since at least the “curse of the Pharaoh”-
stories following the Tutankhamen excavation in the 1920s (Hornung 2000). Even
then, the revenge fantasies may have indirectly reflected the crumbling of archaeological
legitimacy and the beginning of the decolonization process. The transformation of
“postimperialist” unease into ideological critique, however, is dependent on the ways in
which the tomb raider/protector story is developed; that is, its plot configuration, the
composition of its setting and characters, etc. The following, closely comparative look
at games and films, suggests that the latter do, in fact, partially develop their narratives
in postcolonial ways. At the same time, the film narratives also reconfigure imperialist
tropes in a way that renews their lost legitimacy for contemporary audiences. The games,
however, refuse this work of ideological mediation.

Beyond the ambivalent coding of the heroine, both game and film scenarios
do reflect aspects of what Michael Hardt and Antonio Negri have described as the
twentieth-century transformation of imperialism into “Empire.” Crosscutting the East-
West and North-South dichotomies of the imperialist imagination, the Lara Croft
scenarios present most of the main villains and their evil projects as closely affiliated
with Western business and science. Natla’s corporation in Tomb Raider i is specifically
associated with the U.S. (two of her employees are equipped with baseball cap and
cowboy hat), and Jonathan Reiss, the murderous scientist from Lara Croft: The Cradle
of Life, highlights his own positionality when cynically announcing that “in the West,”
there “exist stockpiles of antiserum” to the biological weapons he uses. Considering
Reiss’s terrorist connections, this emphasis provides a critical counterpoint to topical
culturalist narratives of homeland security. However, this does not yet mean that the
film escapes the legacy of modern Orientalism and racism. Already by virtue of their
archaeological plots, both films and games associate their modern Western threats with
“oriental,” and other “exotic” realms of “ancient magic.” The Western scientist will find
the dangerous box of Pandora in a remote location in central Africa, and he operates
with the help of Chinese bandits. The CEO, Natla, doubles as a ruler of Atlantis; the
Dagger of Xian from Tomb Raider ii provides its carrier with the power of the dragon
that historically belonged to the Emperor of China; Dr. Willard moves on the trails
of Polynesian tribes; and the London boss, Sophia Leigh, uses the Egyptian resources
available in metropolitan museums.
In other words, the critique of technology, science, or corporate capitalism is still articulated by orientalizing and exoticizing it. Within this frame particularly, the games reactivate some of the most offensive stereotypes of the imperialist imagination. The Polynesians featured in *Tomb Raider III* are introduced as cannibals. In accordance with colonial iconographies of native encounters, their dark brown bodies are dressed in feathers and shells, and most of them use “primitive” weapons. Far from noble, these savages tend to sneakily attack from behind. In order to survive, Lara has to kill them, like various animals on the initial Indian levels of the game and the prison guards—but not the prisoners—in the American desert. In the South Pacific, the forces of Empire, here Australian soldiers, function as allies. The Polynesian “village” consists of huts which are entirely empty apart from the occasional item for Lara, and it does not feature any women, children, or un-armed men. This minimalist design is double-edged. On the one hand, it perfects the imperialist fantasy that this alien world exists to be appropriated by Lara. On the other hand, it stunts any pretensions to ethnographic realism. At least virtually, the game player is, in fact, constantly reminded that her digital game “dig” into other worlds does not restage actual cultural encounters. With their Zombie masks, the “natives” may become readable as mere play tokens of our contemporary media landscape. At the same time, the signifier “Polynesian” remains attached to them, and their dehumanized, savage portrayal fits far too well into the imperialist imagination.

The films configure their exotic worlds differently. As part of the tomb protector theme development, the trope of the barbarian native is replaced with romantic stereotypes. Lara wins part of her power from an alliance with locals in all parts of the world, whose languages she speaks quite well, and whose clothes she wears occasionally. In the Cambodian jungle of *Lara Croft: Tomb Raider*, which recalls the India levels of *Tomb Raider III*, a native child mockingly leads Lara into the building, substituting for the friendly, helpful apes of the first game level. The overall scenario in both film and game is comparable. The overgrown ruins of ancient civilizations recall the Orientalist tropes of a lost culture to be uncovered by Western science. In the game, however, this space is empty apart from its wildlife, apparently just awaiting its competing explorers. In the film, the jungle is populated by poor locals who do hard physical labor for Powell, the bad guy. He meanwhile, in best colonizer fashion, rests on a red sofa. Through this contrast, the ambivalent heroine is legitimized by being provided with “anti-colonial” credentials.

The filmic scenario implies a critique of colonial power relationships. Its positive exoticism is not quite as offensive as the tropes of the games or also, within the contemporary filmic landscape, the gratuitous racism of the *Mummy* productions. At the same time, the film also uses its anti-colonial theme for legitimizing an explorer who, unlike the Lara of the games, does not have a clear history of rebellion against her aristocratic British background. Her performance of anti-colonial heroism easily slips into an apology for the fatherland, especially when, at the end of the first film, the
questionable authority of Lara's beloved father is restored through his intervention as an agent of tomb protection; or when the terrorist hunt of the second film makes Lara act "on behalf of the majesty," the direct successor to the British Empire. To be sure, the film introduces this co-operation with some irony, but the plot ultimately affirms a nationalist message by demonizing her partner Terry, the all-too-conventionally Irish "traitor."

As Hayden White suggested in a classic essay, narrative in general tends to represent conflicts "between desire and the law," conferring "moral meaning" with "closure" (1990, 12, 21). Through this work of narrative evaluation, the romantic tropes of the films perform functions no less ideological than the negative stereotypes of the games. Specifically, these romantic tropes help to configure audience subjectivities in a field of "empire," which has re-arranged the imagined, but politically effective geographies of imperialism without radically undoing their hierarchical composition. Having closely escaped Powell in the jungle, Lara enlists the healing powers of a Buddhist monk. The scenario replays not only Tomb Raider II, but also texts like Rudyard Kipling's Kim, in which figures of Buddhist asceticism served as embodiments of the "pure" aspects of "the Orient" which could provide the imperialist subject with historical depth and spiritual transcendence. Once more, the game stages the imperialist power configuration more brutally than the film. In a cut scene, Lara is hailed by the dying monk as a "guide" to his next incarnation, just like Kim by his lama many years ago (Kipling 2001). The film instead insists that Lara is the one who needs help, but it still functionalizes the "magic" powers of the other for her cause.

Albeit with an ironic twist, Lara profits not only from the monk's healing powers, but also from his satellite-supported telephone/fax machine. If the films succeed in partially displacing the Orientalist scenario, they do so by virtue of the compositing techniques which constitute their exotic spaces. Of course, the image of the traditionally dressed monk with modern communication technology is not technically dependent on the digital compositing that characterizes the film in general. Metaphorically, however, it presents a technique of compositing (in the sense, first of all, of assembling multiple images into one), insofar as it combines the iconographic archives of the imperialist imagination to the effect of disturbing the coherence of colonial mappings. Precisely by virtue of the (likely) presence of these mappings in the spectator's mind, the Buddhist world visited by Lara may become readable as a playful fantasy scenario. The monk's "magic" healing performance, which restores Lara's arm to immediate, scar-free perfection, then may reference the medipack formula more than any narrative of cultural difference.

Aesthetically, however, the oriental world of this digital film corresponds to what Manovich has described as the hegemonic uses of compositing technique in contemporary culture. Rather than emphasizing rupture in the tradition of modernist montage, it creates apparently "seamless virtual space" (158). The harmonious
integration of satellite dish and fax machine into an otherwise apparently traditional setting is double-edged. On the one hand, it cross-fades the imperialist dichotomies between Western progress and Eastern tradition. On the other hand, it provides us with an updated spatial representation which functions (hyper)realistically as a virtually “authentic” image of contemporary “oriental” life. Possibly outweighing the ironic signals provided by the film, its digitally composed worlds participate in an ethnographic mode of imagination. More so than the games, with their visibly functionalized spaces, such worlds postulate the actuality (or at least possibility) of its spatial fictions; thus perpetuating a posture of presumed geographic control. Moving through these worlds, the archaeologist turned tomb protector wins her new professional identity through a closer alliance with the forces of cultural mapping; her “postcolonial” credentials do not least legitimize continued practices of domination.

Conclusion
At the turn of the twenty-first century, the cartographers of film culture thus re-assemble bits and pieces from the imperialist imagination into configurations which can be sold as politically correct without sacrificing time-tested fantasies of heroic exploration in exotic worlds of cultural otherness. As this article has argued, archaeological fantasies are complex already in themselves— and thus particularly interesting for theorizing the overdetermined relations of contemporary game worlds to the imperialist imagination. While trafficking in the postmodern themes of incoherence, cultural construction and power reversal, archaeological fantasies simultaneously develop scenarios of heroic exploration and appropriation. In their contemporary articulations, the shady figure of the tomb raider articulates unease about the archaeologist’s “lost” legitimacy in the postimperialist condition. The Lara Croft films respond to these delegitimation processes by redeveloping the archaeological narrative in partially postcolonial ways. Operating, not least, through Lara’s complex gendering, they turn the (female, and in some respects, feminized) tomb raider into a tomb protector, without sacrificing the pleasures of heroic (masculinized, or, if you prefer, phallic) exploration.

This negotiation of diverging fantasies is a tricky process. We may wonder whether the compromised character of the Lara Croft-film fantasies is responsible for their relative failure to sell. As I have argued, the games show less evidence of attempted adjustment to postcolonial sensibilities. Game rules as well as frame narratives follow a relatively unquestioned logic of appropriation, and the representation of the inhabitants of the explored non-Western regions recalls some of the worst tropes of the imperialist imagination. Unlike for example the equally problematic Civilization series, the games don’t even allow the player to enact alternative versions of history. We can’t enter the adventure scenarios as a Polynesian warrior or Buddhist monk potentially saving the artifact from Lara’s greed. Maybe we wouldn’t want to either. Cynically speaking, it seems possible that precisely the games’ defiance vis-à-vis reformed political sensibilities
contributed to their mass appeal – although, interestingly, the successful 2006 Legend installment moves Lara a step further into the direction of her filmic alter-ego by providing her with a black technical assistant and a South American friend.

At the same time, there is a moment of “postimperialist” logic and critical potential in the fact that the games refuse to integrate their imperialist fantasies into coherent ethical stories. If we play socially defiant Lara, we do so without much higher justification for her tomb raiding. While the negotiated fantasies of the films interpellate contemporary subjects whose ethical acts include alliances with (still exoticized) native others as well as potential contributions to the War on Terror, the tomb raider of the games does not pretend to live up to her “burden of civilization” in a responsible way. Emphasizing acts of subjective defiance, the frame narratives instead double the logic of play which arguably characterizes the medium as such. On the level of experience, playing Tomb Raider emphasizes long passages of blissful, frustrating, and anxiety-ridden wandering through seductive, dangerous space; and the non-realistic design of its inhabitants provides us with at least a chance of perceiving them as little more than virtual embodiments of the enemy function in a game.

But if the logic of play thus brackets socio-symbolic contexts to some degree, the game representations of exotic space and its inhabitants as well as Lara’s heroic subjectivity do nonetheless remain embedded in non-game representations and histories. In multifaceted ways, the archaeological fantasy developed through playing Lara includes potential experiences of voyeuristically enjoying her vulnerability and/or identifying with it, as well as admiring and/or phantasmatically sharing her power of penetrating space and appropriating its treasures. While these playful experiences cannot be made in a realm entirely outside history, analyzing—as well as enacting—the complex fantasies embedded in Tomb Raider and similar games can help to understand, and critically participate in present globalized media societies within their historical contexts.

Endnotes

1 I work with a relatively inclusive definition of narrative and narrativity, understanding narrative as a representation of events linked through sequence or causality (arguably, the latter form of connection constitutes a higher degree of narrativity). The following three qualifications should be noted to avoid misunderstandings: a) the reader/player has a crucial role in actualizing virtual narrative connections, b) as discussed below, narrative develops in space, c) the act of representation does not necessarily require the audibility of a narrative voice; the “camera,” which governs perception in a video game, is an instance of narrative mediation. For a detailed discussion of narrativity in videogames, see now Ryan 2006.

2 See Douglas 2002; Lammes 2003; Poblocki 2002 on the Civilization series; Magnet 2006 on Tropico. More generally, Schwartz (2006) looks at strategies of cultural othering in different games. Relevant in a broader sense is also the work on race in videogames (see Kolko, Nakamura, Rodman, eds.; more recently particularly on Grand Theft Auto, e.g. in Garrelts, ed., 2006).

3 While critics were largely negative, Lara Croft: Tomb Raider (2001) actually had a “healthy” $130
million U.S. gross box office performance, especially compared to other game adaptations to
the screen (King and Krzywinska 2002, 9). Lara Croft: Tomb Raider: The Cradle of Life (2003),
however, made only approximately half as much (see http://www.the-numbers.com/movies/
series/LaraCroft.php).

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Spatial Scales of the Arcade Collecting Community: 
A Photo Essay

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Abstract
Virtual places are becoming more and more common, leading to more interest from geographers. Videogames create a variety of virtual places to explore, though they must still be played in the real world. Some of the earliest videogames were found at arcades, which provided social gaming experiences that are virtually nonexistent today. Although the place is now absent, there exists a community of arcade collectors who obtain and restore games in order to recreate the experience in their own homes. While the community surrounding the arcade of the past was largely limited to local arcades, present day collectors are scattered across the United States. Today collectors rely heavily on the virtual places created by the Internet to stay connected, although a variety of events occur at different levels of scale due to the physical nature of the games. This article uses images to explore these events, starting with local gatherings, and going up to national scale expositions.

Today it is common for a household to have some sort of videogame-playing device. The Nielsen Group estimated that in the fourth quarter of 2006, more than 50% of people aged 2 and older had access to a game console in their home (Covey 2007). However, in the late 1970s and early 1980s having a computer or videogame console in your home was less widespread. The draw of electronic games was a strong one, and it led many to the video arcade where accessible entertainment could be found. The “Golden Era” period of the arcade from 1978 to 1985 fostered a sense of community through shared place, competition, and social interaction. This was a social gaming experience that cannot be found in the videogames of today. While socially-oriented multiplayer online role-playing games are popular (World of Warcraft alone has more than ten
million subscribers), the physical separation between players creates an experience removed from the sense of community once found in the arcade (Graft 2008).

Although the Golden Era of the arcade ended more than two decades ago, a large number of people still cherish the experience and collect arcade games as a way of recreating the feeling of the arcade in their homes. These collectors have formed a community that revolves around obtaining, restoring, and playing arcade games. While the experience of the Golden Era was limited to the physical scale of local arcades, the present day collecting community spans multiple levels of scale. Gatherings of collectors can be as small as two or three friends playing games for an evening, or as large as thousands attending national level expositions. The Internet ties these levels of scale together as a virtual gathering place that transcends distance and political boundaries. While the Internet is instrumental to maintaining a sense of community across large geographical distances, the physical events are important to the arcade collecting experience. Each of these levels of scale plays an important role for the arcade collecting community.

As J. B. Jackson said, “…a public space of one kind or another is essential to any community” (Jackson 1984, 16). For those in the arcade collecting community, this public space is a virtual online one. Pre-Internet, some collectors were unaware that others like them existed. Scott (aka Texashotshot) had an experience that is not uncommon for collectors:

I’d been collecting off and on ever since I had grabbed three games out of a newspaper ad in late 1994, so when the internet boomed and I found so many others interested in the same thing, I jumped right in there with them. I was glad to know I wasn’t the only one...

In addition to acting as a virtual public gathering place, the Internet is also an excellent place to archive information related to games. Steven Kent (2001, ix) discusses the drive to preserve arcade information in the acknowledgments section of his book, The Ultimate History of Video Games:

One thing I have learned while working on this project is that the gaming community is filled with people who know an awful lot about the history and will do anything they can to preserve it. …As we worked together, however, I realized that these folks did not want credit. They simply wanted to see history preserved correctly.

The medium of the Internet keeps the collecting community connected and informed. However, while the Internet excels at communication, it cannot recreate the physical experience of playing an arcade game. The text and images that follow explore different arcade events, and show how they each provide their own benefits to the collecting community.
Starting at the local scale, arcade enthusiasts often gather with other collectors and even non-collectors to enjoy their games. These kinds of gatherings may be centered on game playing (or game repairing), but the socializing that occurs is equally important. Since large scale arcade events happen infrequently, the higher frequency of gatherings at the local level is important for creating a sense of community. A good example of a recurring local event is the Southern California Classic Collectors party (sc3) hosted by Steven Hertz. While this event also features classic gaming consoles, Steven’s large collection of pristine and rare arcade games is a major draw for the parties.

Another recurring local event is a Halloween party that collector Jon Koolpe hosts every year. This announcement was posted on the Killer List of Videogames message board about Halloween night of 2006:

Hey folks! I will once again be opening up my garage/arcade on Halloween night for any and all to enjoy. For those who don’t know, I do this every year and have a great time. I usually get around 100-150 kids, tweens, teens, and parents… it’s quite a spectacle. And everyone behaves just fine...

Image 1 In this scene from the May 7th, 2007 sc3 event, collectors enjoy games under outdoor canopy tents. Non-collectors are always welcome to join in the fun, and local events are often a gateway into the hobby.
Source: Photo courtesy Steven Hertz, 2007.

Image 2 Despite the commonly held view, videogames are a social activity; it is typical to hear friendly “trash talk” around heated matches, such as this game of Warlords at sc3. With local events, connections through collecting often turn into friendships outside of the arcade world.
Source: Photo courtesy Steven Hertz, 2007.
I've never had a problem (but I do make sure to remove my game keys). All of my games are currently working 100% (knock on wood!) and ready to go. The list is in my signature/tag below. If you’re interested and live in the area, feel free to stop by...I open up around 6:30 or so until about 9ish. Just send me a private message and I’ll let you know my address.

FYI, I’m in the San Francisco/Bay Area (just a smidgen south of San Francisco itself). And if you happen to have little ones of your own, bring ‘em along as my townhouse complex is a great place to trick or treat, too. Lots of units close together, flat area, and safe...I’m sure the kids really clean up on candy each year! Come by and say hi if you can.

Exposing non-collectors to classic games is one of the major functions of local events, and Jon’s Halloween parties are no exception:

One guy, probably in his early twenties, got totally hooked on Tempest as he had never seen it before but made it a point of telling me that this was the greatest game ever. And I agree!

Game repairs can also lead to local gatherings, since twenty-five year old games have a habit of breaking down. A “repair day” was held on July 21st of 2007 in the San Francisco Bay Area. This event served multi-

**Image 3** Whether it is discussing the finer points of games or reminiscing with others about childhood arcade experiences, interacting with other collectors is a major focus of local events like sc3.

*Source:* Photo courtesy Steven Hertz, 2007.

**Image 4** Shared experiences at local arcade parties like SC3 strengthen community bonds. These experiences might be intense multiplayer games, or something as simple as getting to know other collectors over a slice of pizza.

*Source:* Photo courtesy Steven Hertz, 2007.
ple purposes: preparing for the California Extreme show (cax), dissemination of repair knowledge, and general socialization. These types of events help create bonds in the community through learning and shared experiences. Frank Autenreith hosted the event, and here is the online announcement from the klov message boards:

John asked me if I would host an arcade repair day in preparation for getting games ready for cax. July 21, 10am to 4pm works best for me. This will be a hands on repair day so bring arcade parts and games that you want to get working. Learn how to wire a cabinet, use a crimper, solder, install cap kits, use a multimeter or O-scope [oscilloscope], burn roms, the list goes on… Also feel free to stop by and just play games and hang out with fellow arcade collectors.

Amusement auctions fill the regional scale in the collecting world. These game auctions occur several times a year in larger cities, and help draw in collectors from greater distances than local events. Many collectors are willing to travel a bit further to attend an auction than they would be for a local arcade gathering, and for collectors living in less densely populated areas, auctions may be the only way to personally meet others involved in the hobby. They...
are also a good place to meet collectors who may not regularly participate in the online aspect of the community.

The other major function of the auction is that of the regional swap meet. Collectors often trade parts and help others out by passing on extra equipment to those in need. It is not uncommon for collectors to hold items “until the next auction” so that they do not have to pay shipping costs. While local events offer this same trading opportunity, auctions offer a larger trading pool, due to the regional nature of the events.

At the national scale, there are multiple classic video game shows, including the Classic Gaming Expo held in Las Vegas and the Philly Classic exposition in Philadelphia. For the arcade collecting community, the major focus is on the California Extreme show held yearly in San Jose, CA. Collectors come from all over the country (attendees also include international collectors) to play games, see rare prototypes, and hear industry legends speak. In addition to the arcade fanatics, a large number of casual players can be seen: families looking for a fun weekend activity, non-collectors who played games growing up, and people

**Image 7** Koolpe’s yearly Halloween arcade party is enjoyed by both children and adults, many of whom come in costume. This event is a perfect example of a local event exposing non-collectors to arcade games.

*Source: Photo courtesy Jon Koolpe, 2006.*

**Image 8** Arcade games were not designed to last as long as they have, and electronic repairs are a common theme of collectors’ discussions. Newer collectors often call on arcade veterans in their area for hands-on help repairing games. This photo shows printed circuit boards from games along with repair equipment.

*Source: Photo by author, July 2007.*
of wildly varied descriptions. As a celebration of the arcade experience, CAX provides for both collectors and casual players. Without large scale events like CAX, the collecting community might be limited to regional groupings. However, these events ensure that collectors from all over can meet on a face to face basis, strengthening the sense of community.

The collecting community has been assisted greatly by the Internet, thanks to the cheap, near-instantaneous communication that it provides. However, the games of the Golden Era of the arcade were not designed with network play or online communities in mind, and they require a physical component: players waiting in line for their turn at the games, crowds cheering on a high-scoring gamer, or standing shoulder to shoulder for a digital showdown. From the beginning, videogame makers have understood this social aspect. Ralph Baer, inventor of the Magnavox Odyssey, the first home console videogame system, understood that playing games is not about the games themselves: “You don’t play Ping Pong with yourself, you play it as another person” (Drake 2007). The arcade collecting community may be spread over a wide geographic

**Image 9** Buying games online can be risky, and buying from other collectors may lead to a limited selection. Auctions are important to arcade collectors because they are one of the best sources for obtaining games, like these classics.

*Source: Photo by author, May 2004.*

**Image 10** Live amusement auctions address some of the issues affecting online sales, such as outrageous shipping prices, but bidders must leave their computer chairs to participate. Some collectors will travel three or more hours to attend auctions. Here, auction attendees are shown inspecting equipment before the auction begins.

*Source: Photo by author, May 2004.*
area, but between shows like cax, regional auctions, local game parties, and the Internet, it remains strongly connected in an effort to maintain social ties.

Image 11 Classic games can be seen alongside more modern pieces at auctions; both adults and young people participate. The Kansas City auctions where these photos were taken draw collectors from as far away as Oklahoma and Illinois.


Image 12 At cax, many of the volunteer collectors who brought games and helped with repairs worked late into the night on Friday so that games would be in place and running for the Saturday opening.

Source: Photo by author, July 2006.

Image 13 A typical scene from cax: men, women, adults, children, and people of all ethnicities and backgrounds attend the show. As a participant observer in 2006, I met with collectors from all across the United States.

Source: Photo by author, July 2006.
Image 14 Pinball is a big part of the arcade hobby, as this row of players and spectators at CAX shows.
Source: Photo by author, July 2006.

Image 15 While collectors have games in their own homes, many in the general public have little or no access to classic arcade games. A major theme of the show is giving non-collectors a chance to relive their memories of the arcade.
Source: Photo by author, July 2006.

Image 16 Many in the collecting community express a desire to preserve the arcade experience for future generations. In this photo, we see a father and son playing a game of Robotron: 2084 at CAX. The arcade has vanished from the American landscape, but these events give people a chance to share in an experience that was once found in every town.
Source: Photo by author, July 2006.
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Abstract
In this essay I consider Graphical User Interfaces (GUIs) as instruments that generate spatiality according to the logic of the cartographic representation of reality. By analyzing the history of GUIs I explore how some latest generation interfaces can partly transform space into place by making use of a three-dimensional representation of reality. This is also made possible by the introduction of high customizable GUIs and by the exploitation of graphical elements derived from the language of cinema and video games. I then analyze some of the most widespread current three-dimensional GUIs, showing the different spatial conception of the GUIs produced in the world of proprietary software as compared with those produced according to free and open-source software models. I also present the results of a preliminary survey involving fifty 3D GUI users on Linux platforms. The purpose of this survey was to determine whether users perceived the interface as an instrument that generates space or an instrument that generates place. I also aimed to verify whether users perceived utility or visual appeal as the dominant function of the interface. I demonstrate that the contrasts between the meaning and perception of space and place as well as between those of utility and visual appeal are becoming less apparent and less significant.

Graphical computer interfaces as reality representation models: space and place concepts
In the historical development of computer science, one pivotal innovation that facilitated the spread of personal computers among a large number of people with limited technical skills was the introduction of the graphical user interfaces (GUI) in operating systems. These interfaces have been useful instruments for permitting users to interact
with the computer without the more complicated ‘command line’ that had been used previously.

The GUI development process has been a long one, and it is currently ongoing. It is difficult and useless to try to determine in an exact way the specific contributions of the many people who worked on these projects. There were many research teams that exchanged (and sometimes stole) each other’s ideas, resources and technology. For this reason the ideation process has been very complex and interwoven.

However it is possible to recognize some principal steps in this development during the 1970s when the Xerox PARC research labs in Palo Alto, California created the first complete GUI prototypes. Of these interfaces, two in particular were famous: one was installed on the Xerox Alto, an experimental computer introduced in 1973 and another was loaded on the Xerox 8010 ‘Star’, a commercial computer introduced in 1981. In both cases, the software adopted introduced the complete ‘desktop metaphor’ and the visual interaction model called wimp (Windows, Icons, Menus and Pointers), thus establishing the model for subsequent interfaces.

During the 1980s, a leap in GUI technology came first from Apple computers with the Lisa and Macintosh models. A second development came from Microsoft and its first Windows operating system release in 1985 (Windows 1.0), for PC IBM-compliant machines. The popularity of MS Windows exploded later, in 1990, with the release of Windows 3.0.

In this way the graphical interfaces based on the wimp model were spread throughout the entire world. They are the dominant representation of the virtual computer workspace now used by billions of people to interact with machines. Thanks to this instrument, users have learned to work with the computer through simple and intuitive concepts based on spatial ideas and thus they have had a map to enter to the complex world of a computer that is actually very far from the logic and the structures of the human mind. It has thus become possible to perform visual actions in the interface space: moving the mouse cursor, shifting a window, deleting a file (with the disappearance of the respective icon), emptying the trash, etc.

The desktop as a ‘computer map’: the space-building process

These visual actions imply a deeper meaning than they superficially suggest: we can actually say that, from the geographical point of view, these actions constitute nothing less than a space-building process. Taking up the theory of the Italian geographer Franco Farinelli (2003), who explored the historical formation of the space concept, we can define this process by going back to the origins of the Greek term stàdion. Indeed, the word stàdion indicated a standard unit of measure, so ‘space’ is first of all, something that is measurable (2003, 10-11). Through the process of space creation the complexity of reality becomes simplified, reduced to a map and made measurable. However this process causes a loss and an impoverishment of the complexity of reality because
life, as a process, is much more than a map and cannot be reduced to a cartographic representation (Farinelli 2003, 8-9).

Cartography and maps are the instruments of the space creation process. We assert that GUIs act just like maps, because they ‘produce space’. This means that the GUI makes the obscure and impenetrable world of the computer measurable and quantifiable for users. This world and its binary code would otherwise be explorable only through user-unfriendly command line interfaces. In this case we can use the term ‘spatialization’ to describe the space production process. According to Dodge and Kitchin (2001, 69), “The spatial form/attributes of cyberspace data that have no geographic referent can be mapped by a process called spatialization (…) to utilize the power of spatial representation in order to describe complex informational spaces in a new, more easily interpretable form.” As we can see this mapping process implies a loss of some capabilities. With reference to the GUI this can be easily noted in the MS Windows interface: even today some actions, like renaming the extensions of certain files, can be done only through the command line and not in the graphical mode.

It should be clear that with this spatialization process a very high level of abstraction has been attained: graphical user interfaces have created a map, a visual representation of the computer processes and data, things that in themselves are immaterial. If we then consider the ‘digital’ as an interpretation and representation of reality through a reduction and a measurement of it in discrete signs, or bits, we can understand how this process is similar to the creation of a map. Representing the world, sounds, and images, through binary data by sampling (reducing the complexity of something to discrete values, or samples) is a process that is similar to the topographic relief in which the territory is analyzed and measured. Therefore the GUI should be defined as a ‘map of a map’ or a ‘square map’ (map^2) because the GUI is a ‘remapping’ of something that is already like a map of the real world (the computer and its processes).

CUSTOMISABLE AND UNREPEATABLE SPACES: THE PLACE-BUILDING PROCESS

Certain graphical interfaces can also offer the user the possibility of ‘turning space to place’. If space is something that is a measurable place, on the other hand it is something that is unique and unrepeatable (Farinelli 2003, 10-11). Farinelli says that: “A place…is an attention field whose strength depends on the emotional investment of those who go there…a place cannot be known from outside but only from inside and it is closely related to our identity…because of this, every place is a little world, in the sense of something that depends on a number of human relations” (Farinelli 2003, 121). Another useful definition by Dodge and Kitchin (2001, ix) is: “In turn, spaces are produced and given meaning through social practices creating places.” Thus a graphical user interface can permit the generation of places when those who interact with it have the possibility to customize it by adding elements and transforming it: for example by choosing a desktop wallpaper or a graphical theme, by choosing the windows colors, the type, etc.
The simple addition of a new wallpaper, action that is permitted by all existing graphical interfaces, is not a banal operation but can be seen as an attempt to transform something that is homogeneous, standard (the space) into something that has an unique and unrepeatable meaning (the place) for that specific user. Moreover the interface can become a ‘place’ when it is a hub of human relations. As we will see later, on the Internet people can also exchange ideas about interfaces, wallpapers, and other customization material, thus establishing some relations and strengthening the idea of the interface as ‘place’.

**The language of cinema and video games: sources of ideas for the 3D GUI**

In recent years there have been many changes and new approaches to the planning and design of these instruments that have primarily focused on the development of three-dimensionality. This fact is particularly interesting for geographers. This change has happened above all because of the cross-action of video games and movies that are the result of both technological innovations and socio-cultural transformations. There are numerous examples that show how, in movie-generated images, the future of computer science and technological development are often imagined through the representation of three-dimensional computer graphical interfaces. We can refer to some famous titles like *The Lawnmower Man* (1992), *Jurassic Park* (1993), *Johnny Mnemonic* (1995), *The Matrix* (1999), *Minority Report* (2002) where three-dimensional computer interfaces appear playing more or less important roles. We focus in particular on the films *Jurassic Park* (1992) and *Minority Report* (2002).

Towards the end of the movie *Jurassic Park* we see Lex, the very young female hacker, uttering “This is Unix, I know this!” after seeing the park security computer that shows a three-dimensional representation of the file system. Then her fingers start to fly over the keyboard. In this case, as many recognized, the graphical interface shown was an actual software package, called ‘fsn’ and developed by SGI (Silicon Graphics Inc.) for the Irix operating system (Irix is a Unix implementation). In *Minority Report* there are three-dimensional GUIs based on particular computer displays which permit the manipulation of files directly using the hands, as if they were material objects. Indeed, some LED monitors have achieved results very similar to those of the film.

If on one hand movies and TV have made an important contribution to imagining three-dimensional interfaces for the computer, a more significant role has been played by video games, starting with the legendary *Wolfenstein 3D* (1992) that made the three-dimensional ‘shoot ‘em up’ extraordinarily popular. It was soon followed by *Doom* (1993), *Quake* (1996) and other similar games. As Weiss says (2007, 29), beginning with *Wolfenstein 3D* “the ‘first person shooter’ has become the primary visual grammar for video games.” This process has been pushed forward since the middle of the 1990s by the diffusion of 3D graphics cards, invented for offloading CPU-intensive processing onto a specific hardware, permitting faster rendering of images in video games.
Graphic cards have quickly become highly sophisticated, evolving into miniature computers themselves. The tie between video games and graphic cards is currently so strong that three-dimensional graphics hardware is one of more lucrative areas in hardware production because video games are more and more hardware-hungry. Thus there has been an extraordinary technological development with the result that all the computers produced in the last years are standard equipped, with graphic cards able to process billions of pixels per second. Thus three-dimensionality has become embedded in the cultural imagination through video games, a field in which it is the norm.

It is important to recognize the power of the GUI used in the various operating systems because through them worldviews and ways to see reality are expressed. Thus interfaces have a very significant cultural, psychological and social influence because they are used by billions of people, although it often happens in an unconscious way. We can think, for example, of the way in which the more common GUIs used at the moment (on Windows, Linux, Macintosh, etc.) represent a file: it is visualized as an icon, a single, discrete graphical object that can be moved, duplicated, erased, etc. only through visual actions performed by a pointing device, like a mouse. The file visualized in this way is considered a single object, like a Lego brick. However, with this conception dominant some file features are lost: for example, its ‘relational dimension’. A file actually is not a standalone element but is always included in one or more networks. It is always linked with other files (a file can be used by other programs like a library of functions and data, can be included at the same time in a web-page, in a video, etc.). The ‘problem’ is that the current interfaces do not consider this aspect and always show us the file as a single object, forcing us to ‘see’ the data in a certain way that is not necessarily the best one.

We can instead imagine an interface in which the file is clearly shown as an element of a network, with the links emphasized: in this case we would have a very different model, with significant practical implications: we could clearly see the links that point to a particular file and so we could avoid any accidental damage to other programs caused by the deletion of that file. Thus it must be clear how powerful interfaces really are and how they can condition our way of perceiving and approaching the computer space.

**The first three-dimensional environments in the world of proprietary software: Mac OS X and Windows Vista**

In the last few years some interesting software applications have appeared that have brought three-dimensionality to the world of computer graphical interfaces. We do not refer to a possibility only for specialists in research labs but to the current opportunity for millions of users to use these new interfaces now available on the most widespread operating systems. Apple was the first mainstream vendor to choose three-dimensionality when it released Mac OS X in 2001 (Weiss 2007, 29). This operating
system interface introduced some functions able to take advantage of the 3D graphics cards installed in Macintosh computers. There are semi-transparency effects able to permit a better management of overlapped windows, something that recalls the ‘glass metaphor’ used 6 years later in Microsoft Windows Vista (Fig. 1). Another important feature introduced in Mac OS X was Exposé, a function that allows a user to quickly locate an open window, or to hide all windows and show immediately the desktop without the need to click through many windows to find a specific target. These are functions that can be hardly defined as three-dimensional; however they do exploit the 3D graphics card present in the computer. As a result of this implementation the current GUIs have become more distant from the initial desktop metaphor. As Weiss says: (2007, 33), “Most of the 3D effects being used by Apple, Microsoft, and Linux are far removed from the original desktop metaphor. After all, paper documents aren’t particularly transparent.”

Without doubt the “glass” is one of the main ‘new’ features of Aero, the three-dimensional GUI present in the Windows Vista pack. The first ‘public’ version of Aero was released at the end of 2005, in a beta-version of Windows Vista and then definitively released at the end of 2006 with Windows Vista final edition. Aero’s main effects are, beyond the semi-transparencies, a three-dimensional windows managing system called Windows Flip 3D (Fig. 2).

With this feature a new concept of spatial organization and management based on a perspective effect that allows better management of the desktop space in the Windows graphical interface has been introduced. This makes possible more natural navigation
through the windows. This effect also contributes to showing the off-screen space of the user-interface in a new way. When we talk about off-screen space, we mean the space that is not shown in that specific moment on the screen but that can be imagined. It is a concept that derives from the cinema language and, according to Noel Burch (1973, 17), the off-screen space can be divided into six segments: the first four of these are the areas beyond the four borders of the frame, while:

- a fifth segment cannot be defined with the same seeming geometric precision, yet no one will deny that there is an off-screen space ‘behind the camera’ that is quite distinct from the four segments of the space bordering the frame lines although the characters in the film generally reach this space by passing just to the right or left of the camera. There is a sixth segment, finally, encompassing the space behind the set or some object in it: A character reaches it by going out a door, going around a street corner, disappearing behind a pillar or behind another person, or performing some similar act.

The possibility of overlapping windows and the use of semi-transparencies are already efforts to show this sixth segment of space by creating a perspective effect. The Flip 3D effect strengthens this way of visualizing the computer’s desktop space.

Although these new functions require a powerful graphics card creating technological limitations because not all existing computers have similar capabilities, this trend, with the pretext of three-dimensional GUIs, will surely continue. However, there are noticeable differences between the Microsoft and Apple approaches to the development of proprietary software. This then leads us to the open source and free-software world where more interesting applications of three-dimensional interfaces are appearing.

3D and Open Source world: the ‘community development’ of three-dimensionality

When talking about open source we must begin with the Sun Looking Glass project, supported by the Sun Microsystems software house (Fig. 3). The most interesting aspect of this initiative is that it is a free software project under the General Public License (GPL) and everyone interested can obtain the source code and work on it, as is explained on the project site home-page: “We’re releasing the Project Looking Glass code to the whole community to explore every aspect of the technology rather than restricting access to a privileged few.” Thus the planning system is very different from Aero or Mac OS X development which takes place according to a closed and often self-referential logic. The concept and metaphor adopted by Looking Glass are particularly innovative: one of its most notable features is the creation of reversible windows that can be used for features like allowing the user to write notes and comments on the backs of windows (the ‘through the looking glass’ metaphor), or displaying application dialogs without risking that they be detached from their related application. In this system, windows start in
2D normal mode but can be manipulated as 3D objects that can be set at any angle or turned completely around by the user. Other features include a panning virtual desktop and icons that reflect the live status of the window they represent. At the time, Looking Glass is more a demonstrative project than a real possibility for computer users; it is still in development and there are very few applications that can work on it. However, because it is an open source project it rapidly mature.

The Compiz project

In the Linux/Unix world we focus in particular on the Compiz project, the first software to popularize the three-dimensional interfaces on this operating system. Compiz development was initially related to xgl, a graphical architecture project for Linux that took advantage of modern graphics cards via their OpenGL drivers. In February 2006 Compiz gained wide publicity after a public display where the Novell desktop team demonstrated a desktop using xgl with several Compiz visual effects. The openness of this project has allowed the improvement of the software so that a good percentage of current Linux computers can run Compiz. In this case there has been an intelligent adaptation of software to hardware because the software is designed to run on computers with mid-level processing capabilities. Windows Vista, on the other hand, requires powerful platforms if the user wants to work with all the graphical effects turned on. Thus the hardware must be adapted to the software requirements with the consequent expenses for end users. From the beginning the three-dimensional effect of the spinning cube has appeared in Compiz and it has become the symbol of this interface (Fig. 4).

Figure 3 Screenshot of a Looking Glass installation on a Linux system.

Figure 4 The Compiz Fusion spinning cube which shows two desktops.
In the case of Compiz we see how in open source environment the design and development of three-dimensional GUI is a dynamic process that involves many people, programmers, and users so that it is possible to achieve innovative solutions (Fig. 5). Indeed, the possibility of using a 3D interface has been a reality for Linux users since January 2006 while for Windows users only since the end of 2006.

The Compiz interface has many capabilities. As we have said its most known feature is the spinning cube that allows one to manage a different virtual desktop with applications and active windows on each face. In this way a possibility already present on Linux but only in a bi-dimensional way was made clearly visible. Using the cube for managing multiple desktops is an efficient way to work with a multi-tasking approach. The spinning cube allows navigating through windows thus bypassing the traditional desktop metaphor.

Virtual desktops and cubes are effects that make possible fast access to all six segments of off-screen space. Until that moment the desktop (except for the function of windows overlapping and transparency) was essentially represented like early films (shown through a fixed camera) and early video games “contained on a single screen of graphics: the player did not leave the screen, nor did the screen scroll to reveal off-screen space” (Wolf, M. 2001, 55). Instead, with the concept of the virtual desktop and its 3D visualization, the off-screen space is now shown.

If, as we have previously said, the desktop can be conceived as a ‘map’ of the computer space, then the cube is no longer only a map but a ‘globe’. Indeed it allows the user to rotate computer representation and, metaphorically, to ‘discover America’ on the other face of the cube. For example if we leave an open window in a position on the first desktop and then rotate the cube through all the faces until returning to the first desktop we can find the window in the same position, as, metaphorically speaking, we can find a continent if we rotate the globe.

This is an innovation that, even if it seems a mere gadget, actually introduces a new conception different from the traditional desktop metaphor: computer processes gain three-dimensionality and are now located in space like the terrestrial globe. This new capability is the result of the recent diffusion of applications like Google Earth and similar software that are gradually introducing new ways of perceiving electronic...
images that are now represented as something possible to see from an outside point of view, something that is possible to rotate and manipulate. In short, better control is possible. In this case there are deep connections with movie-making language as the Compiz effects vocabulary proves (zoom, fading, blurring, focus, etc.) and there are also relations with video games language, as the cube movements, various animations, etc. suggest.

Paths of diffusion: traditional marketing or word-of-mouth advertising?

Another interesting comparative level for our analysis is about the way in which these interfaces are spread. Microsoft has introduced an advertising campaign using traditional media like tv, radio and newer media like the Internet to highlight the aero interface as the main new development for Vista. In the case of Compiz, beyond a few moments of public presentation by Novell, the news about this software has been largely spread through websites and forums on the Linux online communities and users groups. This is a technology-mix actually very simple to realize but that results in very captivating and fascinating images, reminiscent of the Minority Report graphical interfaces.

In conclusion, all these innovative elements transform the ‘desktop’ metaphor, a space traditionally for ‘work’, into a much more fascinating place replete with graphical effects and transparencies: indeed, a sort of virtual Wonderland. And so we cannot possibly escape questioning whether these capabilities are really useful and practical: is three-dimensionality in graphical interfaces at the moment really important for better work or is it only eye-candy gadgetry?

A preliminary survey: a useful tool or a visually appealing gimmick?

We have tried to answer these questions by creating a simple survey using an on-line questionnaire to obtain answers from users about the perception of the utility of these software packages and indirectly to know whether the users perceive these interfaces as spaces or as places. The questionnaire was distributed to the most user-frequented communities and online forums of Linux communities. In a ten-day period fifty users answered our open-ended questions, constituting a small but useful sample. We would like to look more closely at the answers to these three questions:

4) Which functions of three-dimensional guis do you daily use and prefer? (using the “cube”, perspective windows, etc.)?

5) In your opinion do the three-dimensional guis make using the computer more similar to a game experience than the bi-dimensional interfaces?

6) Do you think that at the moment the three-dimensional guis for common computer users are actually useful or are only eye-candy gadgets?
We can clearly notice the cube effects are the most appreciated. While the cube is both the most spectacular and the most ‘eye-candy’ features of Compiz, it is particularly useful because it allows one to better understand the mechanism of Linux virtual multiple desktops.

Question Five allows us to understand if users of these new interfaces perceive in their computer using experience a change into a more playful dimension, similar to a ‘video game experience’. The majority of users answered ‘no’: some participants said “How can it be a game? Can I win something using my desktop?”

Others in the ‘no’ group emphasized that the ‘space of work’ must be clearly separated from the ‘space of game’: “It should clearly not be the goal of these interfaces. I don’t want to work all day in a game interface. Compositing should be used to create features that enhance productivity,” according to Roel, one of the respondents.

Eleven participants recognized the three-dimensionality point of view of ‘play’ as expression of creativity, inventiveness and discovery, explaining that eye-candy is important to make the use of the computer a more human-like experience. Respondent Eduardo asserts, “I would say the 3D GUI and effects make the experience of using a computer more “organic” and/or more “human-like”.

Many people have argued that eye-candy, even if it is not directly productive, is an important improvement and modern interfaces have to continue to evolve in this direction. A significant answer comes from respondent Alex: “They are both. It truly makes using the computer a fun
activity when it has so many effects in every day use. This extra functionality as well as aesthetically pleasing visual effects creates a more complete desktop experience." Another answer is: “You get it for the eye-candy then realise how they help productivity by extending your workspace and making window management far easier. The features actually are useful and can really add to the desktop experience.” There are many similar replies that echo these sentiments. In conclusion, these answers raise a question that we can summarize with Weiss’s words (2007, 33): “User interface designers wonder how many 3d desktop effects contribute to real productivity. The question may as well be metaphysical, though. We so often hear about improving the ‘user experience’, but is the physical attractiveness of a platform not part of its experience?”

We would like to pose two fundamental questions raised by Dodge and Kitchin (2001, 16): “In other words, does cyberspace help render geographic space placeless? And does the cyberspace have places, and if so are they replacing those in geographic space?” If we link these questions to the current medium of computer GUIs we can discover how, in some situations, the GUI could really become a place in cyberspace. This can happen when users customize it, make it unique by adding and building new elements, like people furnishing their homes. To complete the place-creation process, social relations between humans are necessary: “because of this every place is a little world, in the meaning of something that depends on a number of human relations” (Farinelli 2003, 121). Thus, when we see people showing and exchanging videos about GUIs, ideas for interfaces, self-made material (like desktop wallpapers, Compiz 3D skydomes, themes, etc.) we can see the processes of place-creation more clearly.

We believe that there are good reasons to talk about the GUI as a ‘transformation of meaning,’ and not merely a change in technology. This transformation generates new ways of perceiving and living the virtual spaces and places of work, eroding and redefining the traditional divisions between play spaces, imagination spaces and work places.

**Endnotes**

1 A Command Line Interface or cl is a method of interacting with an operating system using an interface based on the text. The commands are given by textual expressions: for example the command ‘ls’ in a Unix System lists files present in a directory.

2 The Xerox research was founded on previous studies, in particular the work of Douglas Engelbart who, with his research team, started Human Augmentation Project at Stanford Research Institute. They developed some mouse prototypes that could work on a simple graphical interface. For more information see also Reimer (2005).

3 A review of the principal elements of the WIMP model is in Ashley (1997).

4 A good starting point for search information and bibliography about Wolfenstein 3D is the article on Wikipedia: [http://en.wikipedia.org/wiki/Wolfenstein_3D](http://en.wikipedia.org/wiki/Wolfenstein_3D)

5 Aero is a acronym for Authentic, Energetic, Reflective and Open. One should note the term ‘reflective’ which recalls the ‘glass’ metaphor.

6 There many videos on YouTube that show how Windows Vista Aero works: [http://www.youtube.com/results?search_query=windows+flip+3d](http://www.youtube.com/results?search_query=windows+flip+3d). In particular we recommend: [http://www.youtube.com/watch?v=SKBCe9ydjTQ](http://www.youtube.com/watch?v=SKBCe9ydjTQ)
Sun Looking Glass project home-page: http://www.sun.com/software/looking_glass/

8The GPL (General Public License) is a license created by the Free Software Foundation. The purpose of the GPL is to grant any user the right to copy, modify and redistribute programs and source code from developers that have chosen to license their work under the GPL.

9For more detailed information about XGL see: http://www.freedesktop.org/wiki/SoftwareXgl

while for a general introduction see: http://en.wikipedia.org/wiki/Xgl

10OpenGL (Open Graphics Library) is a standard specification defining a platform for writing applications that produce 2D and 3D computer graphics. It is widely used in CAD, virtual reality, scientific visualization, etc. It is also used in video games, where it competes with Direct3D on Microsoft Windows platforms.

11http://www.novell.com/products/desktop/features/xgl/

12All the peculiarities of these interface are shot in hundred of videos on YouTube. For example see these searches: http://www.youtube.com/results?search_query=Linux+Compiz

http://www.youtube.com/results?search_query=Linux+Beryl

13Using the key-word 'Windows Aero' we find 400 videos, very few when compared with a search using the keyword 'Compiz'. Even if it is difficult to ascertain the causes, we think that Aero is perceived among users as limited innovation.

14More detailed information about the questionnaire and the methodology adopted are on this site www.scienzegeografichebologna.it/3ddesktop/. Here is also possible to access to the complete survey results.

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