Computer Fictions

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For many cultural commentators, computer games represent the apogee of the mindlessness and violence of commercial mass culture; for Henry Jenkins, professor of comparative media studies at MIT, they will become the most significant art form of this century, just as cinema was of the last. Those that simply condemn tend to be those that have seen computer games being played but have never played themselves. Their views are received by players with the same weary resignation that contemporary art world types take towards the blanket denunciation of their activities. That games can elicit such widely differing opinions suggests that some of their merits can only be seen from the inside, from the point of view of the player.

Figure 1: Starflight, 1986

I first became aware that computer games could strangely produce powerful artistic effects while playing a game called *Starflight* in 1986. This was a space-exploration game of the kind made popular by David Braben's ground-breaking *Elite*, a game that freed the player from following the restricted paths imposed on players in maze or platform-jumping games to roam around the universe (albeit one composed of transparent wire-

frame graphics, white against black). *Starflight*, designed by Binary Systems was little more graphically advanced than *Elite*, and imposed on the player the same basic activities: battling aliens, exploring, trading in minerals and animals, and using the virtual funds thus won to upgrade one's ship and carry on doing those things more effectively. These were pretty mechanical tasks, and of course those tasks have their pleasures. But what drove me on through the game was, first, not knowing what the program would throw at me next; while much in *Starflight* (as in most games) was the repetition of standard elements, there was no telling when you would come across something new, so playing was also exploring an elaborate human artefact. Second, that this exploration slowly opened up a plot. The tale seemed typical science-fiction fare—a mysterious force is causing supernovae to flare in an ever-increasing zone of the galaxy: can the player prevent his own solar system being incinerated? The revelation of *Starflight*, brilliantly woven into the fabric of the gameplay, was that the destructive force is caused by a race of aliens with a lifespan so long and metabolism so slow that they were mistaken for minerals by all other races, and used to power their ships. The player would in their travels have mined, used and traded in many of them. This was a highly existential turn of events: that what the player had been exploiting as an inanimate resource turned out to be living beings, capable of looking (and striking) back. This twist in the plot was effective both because the player could not escape implication in the aliens' extermination, and because their long, mechanical labour in exploring the universe and advancing the plot suddenly coalesced into this conclusion, which offered little comfort, facing the player with the choice of suicide or genocide. *Starflight*, incidentally is a recognised early classic game that lives on in websites that pay it tribute, and is still being played on—on by the standards of 1986—fabulously quick machines running software that allows them to emulate their ancestors.

Since those early days of home computer gaming, which itself derived from machines built into arcade cabinets, sitting alongside pinball and gambling machines in gaming halls and bars from the late 1970s, the industry has rapidly grown in size and sophistication, tracking but also driving the invention and adoption of new computer technology. While the cultural use of some new technologies (photography, for instance, or more recently online art) shunned commercialisation, at least for a time, computer games, having little pretension to artistry, and modelling themselves on Hollywood movies, were from the earliest days closely associated with money—and a great deal of it. Nolan Bushnell, the founder of Atari, putting together his arcade machines using cheap TVs and circuit boards was soon glad that he had made the design mistake of putting the money box at the back, for while it meant that he had to move the machine to collect the coins, it was as well that no one knew just how many there were.

The financial success of the computer games industry has matched the dizzying ascent of its technology: the global market for games in 2000 is estimated at $10 billion, and on the DTI's estimates £930 million of this was spent in the UK (for comparison, cinema receipts that year were £650 million). While the games industry's rate of profit is higher than that of the film industry, they share many of the same characteristics, and increasingly exist in symbiosis (a simulated Pierce Brosnan graces the latest Bond game,

Nightfire). As in the film industry, game companies make many products, few of which break even, and a small number of which make vast fortunes. They also employ artists, musicians and actors alongside programmers, and major games can be years in the making and cost millions.

The cultural elite regularly treats computer gaming with haughty condescension. This cannot be due to its technological accomplishments, which can hardly be gainsaid, nor even its possibilities and limits, which, as we shall see, are intricate matters of considerable theoretical interest, nor yet by the character of its players, who are increasingly drawn from across the boundaries of age, gender, class and ethnicity. It is plainly about the games' content, so much of it rooted in boys' games.

Figure 2: Warcraft: Orcs and Humans, 1994

This technological and financial development has come at the cost of conservatism in design, when compared to the early days of amateurs working alone or in small teams, and coding tiny, innovative programs to run in the few kilobytes of available memory on 1980s home machines. Games have since settled into distinct genres. In a pattern familiar in mass culture, successes are continually emulated with minor modifications, while in addition the continual advance in computer technology sanctions the remaking of some two- or three-year-old classic with updated graphics. There are 3-D shooters, in which typically a heavily armed hero takes on the world in scenarios that range from the streets of 1920s Chicago or World War II through to various science-fiction settings; many of them are tied to films or at least act out clichéd action-movie scenarios. They are technological updates of games played with pointed fingers and toy guns in playgrounds and gardens. There are role-playing games (known as RPGs) in which character development is important; as the player's avatar progresses through the game, it acquires

various skills and abilities that the player determines. While these games increasingly use the 3-D interface pioneered by the shooters, they tend to have more complex plots and a good deal of dialogue. There are real-time strategy games (RTSs), animated war games in which the skills required are those of a general, not a Rambo. These are animated toy-soldier battlefields, over which the player-generals have the same view as a boy propped up on one elbow above the carpet. 'God games' take viewpoint even higher over the action that strategy games, having the player act out the role of deity (though never a lone, omnipotent one, there being no fun in that), or mayor or tycoon, competing with rivals and the elements to build faith, city or business. Some, like the *Civilisation* series, have huge temporal scope, tracking societies from ancient to modern and beyond into the space age. Finally, driving and most sports simulation games appear on home PCs and consoles as outcrops of visceral arcade games, in which players sit in mock-ups of cars and planes that respond to their use of the controls.

These genres continually hybridise. Just as *Buffy the Vampire Slayer* is a cross-breeding of high-school soap and horror film, so the content normally associated with one genre can be switched to another, or genres can be merged within a single game. *Deus Ex*, for instance, loaded the RPG with a cyperpunk tale (rather than its usual sword-and-sorcery content), and married that to an effective 3-D shooter. God games meet sports simulation in numerous football management games that spectacularly play out the boyish interest in and head for sporting statistics. The practice is so widespread that gaming magazines typically describe new games in terms of one old game 'meeting' another. The scenarios, then, like a game's visual elements, are generally standardised and highly recognisable. That the game world continually consumes and refashions its own legacy in this fashion, while drawing with equal hunger on cinematic cliché, provides habitual players with simple and immediate identification with games and also places them firmly in the world of recycled, tongue-in-cheek culture or, in other words, camp.

Indeed, part of the attraction to the computer game seems nostalgic, being comprised of a yearning for childhood, for a simpler world, and for mythic past eras, whether the sword-and-sorcery fantasy of most RPGs, the Victoriana of Hammer-style horror games or the clean heroism of World War II. The content of games overlaps with that of mainstream cinema but is narrower in scope (no-one has figured how to do rom-com in games yet) and has a contrasting landscape of popularity. Sword-and-sorcery is more popular in games than in cinema, for example, though the increasing backwash from games to film means that films have taken on more game-like characteristics (the *Lord of the Rings* films being one example). Even when the scenarios represent the future, it is often a child's vision, that of *Star Wars* or *Star Trek*, the past's vision of the future, outmoded and pleasingly quaint.

So cutting-edge consumer technology (games drive computer upgrading far more effectively than the slow and doubtfully useful updating of *Windows*) is used to recapture in novel ways the wonders of childhood, the computer supplying the sound of the gunfire, the spectacle of explosions that once had life only in the imagination, and most of all playmates, real or virtual. Nostalgia for youth and role-playing are linked as the young (not yet solidified in their identities like many adult employees) search for

themselves, putting on and off different guises; so computer games with their many virtual worlds permit play without apparent consequence as a secret agent one week, a champion racing driver the next, an Elven thief the week after that.

It is unsurprising, then, that the content of games is generally so conservative, and is determined by the dominant mass media of the past, particularly of Hollywood as seen through a child's eyes. They tend to portray unambiguous good and evil, and heroes who defeat evil by the righteous use of violence (ways of seeing the world that have lately undergone a powerful revival in political propaganda).

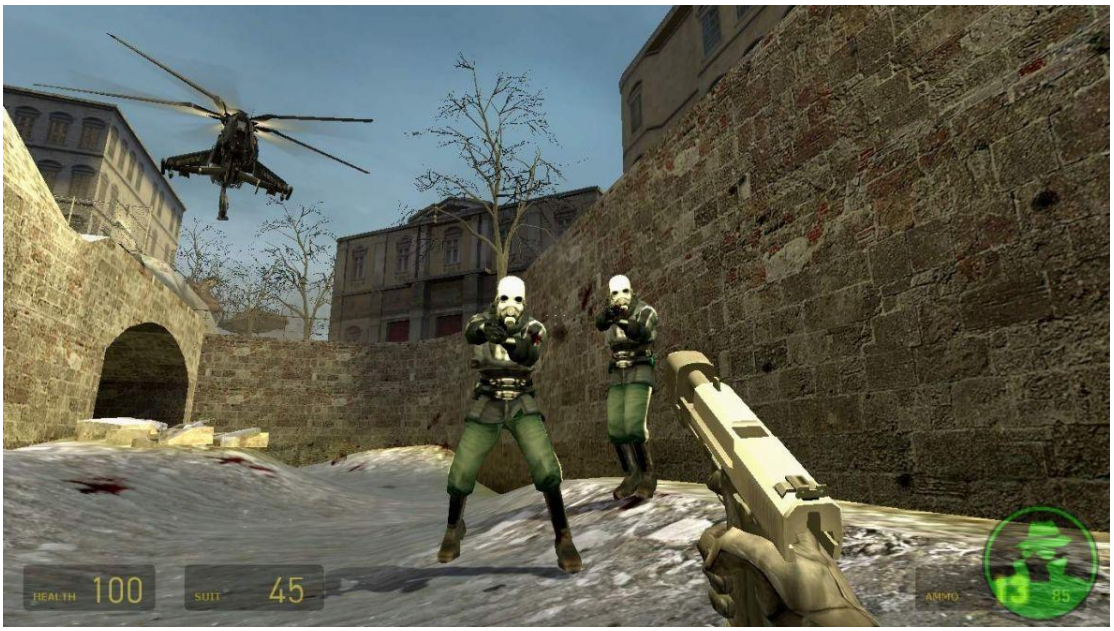

Figure 3: Half Life 2, 2004

Yet, while content and genre may be stereotyped, they are matched to a technology that continually produces new marvels. It moves so fast that nostalgic reminiscences of games only a few years old are common, and strange concatenations of time are produced, telescoping past, present and imagined futures. In arcade games from the 1970s lurid boxes encased simple animated monochrome shapes floating against dead black screens (little wonder that space games were the first attraction). The current crop of heroes stomp over huge three-dimensional landscapes, rendered in more colours than the human eye can distinguish, and containing fractally rendered foliage, clouds and smoke. Aurally, computer games have moved from bleeps to simulated full orchestras, losing along the way the particular character of their early music, written within the strict bounds set by simple sound chips. Visually, the development of computer games has run modernism in reverse, starting with the simplest two-dimensional geometrical figures in monochrome, and gradually adding (as computing power increased and programmers learnt to render them) three-dimensional form, first transparent wire-frame graphics then filled solids with opaque surfaces, then perspective, light and shade, texture, colour and fractal complexity. Today computer graphics tend to be as obsessively naturalistic and fussy as French nineteenth-century history painting.


Figure 4: America's Army, 2002

In the imagination of the bulk of the mass media, computer games are mindless, addictive and being violent foster violence in their players. Plentiful ammunition sustains these standardised perceptions: 'Twitch' games (those primarily reliant on fast reactions) do seem mindless to those not playing, and by their nature favour the young, on whom another set of complementary attributes are foisted in the conservative imagination. Some people do find games addictive (a recent news story recounts how a 17-year-old boy, who worked twelve hours a day in a Hong Kong Internet café and spent another ten hours playing online, collapsed and died after a marathon session of *Diablo II*). In the US there have been claims that the perpetrators of school massacres owed the methodical manner of their killing and marksmanship to 3-D shooting games, this being the basis of unsuccessful attempts to sue the manufacturers. (These games may indeed be used to teach tactics and even coolness under fire, and armies have used modified versions of them in training. The US Army has recently released a free version of its own as a propaganda and recruiting tool. What these games cannot teach is the handling and firing of real weapons, since the control of a trigger, for example, is nothing like the clicking of a mouse.)

To what extent, then, these charges justified? Given the evidence in their favour, it is worth restating them more precisely. While computer games are far from mindless, even the simplest of them requiring considerable coordination and spatial awareness, and the

more complex involving puzzle-solving, immersion in narrative and even extensive reading, the interaction that they require of their players is largely rigid, repetitive and instrumental. Games must limit possibilities to function at all, and the question is how much freedom the game gives the player to explore alternatives, and how much the constraints appear to be a natural part of the gaming world. Arbitrary constraints not only make a game world less convincing and immersive but also tend to foster mechanical gaming in the player. On entering a room in early 3-D shooters such as *Wolfenstein* and *Doom*, the Nazi and demon enemies would always spot the player immediately and promptly attack. The player had only the choice of kill or be killed, and conforming to the rules of the game meant playing with the demonic single-mindedness of the enemies themselves. One of the first games to introduce stealthiness, *Thief*, calculated lines of sight, illumination and sound in deciding whether enemies would react to the player who could either fight, or creep along snuffing the lights. More recent RPGs such as *Deux Ex* allow player-characters to develop sets of skills (sniping, stealth or hacking, for example) and to play the game in a more or less bellicose fashion.

Figure 5: The Sims 2, 2004

Nevertheless, even in games that offer the player many choices, rigidities remain since computer narratives are typically advanced by the mechanical method of accomplishing tasks that open up previously inaccessible areas or levels—indeed the task is often literally finding a key. While there may be more than one way to accomplish a task, each must be performed, often in a specific order, and in a manner in which the game's characters are dealt with as instrumentally as its objects. This is not only the case when the only interaction between players or characters involves machine-guns and chainsaws.

In *The Sims*, a simulation of everyday domestic life rendered as an animated dollhouse-neighbourhood, a graph registers each character's hunger, fun, hygiene and even bladder levels: embrace the husband/wife x times a day to ensure fidelity. In some RPGs, a character's attitude towards the player is expressed in percentage points, and can be increased or decreased by clicking through options to, say, admire, insult intimidate or bribe. Other rigidities are caused by programmers' lack of anticipation of what players may attempt and the limits of current gaming machines—so if a wooden door cannot be demolished with a rocket, it may be because the programmers did not think that the player would try it, or that the processing power needed to render a 'deformable' environment (far greater than that for one that remains unaltered) is insufficient, or because to allow it would wreck the structure of the game narrative. Gaming, then, is not exactly mindless but it does encourage a particular mindset, geared to conformity of action and the purely instrumental use of objects and characters.

Figure 6: Doom, 1993

To move to the second charge, 'addiction' is a loaded term, rarely used of high culture. Computer games certainly inspire devotion and close attention. How many people—especially men and boys—lost hours and weeks or more, and even friendships and loved ones, to *Doom*, when it first occupied computer screens at the end of 1993? Few who installed the *Doom* demo will forget the experience, as their screens that had up to then yielded more or less entertaining cartoon play in brightly coloured, uniformly lit orthogonal spaces suddenly opened up onto a world that appeared palpably real. As the game loaded, and the black DOS screen lit up, the player awakened into a violent nightmare, looking through the eyes of a lone Marine stranded on a moon-base crammed with hostile demons and the reanimated corpses of his fellow soldiers. The game was a series of firefights using increasingly powerful weapons against ever greater numbers of ever-more bizarre and lethal opponents. It was essential to use the architecture of each level to tactical advantage, to choose the right weapon for the job at hand, and to

conserve ammunition. The game's spaces were murky and complex, hid their secrets carefully, and were crammed with opponents. The game—best played, like most of its progeny, in the dark—could be genuinely frightening, the player knowing that any apparently safe space was probably a trap, that any silence was definitely 'too quiet', and that any respite was the prelude to another ambush. Looking at screenshots of the game now, it is hard to believe the impact *Doom* then had, but immersion never came about by watching, only by playing, as keyboard and mouse actions are registered instantly on-screen, and the world is built in the mind through interaction.

The plot of *Doom* was extremely bare and clichéd, being no more than a pretext for the action. The game's true narrative force was constructed, as those of sport are built, through simulated combat and free movement within a bounded space. Within these walls (like the lines of a pitch), there are a vast number of possible moves and responses, allowing the emergence of heroic endeavours and brave but failed gambits. In games where people play each other over local networks or the Internet, the analogy with sport is exact, and defeat is irrevocable. With single-player games, saving and loading means that each failure can be discounted, and the path that the hero must take against overwhelming odds to final victory unfolds slowly amid numerous virtual deaths.

In one sense, of course, *Doom* players, especially adults, played the game tongue-in-cheek—millions of them, lone marines stranded on an alien world battling with shotguns, rocket-launchers and chainsaws an array of monsters. And how could you take it seriously when you were being pursued by a giant floating grinning tomato-demon? Yet the game also viscerally engaged the emotions—I remember watching the twitches and winces of friends as they played, the way their bodies leant into the action, and so became more aware of my own bodily responses—and there was nothing ironic about the resultant fear, frustration, relief and sense of triumph the game engendered.

Given this engagement, is 'lost' the right word to describe the time spent in such pursuits? An office-worker friend of mine, who battled his colleagues on the firm's server after-hours, recounted with wonder the moment when he had heard a rocket being launched, leapt backwards (that is, hit the 'down' key) to see the missile sail past his virtual nose. The whole business of commuting, working and socialising had become for him pale episodes that punctuated sessions of *Doom*. If 'addiction' is the right word to use here, as with addictions to caffeine, tobacco, alcohol or dangerous sports, genuinely pleasurable stimulation is on offer. Furthermore, the character of the compulsion to play differs from game to game: with simple shooting or platform games it is the mastering of the interface, the progress from level to level or the high score, and the mental relaxation that comes with simple repetitive movements and predictable outcomes—like knitting, then, for boys, adding a dose of adrenaline. Other games, particularly RPGs and 3-D shooters offer immersion in an unfamiliar environment and even culture, and the compulsion is to explore that world and interact with its characters. Online, where those characters are played by other people, there are the added benefits (and sometimes frustrations) of human unpredictability and discourse. As computer technology and programming skills advanced, gaming worlds became more immersive, detailed and convincing, and so more effective tools for escapism. While hours spent playing *Space*

Invaders were ' lost', and losing time was part of the point, the many hours spent to develop a character, gain knowledge of the environment and build relationships in an online RPG is an activity of another order, and one not necessarily less complex than another pastime once condemned for its time-wasting, compulsive character and doubtful morals—the reading of novels.

The last charge is that of violence—an issue that *Doom* and its many imitators raise with some gusto. Non-violent games exist but they are in the clear minority. What is more, as in much film and TV, violence is effective, driving the plot to a satisfactory conclusion. In many game worlds, an implacable evil must simply be exterminated, while many others are devoted to a Realpolitik in which an assassin's bullet or the clashing of armies bring measurable and assured advantages.

Figure 7: Quake III, 1999

There is considerable humour, nonetheless, a markedly slapstick element to violent games, especially when played against other people. The highly popular combat arenas of *Quake III* and *Unreal Tournament* are hardly convincing simulations of warfare but rather scenarios populated with over-the-top characters sporting garish costumes and improbably large weapons who taunt each other colourfully, and are resurrected swiftly after each death. The events in these games are funny in the way *The Three Stooges* are funny, or *Tom and Jerry*, eliciting a a simultaneous laugh and wince. These games are certainly bloody—characters hit by a rocket explode in a shower of red, limbs are shorn

off and heads bounce along corridors—yet all in a sanitised spectacle is confined safely behind the screen. For the time being—and not only for technological reasons—the smell and the slipperiness of blood are not part of the simulation. In the gaming magazine, *PC Zone*, a series of features compared computer simulations of combat to physical ones, including paint-ball shoots and SWAT training: virtual combat, it was discovered unsurprisingly, offer the considerable advantages of not getting wet, cold or injured (the series ended when the unfortunate journalist who undertook SWAT training broke his collar-bone).

Against whom is game violence perpetrated? The aliens in *Space Invaders* were wiggling ideograms of light that advanced down the screen in an unvarying pattern. Shooting these tokens was very unlike killing a living creature. As computer-generated characters behave in a more intelligent manner, appearing more individualised and more detailed, and as dying and being injured are rendered more convincingly and bloodily, the question of game violence becomes ever more urgent. The corpse of each creature in *Doom* would fall in exactly the same way, thus appearing as instances of a clearly standardised model. The game's descendants use simulated anatomy and physics to model accurately the splay of limbs in a fall or under impact. It may be that the effects of these renditions will be to make computer game producers think more carefully about violent content, though there is little sign of it yet. Nevertheless, in the recent RPG *Morrowind*, which allows the player a great deal of choice in their actions, the characters the player undertakes to kill as a consequence of accepting quests have names—a disturbance to the usual scheme of slaughtering stereotypical aliens, whether they be demons, extraterrestrials or terrorists. Furthermore, in online RPGs, in which people spend considerable time building up their characters, the issue of player-killing is a highly controversial topic, and is usually forbidden in safe zones within the game.

Yet, whether games involve simulated killing or not, almost all take as their model capitalist competition or at least bureaucratic management, most transparently in those games which simulate city planning, sports or business activities. Even the bloodiest games enforce on the player strict resource-management and the principles of Protestant frugality, rewarding prudent expenditure and the amassing of 'capital' in the form of health, armour and ammunition. The successful player is no swashbuckler but rather (as Max Weber describes his archetypal bourgeois) 'calculating and daring at the same time, above all temperate and reliable, shrewd and completely devoted to their business…' Behind the frantic gunplay and the glossy gladiatorial spectacle lies a strict economy, a calculation of rising and falling indexes, in which health=0 means player death, or put otherwise bankruptcy. In this way, games embody the ethos of Capital in its raw form: success is about competing against others to accumulate resources, objects are of interest only for their immediate use, and people are to be exploited like any other thing, their health and disposition being numerically expressed and altered mechanically through expenditure (of wages, bribes or bullets). To object to the violence of computer games is to point to a mere fragment of a wider instrumental culture—which, of course, also finds expression in film, television, literature and music—the spirit of capitalism itself. It is not, then, that computer games cannot embrace a more complex and morally responsible

attitude towards killing; it is just that given their underlying structure and ideology, it is unlikely that they will, any more than Hollywood will end its romance with small arms.

In refining the charges frequently levelled against computer gaming, we have touched upon some of its pleasures. Aside from the pleasures of mock-gladiatorial combat, game-world environments offer the inducements of exploration coupled to the unfolding of narrative in decorative, glossy fantasy. Henry Jenkins, writing in a book about computer gaming and gender, sees virtual spaces as an alternative to the physical realms open for exploration in his own childhood, as the real world becomes too dangerous for children to play in unsupervised, and in the spreading suburbs too dull for them to want to. The continuing degradation of the rural, urban and suburban environment as a space for social interaction that accompanies economic growth, and particularly the growth of traffic, is the necessary background to understanding the rise of virtual fantasy spaces.

Figure 8: Ultima Ascension, 1999

By contrast, computer games offer increasingly sophisticated, spectacular and often beautiful worlds for virtual exploration. Origin's *Ultima Ascension*, while derided on its release in 1999 for its bugged code and clumsy gameplay, created a model for others to follow. The game concluded a series of Ultima RPGs that had achieved remarkably intricate narrative progression set in believable worlds in which computer-generated characters lived their lives independently of the player. While in many games virtual shopkeepers stand about eternally in the same spot waiting for the player to find them, in

the Ultima games they could be found in their shops during opening hours, in their beds at night and probably down the pub in the evening. *Ultima Ascension* employed sophisticated 3-D graphics, depicting a world with its own revolving night sky and astronomy, a wide array of fauna and flora (only some of it hostile—it was possible to go bird-spotting) along with 'books' (of, it is true, a few pages) and libraries.

In terms of environment, then, computer games can present the player with remarkably rich scenarios that offer complex interaction. Yet narrative in computer games remains very limited. While a child with dolls or soldiers can spin tales of great length, flexibility and complexity, computer game narratives remain simple and largely linear. The problem, as Steven Poole relates in his book *Trigger Happy*, is the number of branching storylines that rapidly proliferate if players are allowed true freedom of action, each of which needs to be scripted by someone. One solution, frequently used in computer games, is to make the branches cross; so in the cyberpunk RPG, *Deus Ex*, the choices made by the player shuffle the order of the games' episodes. (This game, incidentally, was highly unusual in offering the player three different endings, all morally troublesome, and in starting the player out as a government agent fighting 'terrorists' who turn out to be at least no worse than his employers.) As Poole argues, this tactic reduces the otherwise exponentially growing number of narrative branches but at the considerable cost of not being able to build into the story any memory of the order in which things took place—thus many of *Deus Ex*'s episodes act as independent missions, rather than chapters in a story. In most novels, the reader is carried from one episode to another without any options other than to stop reading, yet the number, complexity and degree of connection between the episodes is unlimited. With computer games, and as a direct result of offering choice to the player, the more open the narrative, the more amnesiac the game.

Sometimes computer games conceal their limitations by sleight of hand, which experienced players take it as their task to reveal. The increasingly visually sophisticated graphics of the *Tomb Raider* games starring 'Lara Croft' (a character—for those who have escaped exposure to her considerable success in games, a film and Lucozade ads—equipped with twin .45s and absurdly pneumatic breasts and behind) masked a basic 3-D platform game in which the player has to run and jump from one surface to another, and those who would manipulate the heroine successfully would have to grasp the simple geometric grid beneath the appearance of wood, stone, foliage and water. Similarly, the Ultima series produced a compelling impression of conversation which drove the plot and many dozens of sub-plots, giving the effect of narrative openness. When talking to a character, players were presented in the early games with a space in which to type words, in the later ones with a choice of pre-set topics; clicking on one would elicit a response and perhaps open up further topics. Choices were offered in accepting or turning down tasks, lying or telling the truth, and in the tone taken with characters. Yet the logic of the game, directed towards a single outcome in which the hero must save the world from some evil, demanded that these choices were more limited than they first seemed, and did not affect the progress of the main plot. While the urgency of the task at hand was often emphasised by the game's characters, the player knew that the next section of narrative would await their own turning of the appropriate key. Since some of the keys were themselves pieces of dialogue, more experienced players would be sure to 'drain'

each character they met of talk, exploring every branch of conversation to unlock further narrative paths, in a process that could become quite as mechanical as platform-jumping.

Currently, computer games (like sport) are best at offering narratives that grow out of or are imposed on the action. Freedom is offered in movement through virtual space, and in developing and executing tactics. Once an environment is set up and running, obeying a set of rules derived from physical laws, then players can be set free to explore the possibilities, and may use objects in ways that the programmers did not anticipate. The bizarre practice of rocket-jumping in *Doom*, by which players reached usually inaccessible areas by using the blast from their rockets to launch themselves high into the air, is one example. Another, also from the realm of 3-D shooters, has players exploit their jumping ability to avoid being shot; since fatigue was not a factor programmed into many of these games, combat could degenerate into comical exercises in bunny-hopping.

Perhaps, though, the very limits of gaming constitutes part of its attraction. The appeal of *Tomb Raider* to its millions of players, aside from the curves of its starlet, was precisely its mechanical predictability. If so, this is a feature that Theodor Adorno pointed to many years ago in his stringent analysis of technologically cruder products of mass culture: that the border between work and leisure was strictly policed because otherwise their secret affinity would become obvious to all. If the ethos of games, of a mechanical instrumentality lurking beneath its fantasies of utopia and dystopia, is the spirit of Capital, then it triggers in players a comfortable recognition in which the mundane repetition of mechanical tasks (involving the same physical tasks, the small, tightly controlled movements of the mouse, the mild action of pressing down on keys) initiates the sending of a memo or the slaughter of monsters, and methodical progression through work or play.

Yet the computer game offers one marked difference to the world of work. At work each action has a definite but at the same time uncertain effect, not merely in the sense of being unpredictable, but given the complexity of contemporary commercial and cultural systems, and the still unfathomed mechanisms of human minds and bodies, often remaining unknown. In the gaming world, actions are often unpredictable but the results are not only visible but precisely quantifiable. In the postmodern world, no-one is supposed to be able to grasp or map the entire complex of interrelated systems; in the gaming world, maps are often generated by the player's movements, the game becoming in part an unfolding of lucidity, bringing uniform light to each corner of previously unmapped darkness.

So far this sketch of computer gaming has conformed quite closely to familiar visions of postmodern culture: games are replete with references to other cultural forms and each other, within them pastiche and nostalgia are comfortable bedfellows, and they are compulsively repetitive and obsessed with surface, or at best give only an illusion of depth.

Yet computer games are not at all like the paragon of postmodern culture, TV, not least because they require active participation, binding together Hollywood ideology with the

actions of bureaucracy in a comfortingly Manichean view of the world. They also contain the seeds of two deeper disturbances to the settled and passive schema of postmodern depictions of culture. The first of these is artificial intelligence, which takes most obvious form in games like *Creatures* or *Black and White*, where the player raises Tamagotchi-like animals, determining their behaviour and character by their care (or lack of it). Computer-generated characters have become far more effective opponents: the 'bots' that are released into 3-D shooters now generally have to be hobbled in some way to allow human players a chance. While *Doom*'s demons were dumb and relentless, and but for their numbers easily despatched, the Marine opponents of *Half Life* (released five years later) worked cooperatively in teams, reacting intelligently to the player's actions, and were very hard to defeat. This use of artificial intelligence in games will certainly continue to progress; the question is whether it can be extended from moving and shooting to the generation of dialogue and narrative. An AI that could recognise and manipulate narrative elements would resolve many limitations of gaming. Likewise, programs that can recognise and respond to speech would immeasurably enrich the gaming environment. Both, naturally, await broader developments in artificial intelligence. There are reasons to expect progress, since narrative elements, particularly those likely to appeal to game producers, are classifiable and thus open to computer manipulation, while much research is going into computer agents that can recognise and respond to human speech (among other things, so as to replace people in call centres).

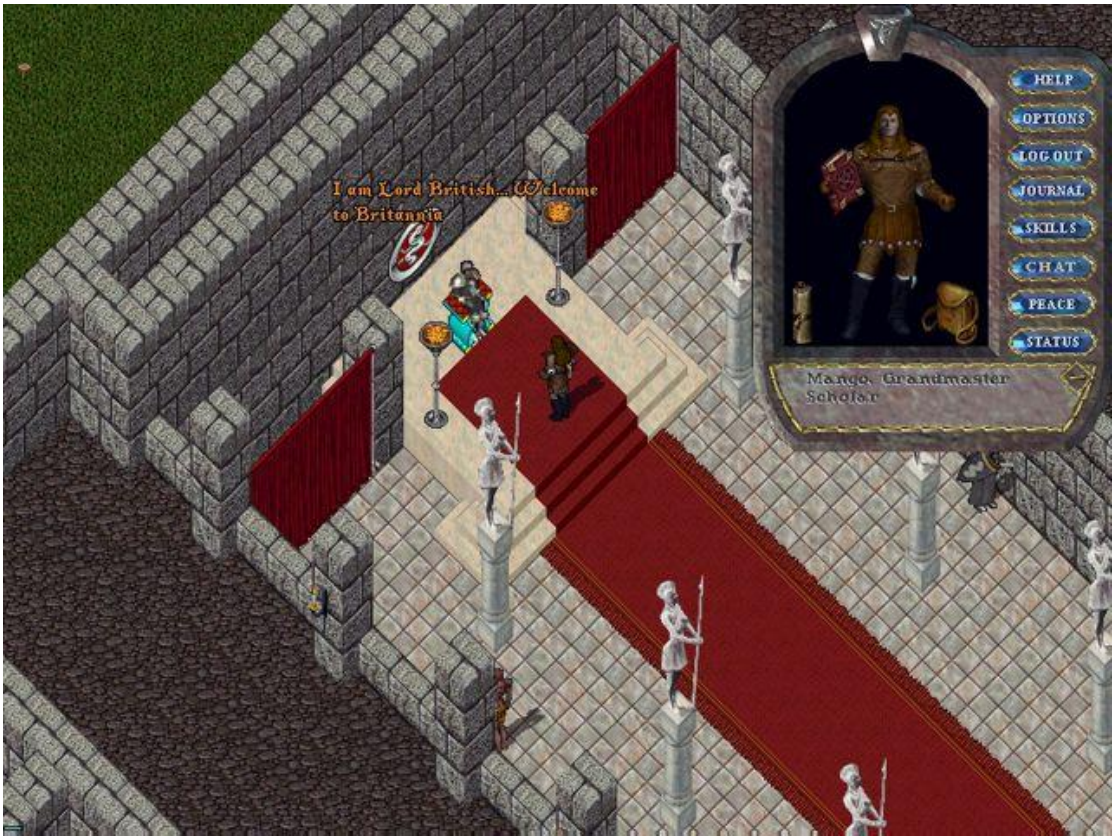

Figure 9: Ultima Online, 1997-

The second disturbance is the growth of the Internet which allows people to play against each other or in teams in conventional games, and has also led to the setting up of a number of persistent online games, involving thousands of players. These games, RPGs since the depth required of such a game suits character development, offer great freedom of action to players in choosing their identities, jobs and actions. They also form social spaces of considerable and evolving complexity. In *Ultima Online*, one of the first such graphical persistent RPGs, narrative elements are introduced by the programmers to drive the sense of the game-world along, but many tales emerge from the interaction of thousands of citizens, and the effect their collective actions have on the environment. Strikingly, players staged a major narrative event of their own when in a palace coup they murdered the character of Lord British, *Ultima*'s monarch and the alter-ego of its founder, Richard Garriott. Online communication is a way of stepping around the limits of gaming, by supplying rather than inventing intelligence.

The audience for online games is currently very limited. While like television single-player computer games are, after an initial layout, a cheap form of entertainment, online games frequently require a subscription fee on top of the cost of the call. Only 5 per cent of the world's population have Internet access, and even fewer enjoy the broadband links that the more graphically advanced games require. Even so, there has grown up around online games, and even single-player games discussed online, a collaborative fan culture, and a gift economy in which extra game levels, elements and even modifications (the complete transformation of a game so that *Half Life* becomes a Western, for example) are downloaded. Free modifications can rival the original game. *Counterstrike* is a modification of *Half Life* that pits teams of terrorists against SWAT units in a realistic combat environment, and which is now by far the most popular online game. Programmers and amateurs offer their labour in exchange for prestige and—maybe—a job in the industry. Software companies, aware that this activity greatly lengthens the life of their games, assiduously foster game forums, and open their games to modification. In this way, gaming design is made public, just as a participatory and gift-giving community has formed around the free software programs that are eroding Microsoft's monopoly. Such modifications involve the assembly in kit-form of existing game elements, so it is unsurprising that they generally conform closely to the spirit of the original. Nevertheless, there is a sense in which the ethos of this collaborative community of gift-givers cuts against the ideological content of the games that they create. Thus this thoroughly capitalist cultural form, an efficient tool for the regulation of its users through its combination of spectacle, immersiveness, nostalgic sentiment and the requirement to conform, has been breached a little by the collective activity and conversation of its players.

The two developments may be opposed. If the logic of online gaming is towards greater human interaction, the development of narrative and discourse, and the abandonment of media that rely on passive consumption, the logic of artificial intelligence may point in another direction entirely: towards the development of virtual creatures that may simulate human manners but will faithfully serve the agendas of their creators, the great corporations.

Returning to the contention with which we began, there is truth to both views. What we see in computer games now is like the stuttering images of early cinema, and their future development will come to dominate the culture in ways that we can hardly anticipate, particularly as the computing environment becomes more pervasive and less associated with screens, keyboards and mice. Whether these products will continue be known as 'games' is anybody's guess. Equally, in their mechanical and violent character, they powerfully embody and inculcate establishment ideologies. Gaming technology has, however, initiated contact between players, and it is possible that the development of their dialogue and interaction, and their freely given labour, will break down the current confines of computer gaming. It is hard, after all, to continue to treat an entity as a thing when it looks and talks back.

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