Walkthrough: videogames

and technocultural form

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Abstract

This thesis addresses the videogame as a new media form. It argues that videogames, videogame play, and videogame players, are paradigmatic forms of a popular new media technoculture and that their study should be central to the emerging field of new media studies. However the importance of videogames to, and their embeddedness in, everyday lived experience and popular culture, the intimate and playful circuits between players, videogames, and computer hardware are not adequately accounted for in established theoretical frameworks and methodologies.

The thesis is concerned less with meanings constructed around computer media, and more with the materiality and agency of new media artefacts and entities in play. The adequacy of key terms in Cultural and Media Studies and Film Studies, terms such as 'text', 'representation', 'interactivity', 'identification' and 'subject' to the videogame and everyday technoculture is questioned. Alternative theoretical resources such as those offered by Science and Technology Studies, critical posthumanism and actor-network theory are suggested and explored.

'Cybertextual analysis' is proposed, and developed, as a method for studying the videogame as a software system, as a primarily simulational rather than representational form. Particular attention is given to the operations of software automata such as non-player characters and artificial intelligence.

Video microethnography articulates this cybertextual analysis with the everyday context of a small-scale event of videogame play. This event is studied as the collusion (the coming together in play), of a heterogeneous network of human and nonhuman part(icipant)s: the conventions, rules and prescriptions of games software; children's embodied knowledges, pleasures, anxieties, imaginations; play practices and rules; screen media images and characters; and the kinaesthetics and virtual physics of videogameworlds.

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List of commonly used acronyms

AI: the science of Artificial Intelligence, and in videogames, the aspects of the game code that facilitate more or less complex or responsive behaviour on the part of NPCs or the gameworld

ALife: the science of Artificial Life

ANT: Actor-Network Theory

CPU: central processing unit of a computer. In computer game discourse, CPU sometimes refers to the computer itself as a player

FPS: first person shooter. Videogame genre characterised by the presentation of the gameworld as if through the player's point-of-view and by a game dynamic of weapon-based combat

HCI: human-computer interaction.

HUD: head-up display. In the design of fighter pilot helmets for instance, the projection of computer data onto the visor, allowing the pilot to see the environment and data simultaneously. In videogames a simulation of this as part of the visual interface (notably in FPSs); crosshairs, health levels, etc. presented over the gameworld

MMOG: massively multiplayer online game. E.g. online virtual worlds such as *Second Life*.

MMORPG: massively multiplayer online role-playing game. MMOG with a role-playing structure and motive, e.g. *World of Warcraft*

MUD: multi-user dungeon or multi-user domain. Text-based online virtual world / game. Often with a fantasy theme.

NPC: non player character, controlled by the CPU

RTS: real-time strategy. Videogame genre, generally with a war theme, characterised by the players' (both human and CPU) continuous management of resources and engagement in combat. Often seen as a development from TBS games.

SST: social shaping of technology

STS: Science and Technology Studies

TBS: turn-based strategy. Strategy-based videogame, generally war-themed, in which players (human and CPU) act in discrete turns, similar to conventional board games.

Introduction

Two Microsoft X-Box consoles are linked together in a small terraced house in south Bristol. One – in the front room – is connected to a large television screen, the other – in the dining room – to a data projector pointed at a wall cleared of furniture and pictures. It takes some time to persuade the consoles to 'speak' to one another, to recognise that they should divide a videogame, *Halo 2*, between them, four players per console, but generating a virtual world in which all eight can interact. Each of the two screens (the television and the wall projection) is split into four subscreens, each subscreen displaying the game's virtual world from the point of view of one player. Through their own window each player sees the gameworld from the position of their avatar, a first person viewpoint, from which they can see the avatars of the other players. The players sit together, their virtual representatives leap and sprint through the game and across the screens, triggering a frenzy of virtual gunfire.

It quickly becomes apparent that my fellow players, despite their claims to incompetence, are much more accomplished than me at this game. Denied the leisurely and tentative exploration of controls, conventions and gameworld that a single-player version of the game would allow, I am left flailing around. Unable to simultaneously move through the virtual space, identify useful powerups and ammunition and aim my virtual weapon at my onscreen enemies, my avatar is shot repeatedly, hitting the floor with frustrating regularity and frequency. In each of these deaths my screen point-of-view is spun through ninety degrees as my avatar hits the floor, capturing - before momentary virtual oblivion and respawning - the perpetrator of this temporary downfall, skipping blithely away to engage with more worthy opponents.

Figure 1: *Halo 2* (2004)

I try instead to explore the gameworld, to take my avatar for a walk. The virtual environment is spectacularly rendered, a beautiful alien landscape. It soon becomes clear however that its ostensibly open vistas are illusory – all paths curve gently back into the mayhem. Enticing foothills are in reality barriers to the inaccessible mountains beyond. This is not a world but a park, a garden landscaped for virtual warfare, an arena. Positioning my avatar behind a rock as far from the explosions and tiny leaping figures in the middle distance as possible I instead head off – in actual space this time – to the kitchen. Both my physical body and my avatar take a break from this intense and frustrating play.

Drinking a beer and eating crisps I watch my actual opponents now, rather than the screens. In contrast to the intense onscreen activity – leaping fighters, exploding vehicles, wild virtual camera swings - the players are immobile. Occasional unexpected deaths or particularly spectacular moments of action are met with curses or laughter, and the end of a match is marked by the stretching of backs and arms, but in play the players are still, eyes wide and rarely blinking, motion evident only in the micro-movements of thumbs on controller buttons and analogue sticks. A phrase from Donna Haraway's *Manifesto for Cyborgs* flits into my mind: 'our machines are disturbingly lively, and we ourselves frighteningly inert' (Haraway 1990: 194). My own sense of heterogeneous agency in the game (paradoxically highlighted by my ineptitude), of driving my avatar to wild movement, to triggering actions, operating machinery, firing weapons, navigating spaces and buildings is palpable and intense, yet profoundly at odds with this scene of transfixed bodies and minds. They seem not to be initiating the onscreen action or making choices - as conventional celebrations of interactivity might assume – but rather responding to the demands of the machines (both the hardware and software).

The term 'cyborg' does not seem too hyperbolic here. On the one hand the players are temporarily, but intensely, locked in a circuit – a cybernetic feedback loop – in which they, the consoles, controllers and the game-software are nodes. The linguistic confusion evident in my account of the game above is telling: 'I' referring at times to my physical body and sense of self, but at times to my actions in the game. There is a linguistic and experiential blurring of boundaries between human and machines: in the game 'I' is at once 'myself', 'my avatar', and 'myself and avatar'; a hybrid human and technological entity.

Another, very different, space, but again ludically charged. We are on a family holiday, camping in the Doone Valley on the edge of Exmoor in Dorset. The setting for R.D. Blackmore's nineteenth century

novel *Lorna Doone,* the small, enclosed valley is full of references to its literary incarnation. The local heritage and tourist industry has erected signs indicating both contemporary footpaths and sites thought to correspond to places and events in the book. This is then an actual place overlaid or dramatised by the virtual time-space of literature. On our walk back to the campsite along the river, my wife Penny energises our flagging children by pointing out mushrooms growing amongst the grass and mentioning *Mario Kart.* This triggers an explosion of activity in the boys. They sprint across the field, slowing down then accelerating noisily as they reach another patch of mushrooms. *Mario Kart: double dash!!* is a videogame for the Nintendo GameCube and a firm favourite in our house. One convention of this genre of game – an arcade style racing game – is the inclusion of powerups or items that bestow temporary powers on the car / avatar. Mushrooms, in this particular game, give the car / avatar a brief but often decisive turn of speed. In the Doone Valley actual fungus becomes analogous with the bright red and white mushrooms in the game, virtual powerups in an actual game.

Figure 2: fungal powerups in virtual and actual *Mario Kart: Double Dash!!*

old and new media studies

The brief accounts above exemplify something of the everydayness of videogames and videogame play. Videogames are mainstream popular media products, often populated by characters and scenarios from television, cinema and comics (or supplying these older media with new characters). The practices of their consumption then are rooted in well-established patterns of domestic media and technology consumption: of family life, television viewing, children's play, board game play, hobbyist tinkering with new devices from wireless crystal sets to wireless networks. As such, Media Studies as a discipline offers valuable theoretical resources to the study of videogames, from analyses of screen images, characters and scenarios to an understanding of the economics of media production to ethnographic research into the social contexts and lived experiences of consumption.

Yet these accounts also suggest that videogames are in important, if nebulous, ways also very new and as such offer a challenge to Media Studies, demanding new concepts and theoretical resources in their analysis as computer-based media, as hard and soft technologies, as well as popular media texts. The experience of playing videogames is, in important ways, quite distinct from television or film viewing, and this distinction goes beyond straightforward notions of 'interactivity'. The nature of this distinction is one of the main concerns of this thesis and will be explored throughout, but for now I will highlight two characteristics, one from each of the gameworlds sketchily mapped above. Each undermines normally firm conceptual foundations.

Firstly, in literal terms, videogame play is cybernetic. It is an aesthetic, non-instrumental, or ludic instantiation of the possibilities of computer media to hook their users / players into a compelling circuit of action and response. The experiential intensity of this circuit is often alluded to in both everyday and academic discussions of computer media, but has proved remarkably resistant to description and analysis. This intensity though is bound up with the intimacy of player and technology (both hardware and software) in the act of play – to study a videogame as an *event*, and to understand the peculiar subject-effects generated, is to study both the human and the nonhuman.

Secondly, such events are motivated by *play*. Play too troubles definitions and distinctions – the fungal impulsion evident in Doone Valley, can hardly be reduced to any conventional notion of media consumption. Yet neither is this game 'productive'. The children in this little story are not 'identifying' as

such with the game's characters, not role-playing characters from a screen drama, for whilst they may choose to 'be' Yoshi, Luigi or Diddy Kong, the motive of this game is the enactment, or the translation, of the kinaesthetic dynamics of the videogame, its play between speed and ultra-speed, between item and environment. They are playing at playing with virtual physics.

How then should the videogame be analysed and studied? Videogames are, on one level, popular media, sets of images on a screen, and refracted through a transmedial prism into merchandising, television cartoons, feature films. They are also computer technologies, both soft and hard, their hardware marketed as consumer electronic goods. They are games, play, and as such only exist in the moment or event of their playing. This thesis will study videogames as new media, noting the continuities with existing popular screen media, but also identifying the *newness* of new media and videogames, and exploring the analytical and conceptual challenges this novelty throws down.

> Video games are a window onto a new kind of intimacy with machines that is characteristic of the nascent computer culture. The special relationship that players form with video games has elements that are common to interactions with other kinds of computers. The holding power of video games, their almost hypnotic fascination, is computer holding power' (Turkle 1984: 60)

As Sherry Turkle indicates, whatever the newness of new media is, it is to do with their digital nature, their status as computer software and hardware, and the new forms of engagement and experience this nature facilitates. As the oldest popular new medium, the videogame should be central to the study of new media on the one hand precisely because of this longevity, accessibility and popularity, and on the other because, as Sherry Turkle asserts, their playing articulates the non-instrumental experiences, pleasures and intensities that characterise, in varying ways and to varying degrees, new media technoculture more generally.

arguments

So these little stories indicate much that will be explored throughout this thesis. A key concern is the role of digital technology and play in generating confusions or renegotiations between usually distinct concepts: in everyday life and media culture - the new with the old; in the use of computer media - virtual with actual space; in the moral critique of popular culture - passivity with agency. However this thesis is not only concerned with the conceptual, with the *meanings* constructed around computer media, but also the

materiality of both new media and the lived experiences of their consumption or playing. The articulations of machines (both hard and soft) with bodies is of central concern here. The peculiar mix of the banal and the novel, the quotidian and the unsettling, and the material and the immaterial in videogame play is in part explored through a *microethnographic* approach. Microethnography as I have developed it in this project is a research method that attends to the textures of, and linkages between, videogames, play, and players and their cultural and material contexts in *moments* or *events* rather than through either the abstractions of the notional 'subjects' of film theory, or the surveys and focus groups of media audience research.

So this thesis is about videogames as new media, i.e. digital, computer-based media; videogame play as technoculture, i.e. the nature of the relationships between technologies and everyday life; about videogame players themselves as technocultural, i.e. an integral node in the circuit of media, technology and practice in the event of gameplay. Its premises are that:

- the videogame, videogame play, and videogame players as new media and cultural forms have yet to be adequately theorised and studied

- the analysis and theorisation of the videogame, videogame play, and videogame players is underdeveloped, yet should be central to any study of new media in general. Drawing on the existing literature on games, new critical syntheses and new directions for the study of the videogame as technocultural form will be offered

- given the importance of videogames to, and their embeddedness in, everyday lived experience and popular culture, the thesis will draw on established approaches and concepts from the disciplines of Media Studies, Cultural Studies and Film Studies, but

- it will be argued that the intimate, impellent (and playful) relationships between players, videogames, and videogame and computer hardware as actual lived events and experiences are not adequately accounted for in these established frameworks. Therefore alternative theoretical resources will be suggested and explored, theoretical resources that challenge some foundational assumptions of Media Studies and Cultural Studies

- This study will argue that videogames, videogame play, and videogame players, are paradigmatic form of new media and popular digital culture; their study should not only be central in any emerging

new media studies - i.e. the study of new media, but also suggest a *new* media studies - a rethinking of Media Studies in contemporary technoculture.

▶ These arguments will be pursued through the circumscription of nested concerns and discourses. The widest circle encompasses theories of technology and culture in general, within that lies considerations of computer technology and culture, and within that computer media in everyday life and popular culture. Concentricity is not possible though: some consideration of non-media domestic technology will be needed, and theories of identity, embodiment, human and nonhuman agency, and play will loop through all the above following their own eccentric orbits.

These premises will be pursued through the following conceptual and methodological concerns:

▶ how to analyse and theorise the *videogame* as a popular new media form, i.e. as both screen media images and scenarios, and as computer software – to what extent can textual analysis, developed to study film and television, identify the particular dynamics of game and of software;

▶ how to analyse and theorise *videogameplay* as a technocultural practice or event, in which both human and nonhuman agency is in operation – to what extent are established theories of consumption in everyday life adequate to the study of these events;

▶ how to analyse and theorise *videogameplayers* – to what extent can the cybercultural rhetoric of cybernetics, cyborgs and the posthuman be used to account for the real circuits of technologies, media images, play and subjectivity - to what extent can ethnographic research describe these circuits?

The thesis will conclude by offering a new model of technoculture in everyday life. It will shift analytical and critical attention away from established research objects and notions (the 'impact' of technologies, consumption, identities and subjectivity, interactivity) and towards the 'event' of gameplay as one with nonhuman as well as human participants, and brought into being by relationships, and translations, of human and nonhuman agency.

disciplines and boundary work

game studies

The study of computer and videogames had, until quite recently, developed in a fragmentary way by individual scholars in diverse disciplines. However since 2001 a number of conferences and networking events have led to the constitution of game studies as, if not a discipline as such, an organised and international field of research and debate. Driven by interest from researchers, students and the games industry, universities across Europe, Australasia and North America have established games research labs, study groups, and undergraduate and postgraduate degrees in game design and / or theory. The Digital Games Research Association (DiGRA) was established in 2002, resulting in two large international conferences. There are now two journals specialising in computer games research from a humanities and social science perspective, *Games and Culture* and the online *Game Studies*. In general this field is marked by interdisciplinarity though some have argued for the establishment of a discrete 'computer game studies', (Aarseth 2001) and the term is being adopted in academic publishing, see for example Raessens and Goldstein's *Handbook of Computer Game Studies* (2005).

The disciplinary constitution of game studies and the debates this has engendered are too diverse to map here and are not of central interest to this thesis (for short histories of game studies see Copier 2003, and Wolf & Perron's introduction to their edited collection *The Video Game Theory Reader* 2003). Much heat has been generated by an argument over the *form* of computer games, i.e. whether they should be studied as new developments in *narrative* media such as television, books or cinema (Jenkins 2004) or as a discrete new medium altogether, to be studied as *games*, more abstract entities characterised by rulesets not stories or characters (e.g. again, Aarseth 2001, Juul 2001). So whilst this project does not set out to map this heterogeneous network of scholars and their work it will draw on specific scholars and articles where relevant. It is worth noting that there is to date no sustained attention to the technological dimensions of computer games within game studies.

new media and new media studies

I will use the term 'new media studies' to denote an emergent academic discipline to which this thesis is a contribution. There are a cluster of disciplines that overlap and inform each other, with some evidence of the emergence of canonical texts, methods and objects of study. There are a few journals (*Convergence*, *New Media and Society*) and large-scale research projects (for example the ESRC-funded *Virtual Society?*). Our book *New Media: a critical introduction* (Lister et al 2003) is one of the few to comprehensively interrogate new media from a Media Studies and Cultural Studies framework.

The term 'new media' itself is not used universally. Whilst in parts of the culture industry it denotes creative work with digital technology (for instance, the 'new media' jobs section in *The Guardian*), in North American universities and academic publishing it can refer to computer-based art (for example Wardrip-Fruin & Harrigan *The New Media Reader* (2003), and the Center for New Media at the University of California, Berkeley). In educational, media sociological, and some political economy, discourses, the term information and communication technologies (ICTs) is preferred (Silverstone & Hirsch 1992), whilst the object of study for some in the social science and communication studies is Computer-Mediated Communication (Jones 1995, Thurlow, Lengel & Tomic 2004). Other sources that deal more closely with popular new media forms and texts (and that use the term 'new media') include Bolter and Grusin (1999) and Darley (2000). These are more closely related to Media Studies than Cultural Studies inflections (see below), concerned as they are with media texts and images rather than directly with the cultures of their use or consumption.

The title of David Silver's brief topography of this 'meta-field' in *New Media and Society* indicates the heterogeneity: 'Internet/cyberculture/digital culture/new media/fill-in-the-blank studies' (Silver 2004). Each of these disciplinary and terminological varieties of course draw the boundaries, and pinpoint the centres, of their research differently.

cyberculture, critical cybercultural studies & cyberpunk

The term cyberculture again brackets together a diverse range of theoretical approaches to new cultural technologies, and it cannot be easily separated from 'new media studies' as it has provided many theoretical and descriptive resources (and at times a convenient target or straw man) to the latter. The two share a

premise that technology, especially computer technology, is instrumental in profound transformations in contemporary culture: from the individual's sense of self to new, intimate relationships between the human and the technological. The cybercultural tone is by and large optimistic about this change, and can fall into utopian assumptions about the emancipatory possibilities of digital media such as virtual reality and certain Internet media. The US magazine *Wired* is often cited as a popular incarnation of enthusiastic cyberculture as it embraces technological change as a positive, and determining, force in culture and the economy. Howard Rheingold's books on virtual reality and virtual community are examples of an academic cybercultural optimism (Rheingold 1991, 1994).

The excitement generated by early Internet media (bulletin boards, email, MUDs) and (often speculative) virtual reality applications in the early 1990s rather dissipated with the advent of the (commercialised, popular) World Wide Web and the evident inaccuracy of the more fevered predictions for VR and AI by the mid to late 1990s. Later work in this field has adopted a more critically nuanced notion of cyberculture (e.g. Shields 1996, Featherstone and Burrows 1995, Dovey 1996, Jones 1995, Bell 2001), still centrally concerned with relationships between technology, science and culture, but resisting cybercultural idealism. The new and the speculative is studied, but within historical, economic or cultural contexts. This critical cybercultural studies is profoundly influenced by Donna Haraway's essay 'A Manifesto for Cyborgs' (Haraway 1990), first published in 1985.

The influence of films and literature in the sci-fi subgenre of cyberpunk, particularly *Blade Runner* (1982) and William Gibson's cyberpunk novel *Neuromancer* (Gibson 1993, first published in the UK in 1984) on cybercultural studies is profound. Their replicants, AI entities, and virtual spaces proved rich figures for thinking about ambiguities of technology, the human and the natural in contemporary technoculture.

cyberfeminism

Cyberfeminism is not a discipline or a movement as such, but denotes a diverse, even contradictory range of feminist theories on gender, technoscience, cyberculture and technological change (Balsamo 1996, Wajcman 2004, Plant 1993, 1995, 2000, Kember 1998, 2003). However even the quite different approaches of two key figures in cyberfeminism, Donna Haraway and Sadie Plant, share a project: to question and 'think beyond'

the structuring binaries of Western thought, in particular the masculine subject as the agent of history. The notion of the posthuman, and science fictional figures of the matrix of cyberspace and the cyborg, are (more or less ironically) invoked. These theories have been influential on many studies of new media – particularly on critical cyberculture.

Cultural Studies, Media Studies, and Cultural and Media Studies

Critical cyberculture often operates within Cultural Studies. For example Aronowitz et al's *Technoscience and Cyberculture* (1996), and Penley and Ross's *Technoculture* (1991) address technology and technoscience from a Cultural Studies perspective. Within Cultural Studies, particularly in North America, there has been a sustained enquiry into the relationships between technology, science, medicine and culture. Again, Donna Haraway's socialist and feminist articulations of science and technology have been highly influential, a springboard for much work on technoculture by feminists and other Cultural Studies scholars. Anne Balsamo acknowledges the significance of Haraway's essay, but also charts a longer history of Cultural Studies and the study of science and technology (Balsamo 1998), including the work of Marshall McLuhan and Raymond Williams. She asserts the importance of these objects of study for Cultural Studies as 'science, technology and medicine [...] the dominant institutional sites for the production and circulation of contemporary global culture' (Balsamo 1998: 285).

Cultural Studies and Media Studies have their own disciplinary, institutional and conceptual genealogies but these are often tangled together. For example the widely used 'Culture, Media and Identities' series of textbooks (e.g. Hall 1997, DuGay et al 1997, Mackay 1997, discussed in some detail in Part 3.1) indicate a certain normalisation of the overlap between Cultural Studies and Media Studies, as does – for example – the School within which I work and within which this research is undertaken. I will refer to these disciplines separately as far as possible to preserve clarity, but will also use 'Cultural and Media Studies' when it is specifically the overlap between them that is being referred to. As this thesis takes as its focus the point of contact between the form and conventions of the videogames as media 'text' and the contexts and events of its 'consumption' in everyday culture then this disciplinary overlap is significant.

Within the UK disciplines related to Cultural Studies and Media Studies, primarily communication studies and media sociology have - when they are concerned with technology - often looked at the everyday

uses and meanings of consumer devices (Silverstone and Hirsch 1992) or the politics and ideologies of information technologies (Robins and Webster 1999). Raymond Williams' book *Television: technology and cultural form* (1990 [1975]) is an influential text here. There are a few publications in Media Studies where the object of study is popular new media texts. Bolter and Grusin (1999) and Darley (2000) for example subject digital cinema and computer games to textual and theoretical analysis.

Film Studies and film theory

Though Film Studies tends to limit its field of study to theatrically screened feature films, film theory's influence is felt across the study of other popular screen media and new media. In particular theories of subjectivity in relation to spectators and screen images have informed work on identification in the study of virtual environments including videogames (Morris 2002, Lahti 2003). Apparatus theory is also suggestive for thinking about relationships between spectators and visual media technology (de Lauretis & Heath 1980, Morris 2002 again). Though this thesis is concerned with identifying the specificity of videogames as *new* media, their existence as screen media is still important and as such analytical methods from Film Studies will be drawn on and critiqued.

Science and Technology Studies (STS)

A broad interdisciplinary field concerned with the relationships between science, technology and society. Researchers include sociologists and anthropologists, historians and philosophers. Its influence on Cultural Studies in North America is marked (again often through the work of Donna Haraway), though its emphasis on the operations and *agency* of technology and other material phenomena marks its difference from the articulations of technology and the human usually offered by the (social constructionist – see below) humanities and social sciences. Anne Balsamo (1998) and Jennifer Slack and J. Macgregor Wise (2002) offer accounts of the influence of STS on North American Cultural Studies. It has yet to register significantly in British Cultural Studies and has – as yet – had little to say on computers, and next to nothing on popular media or media technologies. However it will be argued that STS offers rich theoretical resources for theorising relationships and agency in popular new media and technoculture. One of the innovations of this

thesis is to apply STS approaches, in particular Actor-Network Theory (ANT) to new media and new media culture.

key concepts

videogames

There is no longer a clear distinction between the terms 'computer game' and 'videogame'. Until the early 1990s (with the dissemination of the personal computer as a consumer product) 'videogames' were produced for a videogame console or dedicated device whilst 'computer games' were produced for home computers. The latter were often less sophisticated graphically but afforded the player the opportunity to intervene in the game software and make changes to the appearance or structure of the game. Over the past decade or so the popularity of personal computers in the home has led to the rise of 'PC gaming' and a marked overlap in the games available for consoles and PCs. Today videogames could be regarded as the largest subset of a broader category of computer games. My focus then is on videogames as popular, commercially produced and distributed media objects, designed to be played on consoles (as well as their play and their players). I will however also be referring to other forms of computer games such as chess or simulation games designed primarily for play on PCs.

videogame play and players

The terms 'text' and 'consumption' are used in this introduction as they are key terms in Cultural and Media Studies. They are useful in introducing the issues under consideration, but are problematic in addressing the specific implications of the study of videogame hardware, software and gameplay as media technologies and cultural experience. Other terms and approaches for these objects and practices or processes through which they are engaged with will be suggested throughout the thesis, as will the conceptual implications of these other terms and approaches.

A corollary of this is the separation, conventional within Cultural and Media Studies, of media text and spectator or viewer. Thus, though so far I have listed my objects of study as being 'videogames, videogame play and videogame players', a key argument of this thesis is that these objects are analytically inseparable and (in the last section) the term 'videogame/play/ers' will be used. The awkwardness of this

terminology is indicative of the conceptual problems it raises: this thesis will argue that the videogame exists only through its-being-played and the videogame player only exists as such through the act of playing or play-event.

events

The video/game/player then could be thought of more as an *event* than as a practice, a subject, a set of technologies, or any straightforward relationship between the three. To call this an event is to foreground the temporal dimension of videogame play, to establish the dynamic between the elements *in play*: a sense of entities coming together, material chains of cause and effect or feedback. To study this event is to be concerned more with things *happening* than with texts *meaning*.

In broad terms John Ellis's book *Visible Fictions* (1982: 23- 37) offers one precedent for this terminology. For Ellis cinema is not (only) the film text but an event in which cultural, economic, critical, promotional, and architectural determinants are in play. Importantly, the film-goers' experiences are emphasised. Dan Fleming's consideration of the effects of diverse contexts for (in this case) toys in play is relevant here:

> ...the effects we are going to be interested in are simultaneously in the formation of an object and in that object's consequences within the processes that formed it. In a way, therefore, it might be better to talk about 'events' rather than 'objects'. (Fleming 1996: 10-11)

The small-scale, often improvised, kinds of ethnographic research drawn on (and produced) in this thesis often illuminate the usefulness of this emphasis on events as much as objects. However, it will be argued, the particular 'event' of the video/game/player requires further theorisation.

the everyday / everyday life, popular culture

The concept of everyday life is often central to work in British Cultural Studies and Media Studies. It covers the family relationships, routines, cultural practices and spaces through which people make sense of the world. On the one hand then, everyday life is the site in which the popular meanings and uses of new media are negotiated and played out. On the other hand, nearly all of the discussions of new media to a greater or lesser degree make claims that they transform, or will soon transform (or transcend) day-to-day life, its spatio-temporal limits, its restrictions, power structures. The nature of this transformation is contentious, for some observers new media offer new creativities and possibilities, for others they reinforce and extend existing social constraints and power relationships.

This thesis will draw on work on technologies and media technologies in everyday life including ethnographic research (e.g. Silverstone and Hirsch 1992, Silverstone 1994, Mackay 1997, Hutchby and Moran-Ellis 2001). For reasons of focus I will refer primarily to work done within British Cultural Studies and Media Studies on everyday life as a site of consumption, rather than alternative traditions such as the constitution of the everyday in recent French thought, for example Michel de Certeau and Henri Lefebvre (see Highmore 2001), or the focus within sociology on the concept of 'leisure'.

Popular culture is here taken to mean both the commercially produced artefacts of entertainment culture (television and television programmes, toys, films, etc.) and the lived practices, experiences and contexts within which these artefacts are engaged with and consumed.

play

Play as an aspect of culture or mode of everyday lived experience is undertheorised in Cultural Studies in particular and the humanities and social sciences in general. It troubles previously reliable distinctions between, for instance, production and consumption, the everyday and the remarkable, the active and the passive, the obedient and the rebellious, the adult and the childish, leisure and work, even the human and the animal. Game studies has begun the task of seeking out and articulating thinkers and concepts that have taken play and games seriously, from Jan Huizinga's *Homo Ludens* in the late 1930s to more recent scholarship in disciplines from anthropology (Sutton-Smith 1998) to performance studies (Turner 1982). There are a few notable and useful exceptions in Media Studies (e.g. Fiske 1987, Silverstone 1999). Play is a key term throughout this thesis, and it will be discussed in some detail in Part 1.4.

games

Like play, games are an undertheorised phenomenon. Like play their status itself is ambiguous: games are at once cultural practices (even rituals), media / aesthetic objects, toys, and social (or solitary) events. Game studies has begun the task of identifying the particular forms and codes of games, from taxonomies of types of games and play to the analysis of rulesets in video and computer games (for example Walther 2003).

technology, materiality and agency

> For technology is not to be understood merely as machine. It includes the skills and competencies, the knowledge and the desire, without which it cannot work (Silverstone 1999:21).

As Roger Silverstone argues here, technologies are never external to society, they are always already sociotechnical. And yet the study of technologies in the humanities and social sciences rarely explicitly acknowledge the obverse of this assertion: that societies and individuals are inseparable from their technologies and that, just as human knowledge and actions shape machines, machines might shape human knowledge and actions. A critique of 'technological determinism' is more often than not included in any book on new media, but the rejection of crude technological determinism and the equally crude extolling of human agency often elides serious questions of what kinds of agency technologies might have, revealing the unexamined humanism all too often at the base of such concerns. The issue is sidestepped and the 'meanings' or discursive construction of particular devices are explored. This project will address the materiality and agency of technologies as well as their imaginary or discursive existence and, as indicated above, draw on alternative theoretical resources such as STS and ANT in so doing.

A number of games scholars have argued that videogames are characterised by an 'aesthetics of control' (Murray 1997, Klevjer 2001). Evidently videogames are 'interactive' media objects and as such the player exercises some level of agency in the on-screen events. However the agency of the games themselves as software and their elements – for instance non-player characters (NPCs), virtual physics and architecture, rules - are rarely acknowledged or studied. These theoretical resources will be extended in the development of theories of human and nonhuman agency in new media events, exemplified by videogame play.

social constructionism

Like Cubism or political correctness, 'social constructionism' is a label as often coined to identify another's thought or practice as problematic, rather than a term of self-identification by any group of scholars. As used within Science and Technology Studies and Actor-Network Theory, it is a broad and loose term, mobilised to argue that the humanities and social sciences are underpinned by humanist assumptions of agency in the world. To its detractors then, social constructionist thought is premised on the assumption that meaning, action, knowledge, objects, are determined only by social forces (economics, politics, culture, language, history) and never by physical, natural or mechanical forces. Or perhaps more accurately these non-social forces are not explicitly recognised and are certainly not theorised.

The humanist assumptions of constructionism result in clear conceptual distinctions between the human (from individual identity to human forces such as society, history, and economics) and the nonhuman (nature, technology). This project will argue that constructionism limits the understanding of a world of material and technological, as well as discursive and 'social', forces and agencies.

identity and subjectivity

An example of the limitations of social constructionism that is central to this thesis is the fundamental role played by concepts of (human) identity and subjectivity in Cultural and Media Studies. So, when Cultural Studies and Media Studies has addressed questions of change and newness in media culture it has often posited human identity and subjectivity as the locus of this novelty. From the mechanics of the cinematic apparatus with the spectator as its human component, or broader questions of the shifting relationships of individuals and groups to their locale and the globe through transnational media and information flows, to ethnographic studies of the 'construction' of identity through Internet media such as MUDs and Web home pages, it is the partially refracted (yet still identifiably humanist) subject that is of concern. As with the ubiquitous critique of technological determinism outlined above this focus on human identity and subjectivity, whatever insights are generated, works to elide consideration of the nonhuman agents in media consumption and communication. This thesis will ask: what are the implications of shifting attention from *subjectivity* in media consumption to *agency* in media technocultural circuits?

technoculture

In its general application technoculture refers to cultural phenomena in which technologies or technological forces are a significant aspect. The essays in Penley and Ross's book *Technoculture* (1991) for instance cover medical and reproductive technologies and discourses, computer hacking and viruses, erotic manga, hip hop music and culture, art, and (inevitably) Gibson and cyberpunk. The term 'techno-popular culture' has been used in ethnographic research on young people and computer media (see Facer, Sutherland & Furlong 2003). However it is important to this thesis that any a priori distinction between technology and culture (i.e. as two largely separate phenomena that come together at certain junctures) be questioned. This will be explored in Part 3.2, but it is worth raising now Bruno Latour's assertion that society has always been an indissoluble network of technological and human entities (Latour 1991, 1992a, 1992b). A distinction can be

made then between 'technoculture' and 'cyberculture', though both are relevant for this thesis. Cyberculture (or 'digital culture') refer only to digital age technologies (though it is important to note that the science of cybernetics does not restrict itself to computer technologies), whereas technoculture might be used to refer to *all* cultural and social formations and phenomena if, as Bruno Latour asserts, society is (and always has been) constituted by humans, machines and tools. I will use 'cyberculture' when referring specifically to the nexus of culture and digital technology, and 'technoculture' when the argument might apply to broader and/or older formations of the cultural and the technological.

In some STS discussions the term 'sociotechnical' is used (Bijker & Law 1992, Berg 1994, Bijker 1997). As with my use of technoculture it is intended to foreground the argument that social, cultural and technological phenomena and entities are inextricably linked. The terms are largely commensurate – though I use technoculture to address my focus on everyday cultural practices and popular / commercial artefacts rather than the broader sociological concerns usually denoted by the sociotechnical. Importantly however I use 'technoculture' rather than 'technology and culture' deliberately: I argue that technology and culture are inseparable.

The title of this thesis is an intentional reference to Raymond Williams' seminal book *Television, Technology and Cultural Form* (1990 [1975]) (again, see Part 3.2).

cybernetics, cyborgs, the posthuman and posthumanism

This project suggests that the 'newness' of videogames, videogame play and videogame players rests not only in their digital components, but also in the particular ways in which they are instantiated – the intimate and *cybernetic* circuit between the human and the nonhuman. Here I mean cybernetics not in its loose discursive sense of 'something to do with computers' but literally as the material feedback of information and control between machines and organisms (Wiener 1961). Just as 'technoculture' resists firm conceptual or actual differences between technology and culture in general, this thesis will interrogate assumptions of the conceptual separation of bodies and subjects from machines and images at the level of everyday lived experience. The notion that the videogame/play/er event might be theorised as materially and literally cyborgian will be explored.

Like cyberculture (and with many overlaps), the *posthuman* can be used to refer to diverse phenomena and discourses. These include celebratory or salutary predictions of a cyborg or bioengineered

future for the human body. Donna Haraway's work is particularly influential here. For Haraway, 'a cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction' (Haraway 1990: 191). This ambiguous status is bound up with the cyborg's descriptive and utopian possibilities for Haraway, and it is reflected in the diverse ways in which this figure has been discussed. For some it suggests that the posthuman is predicated on observations or warnings that the corporeal aspects of the human are, or will be, undergoing transformation. Others invoke the cyborg and the posthuman (following Latour for example) to argue that humans and human societies have always been technosocial and hence never simply or exclusively 'human'. Elsewhere these imagined and actual bodily changes are interrogated from a post-structuralist tradition for their implications for prevailing notions of subjectivity, i.e. it is humanism as a post-Enlightenment meta-discourse that is undergoing transformation (Badmington 2000). This could be termed 'critical posthumanism'. The work of Haraway is again central here. This latter posthumanism strikes a chord with Science and Technology Studies, for example in a special issue of the journal *Cultural Critique* in 2003, and in debates between, for instance, Haraway and Latour.

The question of what kind of relationship between the human and the technological is brought into being in videogame play is the focus of Part 4.

methodological questions

1. this thesis will offer critiques of established Media and Film Studies models of *textual analysis* for videogames as interactive / cybernetic media, and propose instead *cybertextual analysis*

2. it will draw on *ethnographic* approaches to media consumption and play, in particular small-scale studies. It will argue that the very small-scale and intimate circuit between player and game is a vital object of analysis.

3. A *synthesis* is needed between these analytical and ethnographic methods given the project's unwillingness to establish an a priori asymmetry between videogame (as 'text'), videogameplay (as consumption or practice) and videogameplayer (embodied media subject). I call this synthetic approach *microethnography.* This microethnography will have to challenge the anthropocentrism of ethnography and anthropology (the etymology of these terms roots them in the study of human society and 'Man') to attend to nonhuman as well as human agencies in play. Therefore cybercultural and STS concepts and approaches will

be integral. The final section coins the term 'game/play/er' to assert the inseparability of these entities and processes in the event of the playing of a videogame.

what does this thesis not cover?

cultural histories

As the primary object of study is the event of the videogame and videogame player in play, this thesis will mainly operate in a synchronic register. Hence there will not be much consideration of the debates about the diachronic contexts of new media: for example the historical periodising of Poster's 'second media age' or Stone's (ending) 'machine age' both of which, in common with many other cybercultural models (critical or otherwise), account for recent technoculture through the rubric of postmodernism (Poster 1995a, Stone 1995, also Landow 1992, Kroker 1992, Featherstone & Burrows 1995, Bukatman 1993).

technological genealogies

It does not attempt a history or genealogy of new media, not even of the videogame: see instead Lister et al 2003, pp. 44-59, Winston 1998, Mayer 1999 for the former, and Haddon 1988a, Wolf, Perron & Winter 2003, Malliet and de Meyer 2005, Kirriemuir 2006, for the latter. Neither am I concerned here with the future of new media, either in the form of popular speculations about mindboggling possibilities for computer media or in the teleological assumptions that popular new media such as videogames are somehow only a stage in the evolution towards more advanced technocultural forms (as critiqued in Part 1.1).

Within STS, questions of technological agency and causality are often applied to the history of technological change. This thesis is concerned primarily with the here-and-now, the localised and the synchronic.

economics and political economics

This thesis will only obliquely address the economics of technoculture (in Part 1.2), though it assumes throughout that the popular media forms discussed throughout are commercially produced and distributed artefacts, and that this context shapes their content, form and modes of consumption. This is primarily for

reasons of focus – I hope that the conceptual frameworks developed here will be robust enough to allow considerations of techno-economics of everyday life to be factored in.

science or technoscience

As its name suggests, Science and Technology Studies is equally concerned with science (or 'technoscience') as with technologies. Cybercultural studies and cyberfeminism has and is undertaking crucial work on (techno)science, for instance on genetic engineering or reproductive technologies. Again for reasons of focus this project is concerned with the technological and technocultural and not with science.

networks and the Internet

The thesis is centrally concerned with videogames but will touch on other new media technologies and forms (e.g. the Web) as and when relevant. It will be argued that an understanding of videogames is crucial to the study of popular new media, but it should be pointed out that this project does not fully explore key differences with other new media forms. As will be discussed in Part 1.1, recent new media studies has privileged the Internet as its key object of study. A key premise in this context is that videogames are not the insignificant phenomenon they are often portrayed as, but exemplars of both the everyday experience of computer-based media, and a technological imaginary of new media – at least as significant as the Internet.

My concern in this study is in part with the implications of the intimate relationships between the human and the technological in videogame play, i.e. between the player, the computer or console and the game (as software). To maintain focus therefore, I will not be studying multiplayer games or the multiplayer options of games which offer a choice between single- and multi-play. This is not to ignore networked computer media - Parts 1 and 3 cover the literature on the continuities and ruptures in everyday life and notions of identity as they are permeated by new media – computer games in general and non-instrumental, ludic uses of computer technologies and Internet media in general. Moreover, a clear distinction between videogames and the Internet as discrete new media is no longer sustainable. As well as numerous web-based games, since this project was started in the late 1990s, a distinctly new form of computer game has developed. Massively Multiplayer Online Role-Playing Games (MMORPGs) such as *Everquest* and *World of Warcraft* offer the graphic and spatial qualities of console and singleplayer PC games but within the much more open-ended, social, and performative structure developed in the MUDs. Millions of players are registered for single games, and tens of thousands might be playing at any one time. The new forms of

communication, identity formation and virtual and actual economies that drive the popularity of such games are fascinating, but fall outside the scope of this project (for an STS-based study of MMORPGs see Taylor 2006). This said, though such networked games are premised on telematic relationships between people, they are still constituted by cybernetic circuit between player and computer/game (including bots and other forms of AI). As such, the findings of this study will have a wider purchase on networked games and other forms of interactive new media (though any such findings would need to be adapted to the specific contexts, forms and networks for these other artefacts and practices).

All of these exclusions are for the sake of clarity and focus, or if not entirely excluded, are downplayed to shed light on marginalised or ignored phenomena and forces. My hope is that the theoretical models, and modes of analysis, developed through this thesis will prove robust enough to offer some use in the study of technoculture in its broader historical, political, technological and cultural dimensions. So whilst this project is qualified in its claims for applicability to technoculture beyond the contemporary, domestic, popular new media form of the videogame, its players and its playing, I would hope that it would inform any alternative or broader work on the relationships between technology and culture, digital technology and popular media, play, games and everyday life.

walkthrough

A walkthrough is a curious, hybrid text. It is in part an instruction manual, assisting a stuck videogame player through a particular puzzle, tortuous labyrinth or fiendish demand on hand-eye co-ordination, but it is also a verbal map of the peculiar space–time of the videogame's virtual world. It is a document of the writer/player's skill and effort in exploring and solving every last aspect of the gameworld. It is knowledge shared via the Web to both assist other players and to display the writer's expertise in, and devotion to, the game in question. A walkthrough is a determinedly non-literary work, dispassionate, stripped of non-instrumental description and of most subjective reflection on its writer's part. The walkthrough's audience is addressed in an impersonal second person – the player instructed. There is no address to the player / reader as an embodied or individual subject – and no acknowledgement of this player's social, cultural, or physical location and context is deemed necessary. There is also little or no acknowledgement of the technical context of gameplay: the technologies involved (beyond instructions on which buttons to press), the controllers, screens, CPUs, graphics cards, cables, etc.

The walkthrough writer then is unconcerned with the *depth* of videogame play as a cultural phenomenon and takes much for granted. Though nominally *new* media, videogames have been a part of popular screen culture for nearly thirty years and these presumably youthful writers have grown up with the distinct conventions, cultures and knowledges of videogames as absolutely integral to everyday culture. Only novelty needs comment – innovation in game design requiring new explanations, skills and knowledges for progress through the game.

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Go down the ladder and swim across until you get to the last house.
That is your grandma's house, and that is where you need to go. Go
upstairs and talk to her to get the green tunic. Exit and head back
to where your sister was.

talk to her and get the Telescope. Use it to look at the
mailbox to start an event. Point it up and you will see a large bird
with a young girl. The bird then drops the girl into the forest.
The only way to get to the forest area is to get a sword, but you
don't have one yet. Go to old warrior's house which is the next to
last house near your grandmothers and the bottom one and go in.
Choose the top option and your training will begin.

The training is easy for the most part. The only thing you will
have trouble with is the new A button move. When your sword starts
to turn green, press the A button and you will roll behind your
opponent and strike them in the back. Complete this to get the sword.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
Note-Once you get the Hero's Sword, you can now do the Sword Training
minigame with Orca, meaning you now have access to a piece of heart.
It would be a good choice to get the Hero's shield before you do
try to get 500 hit, though.
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

Go north and chop down the sapling trees and continue forward. Go
pass the bridge to get to the forest area. Here, you need to defeat
3 enemies to rescue the pirate girl, tetra. After that, a cut scene
will start and you will go back to the bridge area.
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Figure 3: from a walkthrough for *The Legend of Zelda: The Windwaker* (Howells 2003)

Yet the banality of the walkthrough belies its diagnostic potential. To read a walkthrough is to engage with significant *differences* between the videogame and other popular screen media forms. Printed instructions may be necessary to rig up a new television set and operate a VCR for the first few times, but the process of consumption of the televisual or video text is generally not one that requires instructions. No doubt the codes and genres of television or film are learnt through their consumption, but this learning is of a different order and different pace or temporality (and it should be pointed out that recourse to a walkthrough is often seen as a last resort, learning in videogame play is primarily effected through the design of the game itself – through play). The videogame instructs the player in the use of its interface, teaches the player's fingers the particular sequences and rhythms of button pressing required to engage with the game

system; this learning is mechanical and embodied as well as semiotic. The 'interactivity' of computer-based media has been much vaunted; but regardless of the arguments around the qualities of interactivity the walkthrough indicates its practicalities and imperatives: the player *must* find the key to progress to the next dungeon, *must* master the combination of controller button pressing to propel the avatar over the chasm. If a film viewer misses a clue to plot or character he or she can still watch the rest of the film and take pleasure in it, but if a videogame player cannot solve this puzzle or jump the chasm he or she is stuck and, without help, will have to abandon the game. Interactivity can at the very least be frustratingly restrictive as well as engagingly facilitative. Whatever the visual pleasures and visceral excitements of a gameworld, the walkthrough reminds us of its underlying architecture, an architecture both in the sense of a built, albeit virtual, world and in the sense of computer code and game rules.

This thesis can be thought of as the inverse of a walkthrough, for whilst it shares the walkthrough's purpose to elucidate and assist the reader / player, it is concerned with much that the walkthrough ignores or at best highlights only inadvertently. It is concerned with the videogame as a form, not with one particular game; with the complicated relationships between game, technology, bodies and subjects in the act of gameplay; with the cultural, and to a lesser extent economic, contexts of videogame play; with the conceptual and theoretical frameworks applied to new media and their consumption in everyday life; with the new – not only as the ever-rolling horizon of innovation and novelty but rather with uncovering the very recent history of newness in popular new media. These are all explored by attending to both the specifics of the videogame as a technocultural form in and of itself, but also to technoculture more generally. Too often critical attention in the academic study of technoculture is directed to the possibilities of the near future, or conversely to debunking these predictions and assumptions. The videogame, this project will seek to establish, offers a lens through which to address the new in the here-and-now, the everyday, the lived and commercial aspects of popular media culture as technoculture, as new – yet largely unnoticed – configurations of technologies, media texts, modes of consumption, bodies, subjects, and their respective (yet overlapping) agencies. It can also be a mirror – to reflect back on the established disciplinary frameworks for the study of popular media, new technologies, consumption, and everyday life, asking questions of their relevance and efficacy in the study of the banalities, continuities, innovations and exhilarations of popular technoculture.

All this said, a walkthrough-like summary of this thesis's contents, overview of its structure, background context, and a single instruction, will now be offered to orient and guide the reader.

part 1: studying videogames, new media and everyday technoculture

1.1 anxious objects – videogames in new media studies

The discursive constitution and positioning of videogames in new media / cyberculture discourses is surveyed. The overwhelming marginalisation, elision, or even denigration in the literature is discussed and explanations offered. It is suggested that the terms by which videogames are ignored or denigrated may inadvertently offer diagnostic insight into the nature of, and anxieties about, contemporary technoculture.

1.2 everyday life in cyberspace

A critical survey of the key approaches, methods and concerns regarding the meanings and consumption of technologies in domestic life as developed in Cultural Studies, Media Studies and related disciplines, and the treatment (or otherwise) of these issues in other theories of new media. In addressing domestic technology in general it looks at the notion of the social shaping of technology, particularly in the home, and the social forces and constraints brought to bear on the possibilities of new media use in particular: forces and constraints of gender, generation, and social / architectural space. Conversely it will highlight the - generally downplayed - possibilities for change and newness in these discourses. The ways in which technologies (and videogames where they are mentioned) are defined and categorised in this research is examined, as are the ways in which the uses of (or consumption of, or play with) these technologies are understood. The section will conclude with a set of significant concerns about the adequacy of these approaches, particularly around the constitution of technology as discursively malleable and determined by social meanings.

1.3 the everyday posthuman: new media and identity

The cybercultural and non-cybercultural branches of new media studies often converge on issues of the modification or transformation of individual and group identities and subjectivities through use of or communication with new media technologies and networks. A critical analysis of these debates is offered, and key concepts and issues from new media studies are identified for the study of videogames – and vice versa. The relationship between the human and the technological is emphasised rather than the more usual focus on human to human communication through networks and virtual environments. It is argued that the

study of everyday technoculture might offer ways of thinking about newness. The centrality of notions of the subject and identity is noted and questioned.

1.4 play, media and everyday life

It is argued that play is underdeveloped within studies of everyday cultures and cultural consumption. Theories of play and culture are introduced and assessed; theories generally marginalised or ignored by mainstream Cultural Studies, Media Studies and new media studies. Within the context of an appeal to take play and games seriously within culture as a whole, ways of theorising videogame play in particular, and computer-based media use in general, *as* play will be offered. So play is presented as on the one hand an under-theorised and neglected – yet fundamental – aspect of culture, and on the other as offering a distinct analytical purchase on new media forms and practices because of the uniquely ludic nature of popular computer technologies and their practices.

part 2: playing the game

2.1 toward microethnography as method

There are few precedents for this microethnographic approach in Cultural and Media Studies and new media studies, but some related studies are outlined and the approach is assessed in this section.

2.2 microethnography of virtual and actual play

This section describes a microethnographic study of domestic videogame play. The study picks up the concerns expressed in Part 1 about the adequacy of Cultural and Media Studies theoretical resources in understanding the possibilities of technology (in this case both the game as software and PC as hardware) to facilitate emergent practices and meanings (rather than merely constrain) and the nuances and possibilities of play in lived media culture. The relationship between the virtual and the actual is considered, and the notion that these two real worlds are reassuringly distinct is dismissed. Well-established binary categories in Cultural and Media Studies are questioned – i.e. consumer / text, body / artefact, virtual / real, and subject / object. The conceptual questions it raises are identified for consideration in Parts 3 and 4.

It reflects on the possibilities and implication of this approach to ethnographic work, both in terms of its scale and in terms of its focus on both human and nonhuman agents in the event of videogame play.

part 3: towards a new media studies

3.1 beyond the media text

It is argued that the emphasis within the dominant discourses of Cultural and Media Studies on a linguistic or textual model of culture and communication is key to the shortcomings of their attention to new media and technoculture. The model of communication as one of encoding a message (at the moment of production of a media 'text') and of its decoding (at the moment of consumption) that underpins mainstream Cultural and Media Studies, is tested for its adequacy in analysing the popular use of digital technology and software. Firstly it is argued that this textual metaphor elides the fundamentally *material* nature of culture and communication in general, secondly - more specifically – it is argued that the textual model doesn't allow for an understanding of videogame play as irreducibly technological and embodied (cybernetic, even), and thirdly – questions are raised as to the relevance of foregrounding ideological critique in media consumption, particularly in relation to ludic media artefacts and practices.

3.2 augmenting Media Studies

The critique of the 'anti-technological determinist' credo of Cultural and Media Studies is developed and alternative theoretical resources on the cultural role of technology are introduced, notably actor-network theory and science and technology studies. Drawing on these approaches a retheorisation of media technologies as material and as agents is posited. One of the key concerns of this thesis, the proposition that videogames are constituted by technological as well as human agency is addressed.

3.3 cybertextual analysis

Videogames are popular media texts as well as technologies. This section will test the limits of prevalent modes of textual analysis derived from Media and Film Studies in the study of videogames. A conceptual framework that factors in both technology as actor and as media images is offered. The following questions are asked: what are the analytical implications of studying computer-based media? What characteristics and uses of computer hardware and software need to be identified to make sense of digital games and digital gameplay? New media forms integral to the digital game (such as interactivity and simulation) have their origins in computer science rather than popular media; what conceptual frameworks and modes of analysis

need to be developed? Taking the game *Advance Wars 2* as a case study, new media forms and paradigms derived from computer science will be identified and analysed, in particular cybernetics, automata and simulation. Questions of technological agency are foregrounded in this analysis.

part 4: videogame/play/ers

4.1 avatars: from identification to collusion

Drawing on cybercultural theory and game studies, questions of the role of identification and subjectivity in videogame playing are addressed. The shortcomings of both Film Studies' articulations of subjectivity (and their application to game studies) are highlighted, as the anthropocentric assumptions of Cultural and Media Studies in this context. The figure of the avatar is the focus and an alternative model of the avatar as both vehicular device within the videogame form and as paradigmatic of the complexity of circuits of agency in computer media is suggested. The term 'collusion' is suggested in the place of 'identification'.

4.2 microethnography of a game/play/ers event

The microethnographic study in Part 2 is returned to, and reassessed in the light of the subsequent discussion. Notions of nonhuman agency in technologies (both hardware and software) are applied to the analysis, as are the critique of the conceptual frameworks of 'identity' and subjectivity.

The findings of the thesis are synthesised in a theorisation of the videogame as at once a media artefact and a set of technologies, and of videogame play as an event and a cybernetic circuit in which the game event is instantiated by a network of player, software, hardware. The anthropocentric nature of the notion of 'interactivity' is critiqued and in its place a model of affordances and agencies is suggested, a model that accounts for videogame play and its pleasures in terms of submitting to, as well as acting on, computer media and virtual environments. The event is written as one constituted by the playful translation of agency between human and nonhuman entities, components or 'part(icipant)s'. The microethnography is offered as a new model for studying and theorising everyday technoculture.

Epilude

The implications of the thesis' findings and methods for emergent new media studies are outlined, key concepts established, and suggestions made for further applications and research.

New Media: a critical introduction

Books and PhD theses, like any artefacts, are black boxes, their discrete form and nature belying their heterogeneous elements and the contingencies of their production. The development of this thesis is interwoven with the writing of Lister, Dovey, Giddings, Grant and Kelly (2003) *New Media: a critical introduction*. Presented to its readers as fully co-authored, it is necessary here to open its lid as well as its pages. Though some sections are collaborative, and the whole volume developed through discussion and shared concerns, others can be identified as solely the work of one of the authors. For the purposes of this thesis, Section 4 'New Media in Everyday Life' was written by myself and as such sections of it have been more or less reworked into this thesis (mainly in Part 1). These passages are not identified as originating in the book. However, given that this book is a key text in the development of the study of new media, sections not authored by myself are cited and quoted throughout this thesis. See the Appendix for a statement of authorship signed by the other authors of the book.

Circuits

The microethnographic study detailed in Parts 2 and 4 was originally developed as a video essay, and has been screened at a number of conferences and events on new media, education and play (Giddings 2003). Excerpts from this essay are referred to – as illustrations – in the text of this thesis. The full video essay has also been included on a CD-ROM.

an instruction

I would recommend that the reader of this thesis watches the video essay now, before reading any further.

Part 1: studying videogames, new media and everyday technoculture

In this Part the treatment and constitution of the videogame, videogame play and videogame players in new media studies and Cultural and Media Studies is critically mapped. Firstly (1.1) it is argued that the position of videogames is as at best marginalised, at worst 'othered' by emergent new media studies. Reasons are offered for this anxious marginalisation, in particular that in cybercultural and computer-mediated communication discourses it is the popularity, commercial success (bound up with existing popular media), the very everydayness and contemporaneity of videogames that stirs disquiet in those concerned with theorising new media and their uses. Anxious popular and journalistic attitudes towards videogames and videogame play are often predicated on the particularly intense relationship between (young) player and computer technology.

As a central strand of Cultural and Media Studies is concerned with the everyday and the popular, Part 1.2 will review this literature as it deals with technologies (mainly, but not exclusively, media technologies) and consumption in everyday life. It will be noted that again videogames are largely absent in this research. Other significant conceptual problems in Cultural and Media Studies are identified, particularly the theorisation of technologies, and the emphasis on the continuity of cultural activities and objects in the consumption of technologies in families and households.

A lack of attention within Cultural and Media Studies to discontinuity, to change and newness will be identified as problematic to the study of everyday technoculture. Part 1.3 addresses studies of change in a particular aspect of technoculture, noting that all the constituent disciplines of new media studies – though in quite different ways – assume that it is in the field of identity or subjectivity that the most radical changes are, or may soon, be occurring. Given this project's concern with the relationships between the human and the technological, it is noted that even in these theories of technocultural newness, emphasis is primarily placed on human actions and practices, and little attention is given to the characteristics or capabilities of the technologies implicated in these changes. The issue of anthropocentrism in new media studies is raised.

Play is a key term in this thesis. Play often occupies a significant discursive position in Cultural and Media Studies and new media studies, yet it is rarely studied in its own right. Moreover, *games* as a distinct cultural form are almost entirely absent from Cultural and Media Studies. In Part 1.4 the constitution of play and games in these disciplines, and game studies, is surveyed.

Part 1 will conclude with a summary of the key points and questions that arise from this survey of literature on everyday life, technology, identity and play, questions that will inform the subsequent inquiry.

1.1: anxious objects – videogames in new media studies

videogames: new media's bad objects

That videogames have been the object of marked popular and journalistic anxiety over the past few decades is not surprising. They fit neatly into a well-established mode of response to novel media forms, particularly those associated with new technologies and / or children's culture (for a critique of this 'media effects' discourse see Barker & Petley 1997). As with 'video nasties', horror and action comics, television, and penny dreadfuls, videogames have been presented as a new deeply suspect intervention into children's (and sometimes adults') lives.

new media effects

There are at least four areas in which videogames provoke somewhat distinct versions of these familiar anxieties. The first is play: videogame play is often the focus of broad yet contradictory feelings about the qualities and value of different kinds of play. Thus videogames are dismissed or trivialised because they are playful, toys; or because they entail the wrong kind of play – antisocial, technological (hence unnatural), violent, everything that threatens an idealised children's culture. Against 'spontaneous play' on beaches and in woods, a 'play world of the natural child [that is] open and friendly', is set the play world of 'the 'electronic child'... hemmed in by conflict and fear'. (Stutz 1995). Videogames and related objects are problems to be addressed, bad objects to the good objects of traditional toys, for example in fretful essays on Tamagotchi (Bloch and Lemish 1999), and on 'socially good' computer uses (Schofield Clark 2001). Hence – and secondly - videogames are often the focus of fears of cultural and social change in relation to childhood and youth. Thirdly these anxieties around childhood overlap with fears of computer technology, the 'interactive' characteristics of videogames and the compelling nature of gameplay gives rise to fears of new pathologies, from addiction and computer-generated asociality to a loss of distinction between fantasy and reality, particularly in relation to depictions of violence, and particularly in relation to boys and young men. This alarm is predicated on the fact that the fearful images in videogames are not merely *watched*, but *controlled*. The arguments are simple: because the videogame player controls the action and violence on screen, he or she is more deeply involved in such representations, apparently actively choosing to attack or 'kill'. These

representations of violence then are not so clearly embedded in the moral universes common to conventional television or film narratives. Videogames rarely (though there are exceptions) present *any* consequences, moral or otherwise, to acts of violence beyond those of reward and progression to the player. Videogame play is frequently cited as a possible causal factor for actual acts of extreme violence by children and young people, most famously (along with other commercial youth-oriented media, particularly popular music) in the shooting of school students by classmates in Littleton, Colorado in 1999. In such cases the longer-established 'media effects' assumption that (for children and young people in particular) the distinction between the real world and media representations is sometimes dangerously thin is supercharged by concerns specific to the nature of videogame scenarios and the modes of videogame play. The drive within the videogame industry to develop more photorealistic or cinematographic imagery adds to this perception. The games are so 'realistic' as to fatally collapse the players' sense of difference between the virtual and the actual world.

Widely quoted in press and television reports on the Columbine killings, the military psychologist Lt. Col. David Grossman argues that, just as the videogame *Doom* was used by the US Marines as a training simulator, so it 'trained' these disturbed adolescents to kill. In a *New York Times* article reprinted in *The Guardian*, Paul Keegan discussed Grossman's views, concluding:

> And that's what makes shooters [first-person shooters or FPSs] unlike any other form of media violence we've seen before. You're not just watching a movie, you're in the movie. You're not just empathising with Arnold Schwarzenegger as he blasts the bad guy to smithereens, you're actually pulling the trigger (Keegan 2000: 3).

This then is an extreme form of realism - the interactive manipulation of pixellated icons of hyperbolic violence mapped directly, unmediated, onto real world behaviour.

Figure 4: *Doom* (1993)

Whilst there is within Media Studies a thorough debunking of these media effects discourses and their ideological motivations (e.g. Jenkins 2001 on videogames and Columbine specifically) it is perhaps surprising to see such assumptions and anxieties running like a seam through academic discourses on new media. As has already been mentioned, until recently videogames have not been studied in any sustained way. Within the broad orbit of Cultural Studies and Media Studies videogames have been largely ignored, or if mentioned at all, generally presented as a problem to be solved, demonstrating a remarkable consonance with the popular and psychological discourses. Again these concerns often centre on one or more of the following: gender, (computer) technology, realism (broadly, the relationships between screen images and the real world), play and media/commercial popular culture consumption.

here be monsters

More often than not videogames are mentioned in passing, usually to evoke monstrous or apocalyptic possibilities, writing 'here be monsters' on the edges of the map of new media studies. Les Levidow and Kevin Robins, in their book on the 'military information society' assert that 'video games can [...] be

understood as a paranoiac environment that induces a sense of paranoia by dissolving any distinction

between the doer and the viewer' (Levidow and Robins 1995: 109). For Timothy Druckrey,

> Every paradigm shift is fuelled by an evolving technology. What is extraordinary about the past decade is the acceleration of unresolved technologies. Kick-started by culture's fascination, many of these have entered the public sphere without a clear sense of purpose. But the significance they accrue is daunting. Nintendo games, for example, privatise rather repulsive fantasies of conflict and image; they delimit the imagination and offer only servile participation. The hypnotic alienation it perpetuates hardly suggests that technology has any progressive features (Druckrey 1991: 23).

Or Donna Haraway, in her 'Cyborg Manifesto',

> The new technologies seem deeply involved in the forms of 'privatization' [...] in which militarization, right-wing family ideologies and policies, and intensified definitions of corporate (and state) property as private synergistically interact. The new communications technologies are fundamental to the eradication of 'public life' for everyone. This facilitates the mushrooming of a permanent high-tech military establishment at the cultural and economic expense of most people, but especially of women. Technologies like video games and highly miniaturized televisions seem crucial to production of modern forms of 'private life'. The culture of video games is heavily orientated to individual competition and extraterrestrial warfare. High-tech, gendered imaginations are produced here, imaginations that can contemplate destruction of the planet and a sci-fi escape from its consequences. More than our imaginations is militarized; and the other realities of electronic and nuclear warfare are inescapable (Haraway 1990: 210-11).

Studies that take videogames or videogame culture as their main object of study have tended to be equally

fraught. For Julian Stallabrass the computer game, far from offering new interactive possibilities, instead

presents 'an ideal image of the market system'. Computer games' meanings are locked into their code, and

consumption only realises their repressive potential:

> In their structure and content, computer games are a capitalist, deeply conservative form of culture, and their political content is prescribed by the options open to democracy under modern capitalism, from games with liberal pretensions to those with quasi-fascist overtones. All of them offer virtual consumption of empty forms in an ideal market (Stallabrass 1993: 104).

He compiles a compendium of dystopian features in videogames, from an emergent cybernetic capitalism

and the implosion of the public and private to virtual worlds that are wholly commodified; a vision of

absolute and minute control of everyday life and thought. Computer games master the consumer or player,

rather than vice versa, and ultimately,

> There is a shadowy ambition behind the concept of the virtual world - to have everyone sagely confined in their homes, hooked up to sensory feedback devices in an enclosing, interactive environment which will be a far more powerful tool of social control than television (Stallabrass 1993:104).

Stallabrass offers nothing however but his own readings of obscure or unnamed games (and

Frankfurt School theory) as evidence for his grim prognosis. Gillian Skirrow's article 'Hellivision: an analysis

of videogames' also makes totalising claims on a similarly thin grasp of the bad object in question (Skirrow 1986). Though she makes some important suggestions about the interrelationship between pleasure and anxiety in computer game play, the article ultimately adopts an essentialist and condemnatory position. Drawing on Kleinian psychoanatical theory, Skirrow presents adventure games as being fundamentally masculine, their anxious pleasures exclusive to boys and men. She conflates the evidently gendered aspects of videogame culture with the wildly inaccurate assertion that 'girls don't play videogames' (Skirrow 1986: 115).

However, even ethnographic research that purports to study actual videogames or the cultural context of their play can reproduce popular fears. Within media education research for example, Nola Alloway and Pam Gilbert address videogame culture solely in terms of violence and masculinity, asserting that '[v]ideo game culture is a strongly male-focused and intensely masculinist, aggressive and violent culture (Alloway and Gilbert 1998: 95). The conflation here of represented or simulated violence and actual violence is significant. It intimates that videogame culture is in itself violent, i.e. that videogame play is attended by actual violence. The researchers adopt Henry Giroux's distinction between ritualistic and symbolic representations of violence in film:

> Ritualistic violence invites the respondent to bask in the excitement of destruction; symbolic violence asks for more complex, critical, and intellectual engagement with the issues. By associating the pleasure principle, ritualistic representations of violence naturalize the narratives that simultaneously reflect, create and maintain reality. In stark contrast, by evoking more complex emotional responses, symbolic representations of violence challenge the reader to resist, to contest, to denaturalize cultural and textual practices that legitimate violence and that betray our potential for human connectedness (Alloway and Gilbert 1998: 99).

Videogame culture in this schema is of course thoroughly ritualistic, 'formulaic, knee jerk' – the equivalent of, they argue, *Die Hard* or *The Terminator*, rather than *Schindler's List* or *The Crying Game*. Video game culture invites players to 'engage viscerally with the action, to disengage the critical faculties, to take pleasure in the vicarious experience of gratuitous violence' (Alloway and Gilbert 1998: 99). No evidence is offered to support or develop this formulation of the pleasures of videogame play or action cinema, and it might be suspected that such assertions are based in a confusion between moral / political value and cultural capital or taste.

Such claims may not stand up to serious scrutiny (and the complex relationships between the images and other elements of videogames will be explored in Part 3), but they do highlight a prevalent set of

concerns about videogame play's apparent tendency to blur the distinctions between onscreen action and everyday experience. It could be argued that such anxieties are not solely either simply mistaken or ideologically motivated, that instead they could be symptomatic of very real differences between 'old' and 'new' media, not least in relation to the distinct, 'interactive', modes of engagement with media images and scenarios afforded by computer technology. Videogames do establish new, intimate, and literally cybernetic relationships between screen media, 'consumers', and digital circuits and networks, and do raise important questions about what is communicated, and how, in a medium that might more accurately be described as simulational than representational (see Part 3). On one level then (and without wishing to overstate the importance of the ill-informed and inaccurate accounts of videogame culture outlined so far) suspicions about the dangers of videogames may, inadvertently offer *some* analytical insight. They certainly highlight key binary oppositions and the ethical and cultural value systems constructed upon them, oppositions in which the commercial, the synthetic and the machinic are bad, the artistic, the natural and the human are good.

virtual realism

A particularly persistent binary opposition is that between the 'virtual' and the 'real'. Videogames are a key exemplar of the perception that distinctions between the real world and mediated or simulated realms will, or have, collapsed. Depictions of violence *become* violence, 'immersion' in virtual worlds *is* actual oblivion in everyday media consumption, the compelling verisimilitude of videogame images – and the players' 'control' over them *is* the advent of an age of simulation and a fatal loss of the real. There is a remarkable congruity between some journalistic and theoretical discourses, the latter generally based in a reading of Jean Baudrillard's work on simulation and hyperreality (Baudrillard 1983). An example of this is Andrew Darley's book on popular digital screen media (2000) in which he sets out in detail a Baudrillardian dystopia in which videogames, alongside other digital media such as CGI special effects in popular film, herald a new era of depthlessness and loss of meaning. The Columbine shootings have already been mentioned, but perhaps the most persistent popular manifestation of this is commentary on the 1991 Gulf War. The thorough control of news media by the coalition states, and the spectacle of 'smart' weapons and video footage from missiles at their point of impact epitomised a popular notion of 'simulation' as a conflation of digital and video imaging technology and a sense of a remote, mediated experience (by both domestic audiences and Western military). This 'simulation' was explicitly figured in terms of video games, as General Norman Schwartzkopf's phrase 'the Nintendo war' resonated across the news media and academic discourses (Sheff 1993: 285). Mia

Consalvo has found that the notion of the videogame war has persisted in the reporting of the second Gulf War (Consalvo 2003).

This collapsing of the virtual and the playful with the actual and the serious / consequential is evident even in studies of new media culture in everyday life. For example, Bloch and Lemish assert that the computer toy Tamogotchi represents

> the ultimate threat to the modern world, since it pushes the idea of technology to its limits, subversively replacing life with a machine and fostering a relationship of the most human kind between a person and an object (Bloch and Lemish 2001: 17).

Thus there is a slippage between a reading of the computer toy / game as symbolic of postmodernist dystopia and the proposition that the game *causes* these changes. It can be noted here that Bloch and Lemish's concerns highlight an aspect of anxiety about videogames that is rarely so clearly expressed: that to play a videogame is to play with a machine, a machine that is not only a toy, but an opponent or playmate. It also raises the suspicion that it is perhaps not so much the kind of game that is played with machines (agonistic and violent or sedate and nurturing), it is playing with machines at all that is at the root of these anxieties.

diagnosing the bad object

Why are videogames regarded with such ambivalence or distrust? That postmodernist theory imprints itself with videogame imagery is perhaps not surprising, given the latter's verisimilarity to the former's demons: from the vague chimera of 'simulation' to the mutant offspring of military and entertainment machines. There are other bestiaries being written as well however. Robins and Webster (1999) address the role of economic production in determining the meanings and uses of new technology in everyday life. They hold that the development, dissemination and consumption of media technologies is instrumental in the commodification and reification of everyday life. Culture is made subservient to the interests of bureaucratic control and capitalist accumulation. Thus from Robins and Webster's left pessimist viewpoint, as from Darley's postmodernist position, new media are, if anything, even *worse* than earlier media. On the one hand, the technologies of computer media are seen as lending themselves to the production of spectacular but empty and meaningless images; and on the other to new forms of political and commercial surveillance and domination of the time and space of everyday life.
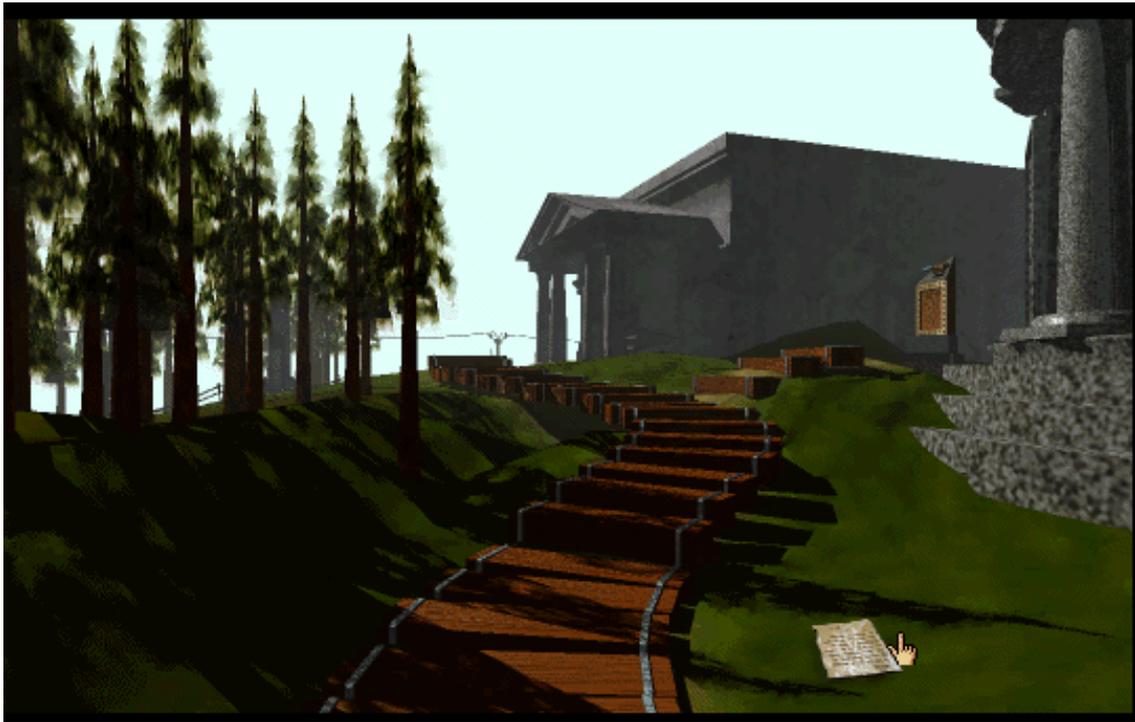
Figure 5: *Myst* (1993)

Yet even discourses that are sympathetic to the possibilities of popular computer media tend to downplay or exclude the videogame and videogame culture. No doubt factors such as the age and generation of new media researchers as well as their cultural preferences are factors in this marginalisation: the videogame can be an awkward and intimidating medium to study for those who have not grown up with them. Uniquely among popular screen media the videogame (like other types of game or sport) requires a certain level of physical skill, technical know-how and experience before the potential scholar can even engage with it as a form. It is perhaps for this reason that, when games are mentioned, the example given is often *Myst* (Brøderbund 1993), a game that relies more on cerebral puzzle-solving and sedate exploration than hand-eye co-ordination or quick reflexes (Miles 1999, Bolter and Grusin 1999, Dewdney & Boyd 1995, Flynn 2000, Manovich 1998).

However there are other – systemic or ideological – reasons for the sidelining or demonisation of videogames within new media studies. Key discourses within new media studies are profoundly suspicious of popular, commercial and commodified versions of digital media and information technologies. As has already been noted, popular discourses of childhood and computer technology often ambivalent about ICT and games in particular. Green, Reid and Bigum (1998) explore this rhetoric: it is sometimes celebratory (for example Rupert Murdoch's 'Nintendo generation'), sometimes anxious (the 'aliens in the classroom') (Green,

Reid and Bigum 1998: 19).Within media education discourses videogames have often been viewed as a dangerously seductive distraction from learning, or at best offer themselves as Trojan Horses or sweeteners for the real business of computer use (see Nixon 1998).

Furthermore, videogames are not the only bad objects in new media studies, not least because they are not the only commercialised new media forms. Some scholars excited by the non-hierarchical (text-based) communication patterns of the Internet – its potential as a new, virtual, public sphere - in the late 1980s and early 1990s were upset by the development of the World Wide Web which, with its graphical capabilities, lent itself to commercial exploitation. Stuart Moulthrop is candid, if unreflexive, about this:

> as a community of scholars we – especially those of us trained from the 1960s through the 1980s – belong to a communications regime that differs fundamentally from what may be emerging on the Internet... perhaps a print based academic can say nothing useful about the Web. Maybe we should consign its strange productions to the cultural Oort cloud along with pop songs, TV shows, comic books, professional sports, and other *excremental spectacles* (Moulthrop 2000: 263, cited in Lister et al 2003: 183, their emphasis).

Suspicion of the commodifying forces of consumer capitalism, mixed with a distaste for popular culture, then is a key factor in the ambivalence towards the videogame evident across new media studies.

games as hopeful monsters

Figure 6: *Spacewar!* (1962)

Druckrey's vision of repulsive fantasies and hypnotic alienation is not in itself technophobic, not a warning about technocultural change as a whole. Rather it establishes an opposition between 'good' new media and 'bad' new media of which the videogame is the exemplar. That the good new media are an anticipated development, and have yet to be realised is intriguing. To borrow a Darwinian concept from the geneticist Richard Goldschmidt, videogames might be viewed as 'hopeful monsters', aberrations or mutants; monstrous in themselves but with the potential to bring about quite new entities and effecting radical change (or in more technocultural terms, paradigm shifts) through macromutation rather than gradual development (cited in Gould 1977). Alluquere Roseanne Stone, in her book *The War of Technology and Desire at the Close of the Mechanical Age* - a key text in the study of cyberculture - effects a similar move, positing computer games as integral to the development of good new media, yet at the same time as dangerous, threatening to divert this evolution into the commercial and the trivial. She argues that the one of the first computer games, *Spacewar!* (designed and played by the pioneering computer students at MIT in the early 1960s), marks a paradigm shift in the development of computing: from computers as tools to computers as arenas for social experience. As an example of interactive (and two player) computer media *Spacewar!* promised new kinds of media experience: dialogues or conversations with and through computer networks, even a new public theatre. However, her enthusiasm for *Spacewar!*'s potential is tempered by its game nature, and a shoot-'em-up game at that. For Stone, whilst *Spacewar!* heralds the beginning of the virtual age, it simultaneously carries the seeds of this virtual age's possible destruction. As a shoot-'em-up game drawing on popular science fiction to animate simple graphics and physics with a cartoon violence rather than any narrative or communicative experience, it offers 'no particular redeeming virtue...'. For Stone, *Spacewar!*'s lineage - popular videogames - hold 'all the thrill [...] of chopping up Abel Gance's *Napoleon* to insert commercials for TV viewing' (Stone 1995: 26). The hope for this monster is that it is a game only by phenotype, but a far more noble artefact by genotype.

Other new media scholars have celebrated the literary possibilities of the interactive narratives or images developed in computer and videogames. In an essay on *Myst*, David Miles identifies interesting precedents for the game's interactive narrative structure and atmosphere. The list is impressive: the gothic novel, Parsifal, Verne, modernist literature (Gide, Robbe-Grillet, Borges), Homer, early cinema. The essay is an imaginative attempt to take the computer game seriously, and to think of what its future might be. However in doing so it suppresses the 'low' cultural pleasures that have popularised and developed the form. Importantly, for Miles, *Myst* is not a 'videogame' at all, but an 'interactive multimedia novel on CD-ROM'

(Miles 1999: 307). Espen Aarseth's *Cybertext: perspectives on ergodic literature*, Janet Murray's *Hamlet on the Holodeck* (both 1997) and Brenda Laurel's *Computers as Theatre* (1993) each have very useful things to say about computer games (and Aarseth's work will be addressed in more detail later), but each posits games as a subset of more worthy forms, of literature or drama - either already existing or anticipated. In *Computers as Theater* Laurel studies text-based and graphic adventure games in her consideration of the possibilities of interactive media in the dramatic arts, but is critical of important and popular (but commercial) types of videogames:

> ... early successes with specific applications for new media can arrest growth and limit future potential by funneling resources into areas of development that seem most likely to provide the greatest short-term profit. The state of the art in computer games and commercial television are examples of these phenomena (Laurel 1993: 193).

It should be pointed out that Murray and Aarseth have subsequently become influential figures in game studies, they are themselves (successful) hopeful monsters.

Even those who regard videogames as significant in their own right are sometimes caught up in teleological assumptions. For Mackenzie Wark then, videogames are only an 'emergent' medium; this despite the twenty-five years or so between the arrival of the *Space Invaders* in arcades and the publication of his essay in 1994, despite their immense popularity, and despite the well-established economic structures of their production, the sophisticated aesthetic conventions of their design and the embedded social contexts of their consumption (Wark 1994). Ralph Schroeder uses the commercially produced arcade game *Legend Quest*, played using head-mounted displays (HMDs), to exemplify the future possibilities of VR as a medium (Schroeder 1995). *Legend Quest* itself is taken seriously, but only as embryonic VR, its developmental relationships with other games and other media forms is regarded with some apprehension. Yet it might be presumed that *Legend Quest* was chosen as an object of study precisely *because* it was accessible to the researcher, because of its presence in the here-and-now. This is a significant point: the technological imaginary of interactive or virtual media is rooted in the disavowed materiality of existing technologies and practices.

not Internet studies

One of the most significant reasons for the sidelining of videogames is that they have not, until recently, been played on the Internet, the privileged object of new media studies. With the development of and widening access to the Internet and (Moulthrop et al's prejudices aside) the Web in the mid 1990s, new

media studies have tended to drop their interest in other new media forms and technologies such as VR, CD-ROMs, even computers, in favour of an exclusive attention to networks, networked media, and the cultures they facilitate.

In an article titled 'Internet/cyberculture/digital culture/new media/fill-in-the-blank studies' David Silver surveys what he calls the 'meta-field' of new media studies (Silver 2004). Yet his discussion ultimately belies the sense of heterogeneity evoked by his title. It transpires that the field is in fact exclusively 'internet studies'. Despite his apparent recognition of the fluidity of the meta-field and the operations of 'discipline-building' that characterise it, Silver makes sweeping assumptions about its proper focus and concerns. The 'twin pillars of cyberculture' then are 'virtual communities' and 'online identities'. The World Wide Web, CD-ROMs, digital video, VR, non-networked computers, CGI, mobile phones, interactive art, cultures of new media production, cyborgs, or – of course – videogames, we must presume, are of no concern. Silver's essay is characteristic of new media studies which is overwhelmingly concerned with new *communications* media, particularly the various Internet media (world wide web, email, bulletin boards, MUDs, etc.) rather than *entertainment* media such as videogames. Whatever technologically-oriented claims may be made within these studies, they tend to be primarily concerned with the relationships between humans as mediated by computer networks. This tends to elide or demonise commercial entertainment media as has already been argued, but also, and importantly for this thesis, it also exemplifies a paradoxical tendency to elide the technological nature of these new media. A (humanist) emphasis is placed on community, communication and identity facilitated by computer networks but little description or theorisation of the networks as technologies is developed.

Key anthologies and readers in this meta-field reinforce this internet-orientation (Shields 1996, Jones 1997, Jones, 1999, Porter 1997). In North America, the study of computer-mediated communications, emerging from communication studies, follows a similar line (Thurlow, Lengel & Tomic 2004). There are notable exceptions, for instance Steve G. Jones's edited collection *Cybersociety: computer-mediated communication* (1995) contains two important essays on videogames (Fuller and Jenkins 1995, Friedman 1995). A sequel volume *Cybersociety 2.0: revisiting computer-mediated communication and community* (Jones 1998), however dropped videogames and other new media forms and concerned itself exclusively with Internet media. Other books address new media with a broader frame of reference. Peter Lunenfeld and David Trend's edited collections, respectively *The Digital Dialectic: new essays on new media* (1999) and *Reading Digital Culture* (2001), each cover entertainment media, theoretical issues around new media and

virtuality, but say very little about everyday practices of new media use or consumption, and nothing on videogames. Paul A. Mayer's introduction to *Computer Mediated Communication: a reader* charts the development of computers from 'tools' to 'media', from Leibniz in the seventeenth century and Babbage in the nineteenth, through the post-War developments in HCI and networks, but makes no mention of games or any other entertainment applications in computing (Mayer 1999). Mayer's epilogue to the same volume discusses 'computer media studies' as an 'emerging field', establishing a broader conceptual sweep than 'Internet studies', offering some very useful thoughts on the specificity of computer media, such as AI and HCI. But his focus is still on computer media as information and communication (in the narrow sense) technologies. It is telling however that where concrete examples of interfaces and interaction are required, computer games *are* mentioned (Mayer 1999). Again videogames are not considered worthy of serious study yet they are, in their very popularity and accessibility, often informative both in technical and symbolic terms.

Since its launch in 1999 the journal *New Media and Society* has published only one article on videogames as media form (Newman 2002), one on an example of gaming culture (Jansz and Martens 2005), and one on computer games within the context of home computer use more generally (Facer, Sutherland, Furlong & Furlong 2001), and one that mentions computer games as problematic in attempts to negotiate young users' preference for gamesplaying at a computer centre set up for the 'social good' (for which read 'Internet access') (Schofield Clark 2003). An article on the current status of virtual communities makes no mention of MMORPGs (with their millions of regular players) (Feenberg and Bakardjieva 2004). The overwhelming majority of articles focus on Internet media, a few tackle broader conceptual issues in the study of new media, a handful address digital broadcasting, and one discusses the Walkman (Bull 2001a).

There are notable exceptions. Some research predates the Internet as a widely accessible medium, for example Marsha Kinder's study of videogames in children's everyday and media lives (Kinder 1991), and Sherry Turkle's first book on the cultures of computing (Turkle 1984). However Turkle's subsequent book *Life on Screen: identity in the age of the Internet* (1996b), as its subtitle indicates, shifts attention to Internet media. Bolter and Grusin's *Remediation: understanding new media* (1999) studies popular cinema, VR, and videogames as well as Internet media. More recent examples of a wider constitution of new media studies include Lister et al (2003) and Flew (2005). It is worth noting that there is some ethnographic work within Cultural and Media Studies (particularly around media education) that attends to new media cultures, and videogame play in particular, in everyday life and not exclusively online (Facer, Furlong,

Furlong & Sutherland 2001a & 2001b, Lally 2002, Haddon 1992, Yates and Littleton 2001, Casas 2001). This literature, and its methodological and conceptual implications will be looked at in more detail in Parts 1.2, 1.3 and 2.1.

games as paradigm

It is a key premise of this thesis that videogames are central to the development of new media and new media cultures. Whilst the preceding discussion indicates this is not a widely held view, neither is it entirely eccentric.

> Ready or not, computers are coming to the people. That's good news, maybe the best since psychedelics (Stewart Brand, on watching *Spacewar!* at the Stanford AI Lab in the early 1970s, quoted in Ceruzzi, 1999: 64).

With characteristic enthusiasm, and some foresight, Brand here spotted the significance of the video game to the future development of popular computing.

computer games and the culture of popular computing

The central role that video and computer games played in popularising home computers is often overlooked. Leslie Haddon identifies a number of key relationships between games and the home microcomputer in Britain in the early 1980s (Haddon 1992). Games emphasised the most exciting aspects of these new machines, displaying their graphic and audio capabilities, and their interactive potential. They proved a useful and accessible way of learning to program (books on programming often used games as examples and tutorials), and proved a vital force in the development of the domestic software industry (Haddon 1993). They also shaped an everyday culture of computing, particularly amongst children, characterised by both talk about computers and games, and the swapping of games software in schools and computer clubs (Haddon 1992).

computer games as R and D for interactive media

Rather than closing off of historical and cultural possibilities, *Spacewar!* was an important milestone in the development of interactive computer use, and hence in personal, popular computer media. Stephen Levy's history of hackers charts some of the connections between hacking, games and playful programming, GUIs

and home computers (Levy 1994) and Brenda Laurel also acknowledges *Spacewar!*'s significance. As she puts it, the hackers

> regarded the computer as a machine naturally suited for representing things that you could see, control, and play with. Its interesting potential lay not in its ability to perform calculations but in its capacity to *represent action in which humans could participate* (Laurel 1993: 1).

Putting some of her anxieties to the side, she argues that games

> have been the principal means whereby most people in the world have come into contact with computers for the first time [...] As game designer and researcher Chris Crawford [1990] observes, computer games have often been in the forefront of "friendly" interface design, being the first consumer computer applications to employ such techniques as multisensory representation, kinesthetic input and tight coupling of kinesthetic and visual modalities, speech and other auditory output, and first-person visual point-of-view (Laurel 1993: 167-8).

Or, as Grahame Weinbren more dramatically puts it, videogames are 'the most extreme examples of 'interactivity'. They are the shock troops of new media, always advancing into new territory, at least in their structural characteristics and their unprecedented object-spectator relationship' (Weinbren 2002: 179).

an exemplar of new human-machine relationships in digital culture

Weinbren's notion of an 'unprecedented object-spectator relationship' is very suggestive. In videogames and videogame play we might see not only the generation of new media forms and aesthetics, but also an exemplar of new media cultures or, more specifically, new and closer relationships between the human and the technological. It is worth repeating here Sherry Turkle's assertion of games' centrality to the experiences, pleasures and distinctiveness of computer use:

> Video games are a window onto a new kind of intimacy with machines that is characteristic of the nascent computer culture. The special relationship that players form with video games has elements that are common to interactions with other kinds of computers. The holding power of video games, their almost hypnotic fascination, is computer holding power' (Turkle 1984: 60)

For Turkle then videogame play is the cybercultural intimacy with computer technology and code in the everyday and here-and-now, thoroughly enmeshed with home and school computer use. For Martti Lahti, videogames are 'a *paradigmatic* site for producing, imagining, and testing different kinds of relations between the body and technology in contemporary culture' (Lahti 2003: 158).

videogames as the technological imaginary of new media

The materiality of videogame play, however, is inseparable from the *imaginary* of new media. The notion of the 'Imaginary' originates in psychoanalytical theory and has migrated to the study of culture and technology

via film theory. On its most general level the technological imaginary refers to a notion of a popular or collective imagination about technologies. It does not mean 'fantasy' or 'illusion' in any straightforward way, but rather

> a realm of images, representations, ideas and intuitions of fulfilment, of wholeness and completeness that human beings, in their fragmented and incomplete selves, desire to become'. (Lister et al, 2003: 391)

Technologies or a technologised future, are cast in the role of an ideal other - manifesting all that is whole and complete, and superseding all that is imperfect and unsatisfactory in the contemporary world. Alongside, and often coterminous with, the 'virtual', 'cyberspace' is perhaps the most ubiquitous and persistent term in new media studies and constitutes a technological imaginary of digital media. In real terms it is taken to refer variously to the different Internet media (the web, email, chat, etc.) either separately or collectively, to simulations, to virtual reality applications, to computer-mediated communication in general or to specific communicative forms such as MUDs and MOOs, and, occasionally, to the videogame.

Yet in important ways videogames have generated cyberspace as an imaginary, from both their imagery and scenarios and from their actual forms and the actual experiences of their players. In the film *Tron* (Disney 1982) the virtual space of a computer's circuits is vitalised by conflicts figured explicitly as videogames, and of course William Gibson's inspiration for his cyberspace came from watching children playing videogames in an arcade:

> I could see in the physical intensity of their postures how *rapt* the kids inside were. It was like one of those closed systems out of a Pynchon novel: a feedback loop with photons coming off the screens into the kids' eyes, neurones moving through their bodies, and electrons moving through the video game (Gibson, cited in Lister et al 2003: 370).

Gibson's fictional cyberspace, so often read literally or as straight prediction of subsequent developments in digital media, was inspired not by visions of virtual platonic forms, virtual communities or free-floating networked identities, but by existing circuits of young people, computer hardware and digitally generated virtual gameworlds. Furthermore this story emphasises not so much the spatial nature of cyberspace and hence the subsequent dreams of distinct virtual realms, but rather its 'interactive' or—more precisely—its cybernetic nature. Gibson was observing an actual cybernetic feedback loop between computer hardware, software, bodies and minds. Videogames demonstrate that real cyberspace does not exist as a separate realm, but is instantiated and sustained by and through engagement by its users, players or navigators. To play a video game is to materially engage with computer hardware and software as technology and as media,

to bring digital spaces and dramas into existence, to realise, navigate and interact with them. The cyber-prefix in cyberspace is generally taken to mean, loosely, 'computer-based' or 'virtual', whereas tracing it back to cybernetics will, I argue, be crucial to theorising the consumption of new media as technocultural.

Videogames and videogame play then are at once the material and the imaginary of popular new media, and this has important implications for Cultural and Media Studies in general as well as new media studies. If videogame play is conceptualised as cybernetic – with all that entails about the agency of media technologies – and the status of the player as subject, then some key assumptions and concepts in Cultural Studies will need to be re-examined.

1.2: everyday life in cyberspace

In Part 1.1 it was argued that the various strands of emergent new media studies posit videogames as bad objects or hopeful monsters and that the contexts, histories and characteristics of the videogame that generate these anxieties are not least their status as popular, commercial, entertainment culture. For computer-mediated communication studies they do not fit the ideal of democratic communication media whilst cybercultural studies perhaps are suspicious of their imbrication with existing social, cultural, economic and material realities.

The everydayness of popular new media is repressed in new media studies. A key concern of this thesis is with videogames and their play as technoculture here-and-now. Cultural Studies and Media Studies should then offer a more attentive and productive theoretical and methodological framework for the study of videogames and videogame culture, centrally concerned as these overlapping disciplines are with the popular and the everyday in contemporary media culture. Yet, it will be argued, though Cultural and Media Studies offers vital tools, concepts and methods, ultimately some of its underlying tenets and assumptions limit the possibilities of the study of technoculture. This section will survey Cultural and Media Studies' research into the everyday cultures of technologies and media technologies, but it will be a critical survey – identifying useful tools, concepts and methods, but beginning a critique that will be developed further in Part 3. This entails some difficulties in writing – it will be necessary to define, deploy and work through concepts and terms that will be later critiqued and replaced. In particular three foundational, and interlinked, assumptions of Cultural and Media Studies (and the humanities and social sciences at large) will be interrogated. These assumptions are:

1. that culture, everyday life, individuals and households are materially and conceptually distinct from technologies – that the former 'adopt' technologies for instance or suffer the 'impact' of new technologies, and hence that distinctions between subject and object are absolute

2. that technologies are socially shaped but that society is not technologically shaped

3. that human activity – in the form of social, historical or economic forces, or subjectivity and identity - is the sole motive force or agency in everyday life and culture .

So, whilst this section will rehearse the dominant Cultural and Media Studies line on technology, consumption, identity, and everyday life this is on the one hand in order to identify productive approaches and modes of attention, and on the other in the interests of a temporary and expedient clarity. Structural lacunae and oppositions in Cultural and Media Studies' formulation of technoculture will be indicated throughout Part 1 and reflected on in the summary section.

everyday life

Everyday life is a central concept within Cultural Studies' approach to technologies. It is:

- the market for which companies develop consumer hardware and software;

- the site of practices and relationships in which sense is made of new media;

- the focal point of an interlocking set of convergences of consumer, media, educational and entertainment technologies and markets;

- the social conditions which are, to a greater or lesser degree, transformed by the use and consumption of new media;

- the absent or underplayed term in utopian visions of new knowledges and shifting identities in cyberspace – as alienation and routine to the connectivity and creativity emerging in Internet communication media;

- the site of consumption of mediated popular culture, not least the images and dramas from comics, television and video that constitute a commercial technological imaginary.

Emphasising everyday life in the study of media technologies and their uses foregrounds the fact that media technologies and forms do not spring from a vacuum, they are the products of already existing social and economic structures and forces. It follows that the meanings and uses of new media are not fixed in advance by inventors and producers, but negotiated or struggled over, by a number of agents including governments, educationalists, retailers and consumers. However innovative they may be, new media technologies have to find their place within more stable and established social structures such as the family and domestic environments which are already home to established media technologies. Practices of

consumption are of crucial significance: the day to day choices, relationships and politics of individuals, families and other groups are integral to not only the commercial success of new media, but to the ways in which new media are used, to what they mean.

From the perspective of Cultural Studies, the 'newness' of any new medium is always tempered by the longevity of the economic and social conditions from which it emerges and the domestic and cultural contexts - from the architecture and layout of the home to the relative stability of the nuclear family - into which it is inserted. In his study of an old medium that was once new, Raymond Williams argues that the arrival of television as a popular medium was bound up with historical and cultural processes originating in the Industrial Revolution. His notion of 'mobile privatisation' highlights, for example, a complex of developments linking the privatisation and domestication of screen media with television's usurpation of cinema, and the new mobilities of the privatised family afforded by technologies such as the motor car:

> Socially, this complex is characterised by the two apparently paradoxical yet deeply connected tendencies of modern urban living: on the one hand mobility, on the other hand the more apparently self-sufficient family home. The earlier period of public technology, best exemplified by the railways and city lighting, was being replaced by a kind of technology for which no satisfactory name has yet been found: that which served an at once mobile and home-centred way of living: a form of *mobile privatisation*. Broadcasting in its applied form was a social product of this distinctive tendency (Williams 1990 [1975]: 26)

In its review of research into, and theories of, technology and culture in everyday life this section will highlight how newness and continuity are identified and articulated, and signal the underlying conceptions of the relationships of determination between technologies, people and culture.

cyberspace

Whilst everyday life is a key concept in Cultural Studies and in related disciplines within new media studies, its discursive position within cyberculture is at best indistinct. 'Everyday life' and 'cyberspace' would seem to be distinct, even irreconcilable concepts. The former implies the mundane and quotidian, the routine and ordinary - all the features of daily existence from which the latter, in both its fictional and actual forms, promises to liberate us. Both celebrations and critiques of cyberspace tend to posit its separateness, its profound otherness to everyday life, embodiment, subjectivity. For Michael Heim, 'cyberspace is Platonism as a working concept', and 'the cybernaut seated before us, strapped into sensory-input devices, appears to be, and is indeed, lost to this world. Suspended in computer space, the cybernaut leaves the prison of the body and emerges in a world of digital sensation' (Heim 1993). Kevin Robins, in a widely anthologised essay

'Cyberspace and the worlds we live in', argues that the hyperbole that characterises early, and enthusiastic, cybercultural studies renders cyberspace as little more than a rhetorical or ideological construction. Gibson's articulation of cyberspace as a 'consensual hallucination' is, Robins argues, applicable to discourses of non-fictional cyberspace, at best perhaps representing a naïve neophilia, a 'metaphysics of technological progress – whatever comes next must be better than what went before' (Robins 1996: 25). At worst (and it is clear Robins suspects the worst), it is an ideological construction, a faith in new technologies blinding its celebrants to the real, here-and-now, political and economic contexts from which the technologies spring and to the problems and contradictions of which they assert false solutions. This faith presents

> a common vision of a future that will be different from the present, of a space or reality that is more desirable than the mundane one that presently surrounds and contains us. It is a tunnel vision. It has turned a blind eye on the world we live in (Robins 1996: 1).

Robins' critique of this cyber-rhetoric is convincing and amusing, yet misses an important point. Neither enthusiastic cyberculturalists nor their critics address the *reality* of cyberspace as a set of already existing industrial, entertainment and everyday technocultural phenomena. Robins' target is cybercultural discourse, he says nothing about existing, material, technologies of cyberspace. For the celebrants all is new, for the critics all is old – or an even worse upgrade of the old. The object of each is not lived technoculture but concepts and images, fictions and speculations. It becomes clear that on the one hand a more nuanced conception of the relationship between the 'new' and the 'old' in everyday digital culture is required; whilst on the other, that the materiality, the reality of new technologies and new technocultures must be addressed.

In their ethnographic study of Internet use in Trinidad, Daniel Miller and Don Slater question the assumption that the virtual and the everyday or material are distinct realms. They argue that the Internet *cannot* be explained in terms of a fictional or speculative cyberspace, 'a kind of placeless place'. Indeed we can only make sense of it as it is encountered in concrete places and through specific practices. For the individuals, families and groups studied, Internet media such as email and websites are experienced not as virtual but as 'concrete and mundane enactments of belonging' (Miller and Slater 2000: 4). Just as new media in this case were not experienced as places apart from 'real life', so too the changes brought about through the interaction of new media and Trinidadian culture, whilst significant, were not experienced as revolutionary transformation, but as continuous with already existing social structures and senses of identity. Indeed the authors argue that new media quickly cease to represent exciting new futures and are incorporated into the fabric of everyday experience. Importantly though, this is not to argue that there is nothing new or revolutionary in the mediations of the Internet and everyday life (or that the widespread

sense of 'space' that computer media produce is false). Rather it is to suggest that any progressive understanding of the possibilities of new media in everyday life is only possible by rejecting a notion of 'a self-enclosed cyberian apartness' (Miller and Slater 2000: 5) *and* recognising the materiality of these technologies and their place in everyday lived experience. We could instead think of a productive tension between the places and practices of new media: 'these spaces are important as part of everyday life, not apart from it' (Miller and Slater 2000: 7).

There are multiple spaces and cyberspaces in everyday life then: the home, the Internet, the 'virtual space' of networked communication, and of course the simulated spaces of videogames; and they intersect in our day-to-day experiences and relationships with new media.

consuming new media

The concept of consumption is key to Cultural and Media Studies attendance to technology in everyday life. It is a contested term: seen variously as the primary cultural practice in a passive, greedy consumer society; or as a potentially rich and creative way of making sense of individual identity in a complex world: 'Rather than being a passive, secondary, determined activity, consumption [...] is seen increasingly as an activity with its own practices, tempo, significance and determination' (Mackay 1997: 3-4). Though Cultural and Media Studies are characterised by a wide range of conceptual and methodological approaches, it is possible to generalise and assert that their analyses of technology and consumption tend to be based on certain premises. Firstly, digital media technologies tend not to be seen as fundamentally distinct from 'old' electronic media, or even, in some studies, other domestic technologies, such as microwaves or freezers (Silverstone and Hirsch 1992). Secondly, there is a general reluctance to privilege either consumption or production in the generation of the meanings of a domestic technological device. That is to say, the meanings and uses of domestic technologies (and consumer goods and mediated images) are not fixed in either the moment of their production or in the act of their consumption. Rather, they are the always contingent product of the relationship between the constraint or 'encoding' of meaning through production and marketing, and the creative activities through which individuals and groups make sense of or 'decode' these meanings. Cultural and Media Studies work on domestic media technologies is based on an ethicopolitical dynamic between 'constraint' and 'creativity' (Mackay 1997). Producers attempt to constrain the uses and meanings of their products, consumers negotiate these intended uses and meanings more or less in

accordance with the producers' desires, and Cultural Studies scholars attempt to identify creative or progressive trends within the consumers' negotiations.

everyday life in a media home

In an influential Cultural and Media Studies textbook on consumption and everyday life, Hugh Mackay argues that "[t]o understand the consumption of technologies in households, we have to understand the practices of everyday life there - how new technologies are implicated in household routines and activities" (Mackay 1997: 277). To this end, and with particular reference to computer media (or ICTs), he identifies four key areas of enquiry: the significance of consumption of ICTs for domestic lives and relationships; how ICTs are implicated in shifting individual and family identities; the relationship between household members' public and private worlds; and how technology (as well as the household) is transformed in process of domestication and incorporation (Mackay 1997: 278). The emphasis here then is on the shifting or negotiated meanings and implications of media technologies as they are adopted and consumed in the home, in everyday life. Shaun Moores' study of the 'domestication' of satellite television exemplifies Mackay's four areas of enquiry. In describing the 'embedding' of a new media technology in the home, he too draws a picture of domestic media technology adoption and consumption as dynamic and requiring negotiation between household members and their established consumption tastes, patterns and devices. Households are not static environments into which media technologies are unproblematically inserted. Often the purchase of new media technologies coincides with 'the redrawing of domestic boundaries and relationships' (Moores 1993a: 627). For example growing children may make new demands for educational and entertainment hardware. Also, households have their own dynamics and politics, not least along the lines of gender and generation. Such power relationships intersect and interact with producers' expectations of the uses and meaning of new media products: 'Social divisions of gender or generation produce differential dispositions towards a technology like satellite TV' (Moores 1993a: 633).

home computing

In a large scale ethnographic study, the *Screen Play* project (based in the Graduate School of Education at Bristol University, and conducted from 1998 to 2000) researched children's 'techno-popular culture' and its

implications for education. The project recently drew attention to issues of access to new media, firstly by recognising that many children do not have a PC in their home, and secondly by pointing out constraints on access to, and use of, ICTs, even in those households which did have computers. They found that physical as well as social or familial constraints had significant effects on the ways in which computers and networks are accessed. For instance, the families studied in the Screen Play research tended not to place PCs in the main communal spaces of the house - for example in the living room alongside the television - but rather in spare or 'dead' space: landings, spare bedrooms, under stairs, lofts:

> Mrs H   Well because it's the other side of the house at the back so you don't have to hear it. So if you were in here watching television and we've got company then they're out the way.

> Q   Why did it go in the spare room? What was the reason. What was the thinking?
>
> Mr D   Because it was a spare room.
>
> Mrs D   Because its nobody's room in there and just let everybody else use it. It's a sort of spare room cum office.
>
> Steven, 13   It's not as private as your bedroom.
>
> (Facer, Furlong, Furlong & Sutherland 2001b: 18)

It is clear that the existing layout and use of space in the house affected the ways in which the new technologies were used. Computers were occasionally placed in children's bedrooms, though this was never the ideal, 'one child one computer' image of the instrumental fantasies of computer manufacturers or furniture catalogues. As Sara McNamee observes in her study of the domestic gender politics of video game playing, the location within the home of a computer or games console can lead to unequal use. This inequality is frequently structured around gender. She notes that girls say they like playing video games as much as boys, but often play less. This is in part due to the fact that although consoles are often shared within the family, especially between siblings, they are usually kept in the boys' rooms, and hence, girls' access is controlled by their brothers: 'the machine becomes a symbolic focus around which gender relations are negotiated and expressed in domestic space'. (McNamee 1998: 197). So, it is argued, even where everyday consumption or use of digital networks is possible, it is constrained by socio-economic factors, established household politics and relationships of gender and age, and by material constraints of space and time.

Figure 7: instrumental fantasy: one child, one PC (Argos catalogue: 2001)

The terminology of constraint, creativity and consumption are used to study all manner of everyday cultural practices. Its use in the study of technocultural artefacts and activities however raises questions. Consumption is seen as a primarily significatory activity, one of meaning-making. Is there a significant difference between meaning and use, between *consuming* a product and *using* a technological product? Or, if the consumption of a product is motivated by the consumer's identity construction, is this process different in the materially productive activities of technological use? When technologies are used to do things, is a dialectic between constraint and creativity the most accurate device for analysing the dynamics and power relationships mobilised? Do technologies themselves have any influence over their uses or meanings or are these latter fully shaped through the human activities of production and consumption? To address these questions it will first be necessary to interrogate the conceptual framework that supports Cultural and Media Studies' discussion of technology and culture.

the social shaping of technology

A focus on everyday life and consumption, particularly from Cultural and Media Studies assumptions and methods, tends to militate against conceptions of technological determinism in the study of popular new media. Research in this area is underpinned explicitly or implicitly by the social shaping of technology thesis (SST). It foregrounds the agonistic nature of meaning generation: producers' attempts to build in meanings,

and articulate or impose them through promotion and advertising, can never result in anything more than 'preferred readings' of their products (Mackenzie and Wajcman 1985). They may wish us to see the Betamax video format or laser discs as the future of home entertainment, but they cannot make them mean that. All commodities and media then, are 'texts', 'encoded' products which may be 'decoded' in their consumption to reveal a quite different message (Mackay 1997: 10). So, 'the effects of a technology [...] are not determined by its production, its physical form or its capability. Rather than being built into the technology, these depend on how they are consumed'. (Mackay 1997: 263). Or, put more baldly by John Ellis in *Visible Fictions: cinema, television, video*: 'there is *nothing* in the technologies themselves that dictated how they would be used by societies that invented them' (Ellis 1982: 12, my emphasis).

social shaping of videogame technology

The development of the XBox videogame console is an example of the social shaping of a media device. The initial success of Microsoft's first console depended as much on the nuances of its marketing strategy as on the console's technical specifications and the quality of its games. Learning from Sony's tremendously successful marketing strategies for the Playstation in the 1990s, Microsoft had to battle against its (and its founder's) staid image. The cosmetic design of the console was therefore very important, and was modelled on hi-fi components: 'People are really into the design, and they've said they weren't expecting something as cool or as sleek from Microsoft, and that they thought it captured the enthusiasm and excitement behind gaming', (Edge 2001: 71).

> After interviewing 5,000 gamers and visiting 130 gamers' homes to research the design of the XBox, they went to great lengths to establish it as the antithesis of the desktop computer. Rather than the beige box located in the study and associated with work, the console was promoted as a sexy machine designed to look good in the living room (Flynn 2003: 557).

One early strategy (subsequently abandoned) for convincing sceptical consumers of Microsoft's commitment to 'serious' game playing was to not allow the XBox to be used as a DVD player for films (distinguishing it from other new video game consoles such as the Playstation 2). Thus the drive toward producing a multifunctional consumer entertainment system, and a potential selling point, is balanced against the need to match the device's symbolic status to the attitudes and preferences of the target audience (Microsoft later changed this strategy and XBoxes were allowed to play DVDs). So, from the social shaping of technology viewpoint, it is not only the choice of particular technical features included in any new black box device that determine its commercial success, its symbolic status, what William Boddy calls 'instrumental fantasies' is also crucial:

> Every electronic media product launch or network debut carries with it an implicit fantasy scenario of its domestic consumption, a polemical ontology of it as a medium, and an ideological rationale for its social function (Boddy 1999).

The development of the XBox demonstrates that the creation of a commercially successful digital media technology is dependent at least as much on its social form, its symbolic status, as on its technological capabilities.

the 'open' PC

The sheer flexibility of digital technologies, and the convergences between different media forms that digitisation allows, would seem to support the social shaping thesis. Games consoles can also be DVD players or networked for online play and communication. A key task for manufacturers and retailers then, in the process of production, is to identify possible uses or practices for their technologies, and build these into the consumer device. This user is an unreliable creature though: it was not clear for example, despite the excitement that attended their production and sale, quite what the owners of early home computers in the 1980s would *do* with them. They were often sold as information technologies, but were widely consumed as games machines. As research by Haddon and Skinner shows, 'producers and consumers constantly searched for and tried to construct the 'usefulness' of this mass market product after it had been developed and launched' (cited in Haddon 1992: 84). So despite the 'black box' intentions of PC manufacturers and retailers, the machine (or perhaps more accurately, grouping of computer-based information, communication and entertainment technologies) has been widely seen as a uniquely multifunctional 'open device' (Mackay 1997: 270-1), 'chameleonlike' in its applications and possibilities (Turkle 1984).

from constraint to affordance

However 'open', domestic computer media technology is not infinitely flexible in use and meaning. For SST its 'openness' is always shaped by powerful discourses and practices. Since computing became a 'family' rather than a hobbyist activity, both producers and consumers have struggled over the proper use of the home computer and PC as educational or entertainment device, providing the home computer with a dual heritage and identity (Haddon 1992: 91). However it is crucial to note that home computers and personal computers are actual information technologies, not mere images of them; their openness and flexibility is inseparable from their technological nature, their materiality. The computer's polysemy is predicated in the range of uses to which it can be put, its *affordances*, as well as its symbolic circulation. Mackay and Ellis's assertions that the material form and capabilities of technologies have no bearing on their uses is

unsustainable: the X Box may be socially shaped as a DVD player as well as a games console, but, firstly, it plays games and DVDs because its physical form and capabilities allow it to do so. Its range of meanings are by and large constrained by its material affordances. It could perhaps be an expensive doorstop, but it could never be, or mean, a fridge or a tin opener.

The term 'affordance' will be used throughout this thesis. I have adopted it from design theory (Norman 2002) as a concept that goes beyond the 'constraint-creativity' axis and challenges the assumption that technologies in everyday life circulate as 'meanings'. Technologies are symbolic, but they also allow us to do things, make things, change things. They facilitate. A device's affordances are the range of uses to which it can be put:

> ...the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used [...] A chair affords ("is for") support, and, therefore, affords sitting. A chair can also be carried. Glass is for seeing through, and for breaking (Norman 2002: 9).

To take an example from videogame culture, the highly popular networked multiplayer game *Counterstrike* would seem to be an exemplar of a creative cultural practice, blurring the distinction between consumption and production. The game was produced by informal, geographically remote, networks of players, using the game engine of a commercially produced game *Half-Life. Half-Life*'s producers, Valve, supported this by making its engine open source. From a single-player science fiction FPS, the player-producers created a squad based terrorist / counter-terrorist multiplayer game that can be played on a LAN or over the Internet. Yet it seems problematic to claim firstly that this is a process of 'decoding': assuming that the material characteristics of hardware, software and networks and the skills and interests of the player-producers are as nothing to the circulation of meanings or instrumental fantasies.

This 'modding' (from 'modification') of an established game into a new one was facilitated by a complex network of technologies, media content, industrial frameworks, 'consumer' practices, etc. Media technologies have affordances, material characteristics and capabilities that at the very least allow their users/consumers to do or make things, to have material effects in the world. Questions of the adequacy of the 'encoding / decoding' model are addressed in Part 3.1, and these issues of technological affordance and agency will be explored more fully in Part 3.2.

determining technology

That technological devices and other artefacts are generally studied as symbolic rather than as material is indicative of a key conceptual faultline running through Cultural and Media Studies and new media studies. This faultline runs through these disciplines' understanding of the relationships of cause and effect between technological forms and forces and the human (including individual bodies and subjects, social, cultural, historical and economic structures). For the celebratory wing of cybercultural studies and its popular analogues, technology is assumed to be an automotive force, originating somewhere beyond the social realm but bursting into it and heralding fundamental change. In the humanities and social sciences in general and in Cultural and Media Studies' engagements with technologies and media technologies in everyday life more specifically, the inverse is asserted: technology is produced and shaped by human forces and agencies. So, either because it resists the notion that the technological has agency or effects in and of itself, or perhaps because its attention and interests are driven by other concerns, Cultural and Media Studies tends to downplay or ignore the technological aspects of media.

newness

Cultural and Media Studies' emphasis on the social embeddedness and historical and economic continuities of new media technologies counters the idealism of some cybercultural studies and the commercially-driven hyperbole of the producers of such technologies. Yet it does so at the expense of a critical attention to, or even a descriptive language for, actual technocultural change, for the newness of new media. This thesis aims to develop just such a critical attention and descriptive language for the new in everyday technoculture. For now, however, two points on the new in everyday technoculture can be made.

Firstly, it is important to note that being familiar with something does not necessarily mean that it is understood. New media are often compared to television for example, the argument being that just as television is now completely woven into everyday life, so too will the new media before long. What this overlooks is the pervasive and extremely influential hold television has over the rhythms of everyday life, our knowledge of the world and the ways by which we interpret that knowledge. New media technologies lose their novelty but they don't disappear – it is perhaps precisely at the moment that they become banal and accepted that their full effects are realised (see for instance Miller and Slater 2001 on the 'naturalisation' of the Internet in Trinidad).

Secondly, it is useful to question the significance or value accorded to different kinds of change. Cybercultural studies is enthralled by paradigm shifts, new ages and near futures. Ethnographic research in Cultural and Media Studies is, at its best, sensitive to the micro-increments of change. A good example of this is Bernadette Flynn's wry comparison of Playstation 2 advertisements—in which a living room and its furniture are devastated by the promised gameplay experience—and the actual lived negotiations between children, parents, domestic space and other media practices and routines (television viewing) she observes in her ethnographic studies. This latter is beautifully illustrated by a photograph from one of Flynn's field visits (see figure below). The changes here are minute but significant:

> During the play session recording, Jack lay on floor cushions in front of the lounge chairs operating the console handset whilst simultaneously chatting to friends on the telephone. Whilst the optimal distance for playing a video game is in between that for a television set and computer screen, the layout of [the living room] imposed the optimal distance for viewing television. Removed from the restraint of the lounge suite, Jack, like many players, adopted a position on floor cushions more suited to gameplay.

Figure 8: the Gillespies' living room (Flynn 2003: 568)

Here is evident a complex relationship between established objects of cultural studies of everyday life and media studies of audiences: domestic media practices and social relationships (television viewing, telephone

use); the cultural traditions of furniture and room layout and the ways of living they reflect; negotiations within household power relationships (who gets to play, or watch, where, and when), etc. There are other changes: the presence of the console in the living room brings 'an often disordered, temporary and flexible arrangement within the more traditional organization of the living room' (Flynn 2003: 571). Flynn notes a significant, gendered, trend in children's culture in which boys' play shifts from outside (the street, the arcade) to the bedroom and living room, transporting 'one system of sexually organized space – the arcade, into another – the more traditional female living-room space of domestic leisure' (Flynn 2003: 569, see also McNamee 1998, Jenkins 1998).

However (and this is my reading of Flynn's findings) more elusive objects are also in play: cconsumption / viewing / playing positions are established as much by the material affordances of different kinds of furniture, their ergonomic relationships with human bodies, and the capacities of the particular media device, as by cultural conventions or discourses. My point here is that the *materiality* of the furniture, the media technologies, and the human bodies is a crucial factor. These artefacts and bodies have effects on, and shape, social forms and relationships as well as being effects of, and shaped by, them. This shift of focus suggests a different attention to everyday life, an attention to the reciprocity between the social and the material, and suggests further that, from an altered conceptual point of view, the human and the nonhuman may not be fundamentally distinct: they at least share a materiality.

This discussion hints at some of the conceptual questions to come in this thesis, particularly those that arise in the rethinking of technological determinism (Part 3). It also raises the question of how the significance and texture of everyday technoculture can be fruitfully traced and studied. Answers and approaches will be offered in Parts 2 and 4. In the next section I will turn my attention to one area in which Cultural and Media Studies, along with other fields concerned with new media cultures, have felt more confident in their observations of technocultural change and newness: subjectivity and identity.

1.3 the everyday posthuman: new media and identity

In very general terms the various discourses of new media studies concur that new media herald genuine newness in relation to 'identity' or subjectivity. This may be in terms of an ever more thorough integration of everyday life and the mediasphere (Kinder 1991, Hutchby & Moran-Ellis 2001); shifting relationships between the public and private realms or between the individual (or local community) and the global reach of popular media and cultural forms (Mackay 1997, Moores 1993b); the claims for radical experimentation or play with identity in some Internet media (Stone 1995, Poster 1995a, Turkle 1996); or an increasing intimacy or hybridisation between the human and the technological figured in the cyborg (Haraway 1990, Gray 1995). So questions of the relationship between the human and the technological are, in Cultural and Media Studies and new media studies, generally addressed in relation to questions of identity and subjectivity. The key concepts and claims for the newness of new media identities are surveyed in this section, and significant problems in the assumptions underlying this emphasis on identity and subjectivity are identified.

virtual identity

> Our interaction with the world around us is increasingly mediated by computer technology, and that, bit by digital bit, we are being "Borged", as devotees of Star Trek: The Next Generation would have it -- transformed into cyborgian hybrids of technology and biology through our ever-more-frequent interaction with machines, or with one another through technological interfaces (Dery 1994:6).

The language and concepts of cybercultural studies are shot through with science fiction and cyberpunk imagery, blurring distinctions between the human and machine in near-future worlds replete with media technologies, or riddled with gateways to virtual worlds. These discourses and their cyberpunk imaginary are widely critiqued in those strands of new media studies drawn from Cultural Studies, wary of assumptions of radical newness and the transcendence of historical and social divisions and conflicts via new technologies and their alternative, disembodied worlds. Feminist Cultural Studies in particular has questioned theories that assume a separation of mind (or consciousness or identity) from the body, evident in cybercultural studies (Bassett 1997, Kember 1998), cyberpunk fiction (Squires 1996) and computer sciences such as cybernetics and AI (Hayles 1999).

Yet there are resonances across this discursive divide. Cultural and Media Studies and feminist Cultural and Media Studies make far-reaching claims for the mutability of the human subject in a heavily mediated culture, whether characterised by print and electronic media, or computer-based media. Moreover, important work on technoscience and technoculture emerges from both Cultural Studies and feminist cultural studies, work that asks serious questions about the nature and volatility of the subject or of identity in contemporary technoscience and technoculture.

As the cybercultural excitement of the early 1990s and its assumptions of widespread entry (or upload) into Virtual Reality fades into cultural history, critiques of its naivety increasingly seem to have been misplaced, as attacks on straw men, running the risk of missing significant concepts and objects of study bound up in this technocultural idealism. If the Borg are removed from Dery's statement above, and the question of cyborgian hybrids put to one side for the time being, it can be reread: it is clear that for many interaction with the world *is* increasingly mediated by computer technology, people do experience ever-more-frequent interaction with machines, and with one another through technological interfaces. Cybercultural idealism can be questioned without necessarily rejecting any notion that identities are being constructed or transformed, or denying that increasingly intimate relationships with machines and networks challenge long-held conceptual oppositions between the local and global, public and private, consumption and production, or as we shall see later, between the human and the nonhuman.

Indeed, even in mainstream Cultural and Media Studies, media technologies are often assumed to be instrumental in a shifting sense of identity in numerous ways, including the following: the provision of media images and narratives for identity construction (Kellner 1995); consumption as an active practice of identity bricolage (Hebdige 1979, Willis 1990), constructed through the images and consumer goods individuals 'choose' (Tomlinson 1990); all processes given new impetus by the interactive and reproductive power of digital software (Chandler 1998), or by a shift from the 'broadcast' model of mass media to non-hierarchical networks (Poster 1995b). Where Cultural and Media Studies and related disciplines turn their attention to new media, they explore how identity can be 'constructed' in cyberspace or virtual worlds and how individuals engage in virtual communities (Hine 2000, Bassett 1997, Slater 1998, Green & Adam 2001). Where these studies differ from uncritical cybercultural studies is their emphasis on the everyday, cultural and historical contexts of virtual media, and how these real world contexts, relationships and gendered identities persist (albeit not entirely unchanged) in virtual media environments.

The discursive constitution of identity, subjectivity, and old and new media and technologies is thoroughly tangled. It should be pointed out that 'identity' and 'subjectivity' are rarely defined, are used differently in different discourses, and are often apparently interchangeable. Also, the term 'real world' – though common in this literature – should be read with caution. Virtual environments and media are no less real for being virtual. This section will attempt to identify those threads most pertinent to this thesis through a short survey of how new media studies have constituted the relationship between identity, subjectivity, the body, technology and media.

what is new about networks?

As indicated in 1.1 new media studies usually concerns itself with networked new media, and the Internet media in particular. Much of the early excitement around online identity play was predicated on the simple fact that Internet users were geographically remote from one another. Hence conventional markers of identity become irrelevant because users cannot see each other. This then, it has been argued, facilitates new online cultures based on meritocratic principles in which often marginalised people (the young, women, the disabled, black people) can be accepted for their knowledge or communicational skill.

> In bulletin boards like The Well, people connect with strangers without much of the social baggage that divides and alienates. Without visual cues about gender, age, ethnicity, and social status, conversations open up in directions that otherwise might be avoided. Participants in these virtual communities often express themselves with little inhibition and dialogues flourish and develop quickly. (Poster 1995a: 90)

From this, some make the bolder claim that with on-line communication in 'cyberspace' or virtual reality, not only can we not be seen, but we are liberated to present our identities in new ways, or more profoundly, develop new identities – playful identities in which gender, race, species even, become fluid.

Sherry Turkle has extended her research on early personal computer use to studies of the Internet, in particular MUDs and other virtual worlds. She is still concerned with the individual's sense of self in new media use, but here it is not the computer as 'second self' so much as the computer network as communication medium that is challenging users' senses of identity. Instead of computer programming's potential as a therapeutic 'working through' of personal concerns, she sees an 'identity workshop'. Instead of the use of the stand-alone computer reflecting aspects of personality , she now sees a refraction of identity through role-play and interaction with other users: 'The self is not only decentered but multiplied without limit. There is an unparalleled opportunity to play with one's identity and to 'try out' new ones' (Turkle 1996: 356).

Alluquere Roseanne Stone asks 'what is new about networking?' and gives two possible answers. The first is 'nothing' , i.e. communicating via a computer network is little different from using the telephone. The second possible answer is 'everything': networks could be seen as more like public theatre than 'old' media, as new arenas for social experience and dramatic communication, 'for qualitative interaction, dialogue and conversation' (Stone 1996: 16). Stone asserts that the second answer is true and argues that this has profound implications for our sense of our selves as bodies in space, our sense of 'presence'. She argues that the relationship between the material nature of the body - the 'physical envelope' - and the identity it once seemed coterminous with is 'embedded in much larger shifts in cultural beliefs and practices [including] repeated transgressions of the traditional concept of the body's physical envelope and of the locus of human agency' (Stone 1996:16). The argument that digital networks bring about radical changes in identity underpins most cybercultural work, from Turkle's decentred and multiplied selves to Dery's 'incorporeal interaction', in which 'users can float free of biological and sociocultural determinants' (Dery 1994: 3). For Stone, these larger shifts are symptomatic of nothing less than the end of the 'mechanical age', and the beginning of the 'virtual age' (Stone 1996:17). Others concur. Mark Poster is one contemporary writer on new media who sees the advent of electronic media as analogous in historical importance to that of movable type. New media mark the end of the modern era and usher in postmodern subjectivity:

> In the twentieth century electronic media are supporting an equally profound transformation of cultural identity. Telephone, radio, film, television, the computer and now their integration as "multimedia" reconfigure words, sounds and images so as to cultivate new configurations of individuality. If modern society may be said to foster an individual who is rational, autonomous, centered, and stable [...] then perhaps a postmodern society is emerging which nurtures forms of identity different from, even opposite to those of modernity. And electronic communications technologies significantly enhance these postmodern possibilities (Poster 1995a: 80).

However, it could be argued that the epochal shift from the mechanical to the virtual is not quite so clear cut. Poster for example seems confused as to whether his 'postmodern possibilities' are the product of new media in particular, or electronic media (including television and radio) in general. The above quote suggests the latter, but elsewhere he specifically identifies digital media as the point of rupture. Against the 'alienation' of 'one-way' broadcast media, he posits the many- to-many system of the Internet:

> the question of the mass media is seen not simply as that of sender/receiver, producer/consumer, ruler/ruled. The shift to a decentralized network of communications makes senders receivers, producers consumers, rulers ruled, upsetting the logic of understanding of the first media age (Poster 1995a: 87-88).

On a more everyday level, Daniel Chandler has studied the ways in which individuals present, or construct, their identities on websites. Through the construction of personal Home Pages, he argues, the domestic spaces of computer use shift in their relationship with the outside world, becoming permeable: 'a home in the real world is, among other things, a way of keeping the world out... An on-line home, on the other hand, is a little hole you drill in the wall of your real home to let the world in' (John Seabrook, quoted in Chandler 1998). The Web can be seen as both continuous with, and offering distinct new possibilities for, established relationships between public and private space, public and private selves (see also Stern 1999, Tobin 1998).

However both 'old' media (e.g. television and radio) and 'new' digital media (e.g. Internet media such as chat rooms and MUDs) offer, some argue, everyday local access to what Moores calls 'global image spaces', promising significant transformations of the everyday understanding of collective identities such as community and nationality (Moores 1993a). From this perspective, the consumption of both new *and* old communications media is thoroughly bound up in the construction, or performance, of identity. In an example from Moores' research already cited, an adolescent's consumption of media technologies (hi-fi, satellite television) is understood as an active process of identity construction. His choices of consumer technology marked his autonomy from his parents, as well as asserting his sense of his own modernity and technical competence. Stone on the other hand, makes a clear distinction between old and new. The distinction rests on the networked structure of new media use. Thus 'one-to-one' telephone conversations and 'one-to-many' model of broadcast media are superseded by 'many-to-many' communications facilitated by Internet media. One important difference between these two examples is that, for Moores, the satellite television consumer's identity is primarily constructed through his *choice* of consumer technology: the mere fact of ownership of these media devices is symbolic of his interests and sense of self. The arguments that digital media and networks are quite distinct from 'old' electronic media tend to be premised on the assertion that it is the *use* of, or *communication* through, new media that the individual may construct their identity.

virtual ethnography

Caroline Bassett's ethnographic study 'Virtually Gendered: life in an on-line world' (1997) undermines assumptions that virtual worlds (and our identities within them) fully escape the actual world, that visitors to them leave behind their sociocultural contexts. She notes the diverse and ostensibly emancipatory

presentations of self in the playful virtual environment of Xerox's PARC research centre on-line 'world':

LambdaMOO. As with other MUDs, LambdaMOO has a text-based interface, and citizens present

themselves through three basic attributes: name, gender and appearance, all represented to other users as

textual description. They can also 'build' themselves a textual home, its design reflecting their new identity.

For example exploring ambiguity and androgyny:

> Neuterworld.
>
> A bland, white room. Clean air is sucked into your nostrils and unclean exhalation is sucked out of the room through the huge roof mounted extractor fan. A sense of peace pervades the whole room. Bara is here.
>
> Bara.
>
> A tall, dark individual of slight build. This person is curious in that it is impossible for you to tell whether it is male or female!
>
> It is sleeping.   (Bassett 1997: 541)

Whilst sympathetic to the possibilities of MUDs and related on-line communication forms, Bassett questions

uncritical notions of new free-floating identities in cyberspace, observing that whilst some participants do

experiment with very different characteristics, or multiple 'identities', this is by no means practised by all.

Thus while some take advantage of the transgressive genders allowed by the MUD:

> E looks content, and eir eyes beam at you with a kind of amusement... the black suede mini hugs Peri's hips and barely covers eir crotch, black suede glistening in the light or lack there of. Carrying bodysuit, nipple clamps ...
>
> E carries a [hash] note on Eir gender in Real Life ...
>
> (Bassett 1997: 545)

Most adhere to stereotyped constructions of masculinity or femininity:

> Beige Guest
>
> One luscious babe, with a flowing mane of brilliant red hair, with crystal emerald eyes, and the most enchanting smile on earth. (Bassett 1997: 546)

Bassett notes that it is probable that such hyperfeminine presentation is almost certainly that of a male

participant. Even shifting identity to an inanimate object or animal does not automatically mean an escape

from the gendered structures of Real Life:

> Cyberferret is a ferret ... with several cybernetic implants. One leg is bionic, and his entire skeletal system is made of titanium. He is looking for something to KILL!   (Bassett 1997: 549)

Cyberferret aside, most on-line identities are, regardless of their play with gender, overwhelmingly presented as being white, attractive and young. This counters any straightforward assumption that identity construction is free from Real Life constraints and distinctions. Bassett draws on Judith Butler's concept of identity formation as 'performative', that is to say that identity (and in gender in particular) is not so much constructed as constantly materialised through acts in language.

Despite this, Bassett argues for two progressive readings of 'the small world' of Lambda. The first is that it highlights gender as constructed and 'unnatural', and secondly she implies that Real Life discourses are not entirely dominant in cyberspace, that Lambda does provide 'spaces for disruption, for the possibility of gender-play, and for the emergence of new forms of multiple subjectivity' (Bassett 1997: 550). Identities and subject positions persist across the actual and the virtual, but not without the possibility of transformation and play.

There is now a large body of 'virtual ethnographic' research, the most interesting of which, like Bassett's, traces the interpenetration of virtual and actual worlds (see for example Hine 2000, Slater 1998). The attention of this research to the textures of actual/virtual cultures and events is rich and productive, but it can be noted that its primary concern is with the conversations and relationships between human participants and the broader contexts of language and culture that position them. There is little interest in the nature or specific effects of the technologies that facilitate or afford these cultures in the first place.

why only networks?

The consideration of identity and subjectivity across new media studies is usually in reference to networked communication, and as such do not have any immediate purchase on the study of the subject of the videogame player. Yet, for example, Turkle's assessment of the possibilities of identity play online is based very much in her earlier work on the relationship between computer users, their identities, their computers and the programs (including games) they were using. When programming, the computer is a 'projection of part of the self, a mirror of the mind' (Turkle 1984: 15). She quotes an interview with a school-child: 'you put a little piece of your mind into the computer's mind and now you can see it...' (Turkle 1984: 145).

> When you create a programmed world, you work in it, you experiment in it, you live in it. The computer's chameleonlike quality, the fact that when you program it, it becomes your creature, makes it an ideal medium for the construction of a wide variety of private worlds and through

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them, for self-exploration. Computers are more than screens onto which personality is projected. They have already become a part of how a new generation is growing up. For adults and for children who play computer games, who use the computer for manipulating words, information, visual images, and especially for those who learn to program, computers enter into the development of personality, of identity, and even of sexuality. (Turkle 1984: 6)

It is not only information and images that this technology allows us to experiment with and manipulate, she argues, but also the user's personality, identity and sexuality (Turkle 1984: 15). Here then identity play is effected through the feedback between individual and machine, not between individuals through networks. This raises a couple of important points. The cybercultural paradigm of free-floating identity play in virtual worlds is not necessarily predicated on remote communication between humans: the technological imaginary of networked virtual reality is rooted in the interactive engagement with the space of the computer game. It follows then that, at the very least, new media studies' conceptualisation of identity and subjectivity should encompass the direct relationship between human and machine as well as the relationships between humans facilitated by machines.

the subject of technology

To make sense of the varying claims of these theories of changing identities in relation to media technologies, it is important to be clear what is meant by identity – or rather at least to be clear that it is not clear what is meant by identity. Within Cultural and Media Studies 'identity' as a concept is generally interchangeable with 'subjectivity' (Hall 1997, Butler 2000), or simply yoked together as 'subjectivity and identity' (e.g. Weedon 2004). Sometimes the terms have different connotations. Whereas, for example, an individual designing a home page may choose aspects of their interests and personal life to present as their *identity*, their *subjectivity* may be seen as less accessible to conscious manipulation, as more fundamental to that individual's place in the world and its hierarchies. Subjectivity, then, may be established through broader historical and cultural contexts, and positions individuals within the power structures of gender, class, and race. For Judith Butler it seems that the construction of identity is effected through subjects organising together according to affinities in a process of *identification*. Here then identity is the social appearance of the subject (Butler 2000). Identity is sometimes used more specifically in the analysis of media consumption (Tomlinson 1990), and a different inflection of the term identification is central to Film Studies' theories of the relationships between film spectators and film images (Metz 1985).

subjects and media technologies

There are precedents for linking changes in the subject to changes in media technologies. The development of print through movable type in the mid fifteenth century is generally seen as the first mass medium. It is often cited as a key factor in the waning of the medieval religious world, and hence the development of modern rationality and subjectivity (McLuhan 1962, Birkerts 1994, Provenzo 1986). The role of the mass media and specific media technologies in the advent of a postmodernist era is articulated differently across the diverse debates in postmodernist theory, yet there is a general assumption that late twentieth century culture in the developed world is characterised by an increasing prevalence of mediated forms and images, with concomitant effects on life, experience, political activity and so forth (see e.g. Jameson 1991, Harvey 1989).

On a less epochal timeframe and register, film theory since the late 1960s has established a quasi-cyborgian model of media subjectivity in which the film spectator is one component in the 'cinematic apparatus', both physically and psychically positioned by the film, its mode of projection, and the cinema auditorium. The position of spectator within the cinema auditorium (in the dark, looking at the large screen in front whilst the images are projected overhead from behind) produces an array of ideological effects, not least that of identification with the camera 'that which has looked, before the spectator, at what the spectator is now looking at [...] The spectator is therefore interpellated by the filmic text, that is the film constructs the subject, the subject is an effect of the film text' (Hayward 1996: 8). Film theory has provided resources for thinking about the relationships of between videogame players and videogames, particularly the player's 'identification' with the avatar. These idea will be discussed in Part 4.1.

from postmodernist subject to the posthuman

However bewildered or decentred these postmodernist subjects feel themselves to be, they—and their crisis--are still fundamentally *human*.

> It is comforting... and a source of profound relief to think that man is only a recent invention, a figure not yet two centuries old, a new wrinkle in our knowledge, and that he will disappear again as soon as that knowledge has discovered a new form (Foucault 1970: xxiii).

However, in this much-quoted sentence Foucault suggests a more profound sense of change in the subject, one that has been picked up in recent theoretical developments that resonate with key concerns in this thesis, developments that are sometimes loosely bracketed together as posthumanism. Posthumanism can

however be divided into three (overlapping) approaches. Firstly the term refers to a critique of the notion of humanism and the human subject within critical theory (Badmington 2000), secondly it refers to a range of debates around science and technology that are researching into, or predicting, changes in the human body and its relationship with technology and technoscience in the present and the near future. There are distinct echoes of early uncritical cyberculture in some manifestations of this aspect of posthumanism (or transhumanism, and see for example the 'extropian' movement http://extropy.org/) with its new age worldview, unqualified optimism about technological progress, and corporate ambitions. Thirdly, 'posthumanism' is used within critical cyberculture (particularly cyberfeminism) and some STS-influenced debates to draw on both of the first two and to address critically the relationships between technology and the human. Not surprisingly this discussion has been termed 'critical posthumanism' (Didur 2003).

> Perhaps, ironically, we can learn from our fusions with animals and machines how not to be Man, the embodiment of Western logos (Haraway 1990: 215).

Critical posthumanism is often concerned with the cultures and implications of biotechnology, reproductive technologies and genetics (Halberstam & Livingston 1996, Thacker 2005, Davis-Floyd & Dumit 1998) and has been greatly influenced by the work of Donna Haraway.

cyborgs

Donna Haraway's influential essay 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s' is a thorough postmodernist interrogation of binary oppositions, identifying:

> self/other, mind/body, culture/nature, male/female, civilized/primitive, reality/appearance, whole/part, agent/resource, maker/made, active/passive, right/wrong, truth/illusion [...] [as dualisms] systemic to the domination of 'women, people of color, nature, workers, animals (Haraway 1990: 218).

These categories are not only excluded from, and dominated by, the universalising myth of the Western subject, importantly, they are positioned as 'others' to define this subject, 'to mirror the self'. Monsters, such as those in classical myth demonstrate the ambiguities of self-definition through the other: the centaur, half human, half animal represents 'boundary pollution'. The cyborg then is a contemporary monster, but from the standpoint of a postmodernist politics of difference, one to be celebrated.

The 'challenge to western either/or epistemology' is conducted through an ' ironic political myth' of the cyborg. This creature is 'a cybernetic organism, a hybrid of machine and organism' (Haraway 1990: 191). It is deliberately ambiguous, encompassing fictional cyborgs such as *Robocop*, the increasing material

intimacy between human bodies and machines (in medicine, warfare, or in miniaturised consumer electronics), a conception of networks as complex systems in which categories of biology and machines blur, and a postmodernist, 'post-gender' subject position. This latter is facilitated precisely by the cyborg's ambiguity. It is not reducible to either the natural or the cultural, and therefore is neither entirely male nor female. Haraway cites *Blade Runner*'s heroine, the replicant Rachel, as an image of the fundamental confusion the cyborg generates around distinctions between the technical and the natural, and questions of origins, of mind and body (Haraway 1990: 219). The cyborg comes into being through 'replication' rather than organic reproduction, so it lends itself to the 'utopian tradition of imagining a world without gender' (Haraway 1990:192). This then is an attempt to think beyond difference, beyond the dualisms that structure the modern subject, an attempt in which science and technology, and particularly information technology, are central.

Haraway is careful to insist that her cyborg is at once an ironic fiction and a way of thinking about actually existing phenomena. As N. Katherine Hayles puts it:

> ... [Haraway's] cyborgs are simultaneously entities and metaphors, living beings and narrative constructions. The conjunction of technology and discourse is crucial. Were the cyborg only a product of discourse, it could perhaps be relegated to science fiction, of interest to SF afficianados but not of vital concern to the culture. Were it only a technological practice, it could be confined to such technical fields as bionics, medical prostheses, and virtual reality. Manifesting itself as both technological object and discursive formation, it partakes of the power of the imagination as well as the actuality of technology (Hayles 1999: 114-115).

This articulation of the actual and the metaphorical is very important and is often blurred in research based on Haraway's essay. In addition to the fictional cyborgs of science fiction cinema and literature, Hayles distinguishes between 'actual cyborgs' (for example people fitted with pacemakers) and 'metaphoric cyborgs' (including the 'adolescent game player in the local video game arcade') (Hayles 1999: 115). It is the latter figure that will be of particular concern in this thesis (Part 4), though Hayles' use of the term 'metaphoric' in this context is misleading. The gameplayer, I argue, is not metaphorically but *actually* part of a cybernetic feedback loop with the videogame. The fact that this videogame-and-player loop is temporary or intermittently constructed should not detract from both its reality and its technocultural significance. In these terms then the event of videogame play can be thought of *literally* cyborgian, not only a human subject in a technologised environment, but rather as the human as one element in a cyborgian event generated by both human and nonhuman entities.

The cyborg has generated substantial comment (Gray et al 1995, Gray 2002, Zylinska 2002, Balsamo 1996), though it should be noted that media technologies are rarely discussed in cyborgian terms. There are notable exceptions (often in relation to videogames, e.g. Friedman 1995, 1999, Ito 1998, Lahti 2003, Giddings & Kennedy 2006) and these will be discussed in Part 4.

All this said, I would argue that whilst the use of the term 'cyborg' here makes links with salient concepts, debates and disciplines, it may ultimately prove misleading. It implies, and is often taken to mean, a discrete, bounded entity (a cybernetic *organism*); a monster no doubt, but one generally more or less human in origin and form. The cyborg and its literature are productive entities for this thesis, but they cannot fully account for the entities in (and at) play in the videogame event. This will be discussed in Part 4. The term 'nonhuman' has its own discursive context and will be introduced more fully in Part 3.2.

issues and conclusions

The notion that there are important shifts in the nature of identity or subjectivity attendant on the advent of digital media is evident across the diverse conceptual frameworks of new media studies. There is little agreement over the precise nature of these shifts, their historical and technological location, and their epochal import, but each—in different ways—make claims for the importance of these shifts in understanding everyday life in a digital technoculture.

Given the intimate and compelling relationship between videogame and videogame player it is not surprising that some of these theories of technology and subjectivity have been applied to the study of videogame culture.

Yet each of these frameworks (with the possible exception of critical posthumanism) also implicitly, perhaps inadvertently, assume the centrality of the human subject. However decentred, anxious, multiplied, or augmented, it is the human that is the central focus of research across new media studies. Technologies are invoked, but surprisingly little is said about them, they are rarely described or analysed. Human identity and human communication are the proper objects of study. The subject is the object, so to speak.

The importance of videogame play to the technological imaginary of cyberspace and computer media was mentioned in Part 1.1. In this section it was hinted that it might be productive to think of videogames,

videogame play and videogame players as actual cybernetic phenomena, literal cyborgian circuits: a non-ironic and non-figural vision of human-machine relationships in everyday life. This argument will be tackled later, but for now it is worth noting something of the methodological implications for the study of videogames as new media in everyday life. The next part of this thesis will address the ethnography of videogame play and everyday technoculture. To speak of the posthuman or the nonhuman becomes more than the selection of precise terminology when conducting ethnographic work. Ethnography and anthropology both study the human, in their very names they sideline nonhuman entities, forces and agencies. The conceptual and methodological – and terminological - problems posed by what Gray, Mentor and Figueroa-Sarriera's suggest might be 'cyborgology' (1995) or Downey, Dumit and Williams' putative 'cyborg anthropology' (same volume, 1995) will be explored in Parts 3.2 and 4.1.

1.4 play, media & everyday life

Play is a key term in the development of popular computer media and in theories of identity and subjectivity in digital culture. It underpins cybercultural shifting subjectivities, notably online 'identity play', and is a foundational concept in important areas of new media research and history: exploratory, ludic computer programming and robotics are seen as educationally progressive (Papert 1980, 1994); play and games are central to the development of personal computing via the ethics and aesthetics of the early hackers (Levy 1994); and the necessary experimentation of early home computer use (Haddon 1988a). Whilst it is clear that these playful, creative activities are to be understood as distinct from, or opposite to, the instrumental uses of computer media (word processing, spreadsheets, work-related emails etc.), the concept of play itself is not defined and is used without reflection. Moreover theories of play can be put to ideological use; as discussed in Part 1.1 anxieties about videogames are often bound up in contradictory assumptions about the value, and types of, play. The most popular mode of non-instrumental engagement with computer media, videogame play, provokes, as we have seen, profound anxieties and wild assumptions of militarised imaginations, servile participation and hypnotic alienation.

Play has not been exposed to sustained study in Media Studies either, though there are notable and useful exceptions and these will be briefly surveyed below. In Cultural and Media Studies too then the value of play in a mediated everyday life is often ambiguous – perhaps creative and resistant, but also worryingly conformist or rule-bound. As will be seen in Part 3, the exemplars of media form and consumption from which Media Studies has developed some of its key concepts tend to be news media, not entertainment or ludic media such as comedy or game shows. The popularity of videogames as a media form then offers the opportunity to foreground play in a number of ways: as a mode of cultural practice in general; as a mode of media consumption; as a way into analysing the forms and conventions of ludic media and media games; and as a way of thinking about the 'consumption' of computer media as non-instrumental 'uses' of technology. One of the first projects of game studies has been to locate and synthesise disparate theories of play and games from across the humanities and social sciences (Salen and Zimmerman 2003, Dovey and Kennedy 2006, Lister et al 2003, Eskelinen & Tronstad 2003, Perron 2003, Walther 2003).

This section will not attempt a survey of theories of play but will suggest some implications of taking play seriously as a cultural phenomenon of central significance to new media studies as well to the study of videogame culture. It will concentrate on notions of games and play as: fundamental to culture, yet undertheorised; an ambiguous yet central aspect of – both part of and separate from – the space and time of everyday life; a distinct yet ambiguous forms of entertainment and communication media, and their consumption (not least with the advent of new media); and as a concept with the potential to confuse a series of distinctions underpinning Cultural and Media Studies and new media studies, including consumption / production, real / fantasy, rules / freedom, ideology / critique, meaning / nonsense, as well as generating or repurposing a few new ones – for example, simulation / representation.

theories of time, space and games

The literature of play operates at the margins and in the interstices of the humanities and social sciences. In his book *Homo Ludens* (1986 [1938]), the cultural historian Johan Huizinga suggested that play is not an ephemeral, inconsequential activity, but an essential, central, factor in civilisation. Religious rituals, sport and drama, to name but three near-universal cultural realms, are all characterised by types of play – for Huizinga play and games can be very serious activities. The human then is not characterised primarily by rational thought and self-awareness (home sapiens) or creativity and the use of technology (homo faber) but by play (homo ludens).

Though central to culture, play is always, according to Huizinga, separate from ordinary or real life, it is 'a stepping out of "real" life into a temporary sphere of activity with a disposition all of its own' (Huizinga 1986: 8). Separated from the materially necessary activities of work and the satisfaction of bodily needs, it occurs in *interludes* in daily life. Play is not ephemeral however; through its often regular repetitions and rituals (football matches on Sunday, crossword puzzles in coffee breaks) it is integral to everyday life. Play is distinct from other areas of everyday life both temporally and spatially, 'It is "played out" within certain limits of time and place',

> the arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc. are all in form and function play-grounds, i.e. forbidden spots, isolated, hedged around, hallowed, within which special rules obtain. All are temporary worlds within the ordinary world, dedicated to the performance of an act apart (Huizinga 1986: 10).

rules of the game: ludus and paidia

Roger Caillois developed Huizinga's ideas and his categorisation of types of play and games has been particularly influential on games studies' consideration of play theory. He categorised what he saw as the fundamental elements of play:

agon - competitive play, as found in many sports and games from football to chess;

alea – taken from the Latin for the game of dice, this term refers to games decided not, as with agon, by skill or training, but by the workings of chance and most evident in gambling;

mimicry - or 'simulation' – which covers those aspects of children's play which involve role play or make-believe, and extends to the adult actor playing Hamlet and the film or sport audiences identification with the star performers they watch; and

ilinx - or 'vertigo', the willing inducement in oneself of dizziness and disorder, the surrender to shock, the temporary 'destruction' of reality, evident in children rolling down hills or screaming, but can also manifest itself as a 'moral' vertigo, in which adults succumb to desire for destruction and disorder. This 'pleasurable torture' is now evident in theme parks: 'In order to give this kind of sensation the intensity and brutality capable of shocking adults, powerful machines have to be invented' (Caillois 1962: 25).

These categories are not mutually exclusive and are often evident as pairs within particular games. For example, though agon and alea are opposites, one relying on skill and dedication, the other on luck, they are both present in many card games.

Cutting across these categories is an axis that measures the underlying qualities of particular games or types of play. One pole on this axis is *ludus*, and the other *paidia*. Ludus denotes modes of play characterised by adherence to strict rules: 'calculation, contrivance, subordination to rules'. Paidia is the opposite: 'true' creative play - 'active, tumultuous, exuberant, spontaneous' (Caillois 1962: 53). Thus chess can be placed near the ludus end of this axis, whereas the imaginative and improvised make-believe of young children would sit at the opposite pole of paidia . The ludus-paidia axis is a useful analytical tool and will be returned to later in this thesis. For now, it can be noted that it is the political or moral values given to positions on this ludus - paidia axis, rather than the categories of agon, alea, mimicry and ilinx, which often

underlie popular and academic anxieties about videogame play. Video games are generally, in this sense, ludic: rule-bound and apparently not offering much space for spontaneity or innovation. As the influential critic of video games, Eugene Provenzo put it,

> [c]ompared with the worlds of imagination provided by play with dolls and blocks, [video] games... ultimately represent impoverished cultural and sensory environments for the child (Provenzo 1991: 97).

Significantly however Caillois himself does not privilege paidia over ludus. For him, ludus is fundamentally linked with the development of civilisation. Rules, he asserts, transform play 'into an instrument of fecund and decisive culture' (Caillois 1962: 27). On a more everyday level, the ludic is also evident in more respectable games and activities such as chess, crossword puzzles, even detective stories. Many video games share this intellectual play - the solving of puzzles for no apparent reason than the pleasure of doing so. Moreover, even ludic games need room for improvisation:

> the game consists of the need to find or continue at once a response which is free within the limits set by the rules. This latitude of the player, this margin accorded to his action is essential to the game and partly explains the pleasure which it excites (Caillois 1962: 8).

Sherry Turkle identifies a relationship between the paidia of fantasy, and the rule-bound ludic in videogames. Science fiction and fantasy fiction are extremely influential on the development of video and computer games, not only at the level of symbolic content (spaceships and monsters), but they operate through an analogous tension between the fantastical or imaginative, and the logical and rule-governed.

> A planet can have any atmosphere, but its inhabitants must be adapted to it [...] You can postulate anything, but once the rules of the system have been defined they must be adhered to scrupulously (Turkle 1984: 77).

Similarly, the logic of the videogame world is that events may well be surprising, but they shouldn't be arbitrary. Ultimately, then, she argues that computer games are rule-governed rather than open-ended (Turkle: 78; see also Provenzo 1991: 88ff).

what do games mean?

The place of games and play in culture is profoundly ambiguous. For Caillois, whilst games are fundamental to civilisation, 'play and ordinary life are constantly and universally antagonistic to each other' (Caillois 1962: 63). For Marshall McLuhan games are at once communication media, a popular art form, and a collective modelling of society:

> Games, like institutions, are extensions of social man and of the body politic, as technologies are extensions of the animal organism... As extensions of the popular response to the workaday stress, games become faithful models of a culture. They incorporate both the action and the reaction of whole populations in a single dynamic image (McLuhan 1967: 235).

They are not simple representations of a culture though. McLuhan's games share with those of Caillois an ambiguous relationship with the social world, they exist within it but distinct from it:

> Games are a sort of artificial paradise like Disneyland, or some Utopian vision by which we interpret and complete the meaning of our daily lives. In games we devise means of nonspecialized participation in the larger drama of our time (McLuhan 1967: 238).

Games then are separate from the world in time and space, played within boundaries and bound by rules. However in important ways they are part of the world: they may figure or model their larger social context, and of course they are part of the world in that people play games everyday - they are no less real for being distinct from other cultural activities. Moreover this notion of the game dynamically modelling real world relationships or forces resonates with simulation as a computer media form. Simulation finds particular expression in particular genres of videogame (from *SimCity* and *SimAnt* to the current popularity of *The Sims*) but is, in highly significant ways, integral to all videogames. This will be explored in more depth in Part 3.

In fact, for Caillois, the separation of play from other areas of everyday life is essential. The danger in games comes not from restrictive rules, but rather from their 'corruption' if their autonomy from the real world is undermined: for example, the horoscope's aleatory blurring of reality and chance, or the vertiginous corruptions of drug and alcohol consumption. It is precisely the sharp delineation between fantasy and reality that protects the player from alienation from the real world (Caillois 1962: 49). Like McLuhan, Caillois' games are inherently conservative, reflecting or modelling but not challenging cultural values.

media play

Earlier in this Part it was suggested that the notion of popular media 'consumption' might not be fully adequate to an understanding of videogame play. Recent work in Media Studies has suggested that *play* might be a productive term for thinking about media 'consumption' more generally. Roger Silverstone for instance regards the mass media and play as inseparable:

> We are all players now in games, some or many of which the media make. They distract but they also provide a focus. They blur boundaries but still somehow preserve them. For, arguably we know, even as children, when we are playing and when we are not. The thresholds between the mundane and the heightened spaces of the everyday are still there to be crossed, and they are crossed each time we switch on the radio or television, or log on to the World Wide Web. Playing is both escape and engagement. It occupies protected spaces and times on the screen, surrounding it and, at some further remove. While we can enter media spaces in other ways and for other purposes, for work or for information, for example, while they exist to persuade as well as to educate, the media are a principal site in and through which, in the securities and stimulation that they offer the viewers of the world, we play: subjunctively, freely, for pleasure (Silverstone 1999: 66).

For John Fiske, the pleasure of engagement with the texts and images of the media is the 'active' consumer's articulation of the relationship of the real world and media representations and is both creative and playful. However playing with the boundary between the real and the representation in media consumption can also be an anxious activity. Fiske cites arguments that children's control of television sets (changing channels, switching the set on and off) is a kind of electronic fort/da game. Children will also playfully explore the distinction between the symbolic and the real in the content of programmes - satirising representations they do not approve of (Fiske 1987: 231).

Both of these elements of play – the anxious and the performative - are also evident in, indeed central to, videogame play. They raise the question of the political dynamic of play in general and video game play in particular: what is the relationship between the activity, performance and pleasure of the player, the specific rules of the game and broader social rules and ideologies? For John B. Thomson, the everyday politics of individual identities in the dominant symbolic systems (ideologies or discourses) can be discussed in ludic terms, 'Like a game of chess, the dominant system will define which moves are open to individuals and which are not' (Thompson 1995: 210). Whilst for Fiske, playing with the rules is an emancipatory activity:

> The pleasures of play derive directly from the players' ability to exert control over rules, roles, and representations - those agencies that in the social are the agencies of subjection, but in play can be agents of liberation and empowerment. Play, for the subordinate, is an active, creative, resistive response to the conditions of their subordination: it maintains their sense of subcultural difference in the face of the incorporating forces of the dominant ideology (Fiske 1987: 236).

In a response to political and press condemnation of videogame arcades in Australia in the 1980s, Fiske and Jon Watts expand on this ludic politics. They argue that there is a contradiction

> centred in the technical nature of the games themselves, in that they offer disapproved of versions of activities that are normally highly valorised by society at large: they position the player in interaction with a machine (the reference for this is clearly the production line) and they position him in front of an electronic screen like that of the television set. Clearly, the similarities to two such central social activities as manufacturing and television-watching cannot be responsible for the parlours' antisocial image, but they provide us with a starting point for our investigation, which must concern itself with inversions of the normal, not with reproductions of it (Fiske and Watts 1985).

It is interesting to note that in the two decades since this essay was published the electronic screen has become the technological locus of work as well as leisure. The salient point here is that playful activities that 'look like' non-playful activities (whether these activities are the virtual violent activities on screen or the activities of the player in front of the machine) are not necessarily analogues for those non-playful activities. Like a medieval festival they might turn the world upside down.

Play is sometimes invoked or factored in to support studies of which it is not the main object of research. Studies of fan fiction use a notion of play to articulate the creativity of such practices around the scaffolding of the source text (Jenkins 1992, Hills 2002). Matt Hills uses the psychologist D. W. Winnicott's theories of play as a 'third space' between the subject and object (for instance the child and his or her toy) in his work in this field.

However, if play as cultural practice so thoroughly suffuses contemporary media consumption and identity construction, there is a danger of losing any sense of it as a critical or analytical term in understanding new media. It should also be noted that these examples of attention to play in Media Studies, welcome as they are, are speculative, sketches for a potential field of enquiry. They do not draw on, and do not conduct, ethnographic research into media play. Game studies is beginning to undertake both theoretical and empirical research into play however. The work of the anthropologist Victor Turner on play, for example, has been used to examine the communication in, and talk around, the multiplayer game *Counterstrike* (Wright, Boria & Breidenbach 2002). More often though, play is introduced as part of efforts to define games, whether for the purposes of defining the key concepts of games studies (Walther 2003), of

the analysis of games as a distinct cultural form (Juul 2003) or to inform the game design process (Salen and Zimmerman 2003)

media games, media players

As yet there has only been intermittent attention given to theorising the *player* as distinct from a consumer or a spectator. Though some useful work is being undertaken, particularly within the sphere of education research, little has yet been published that might inform the development of an ethnography of play within games studies or new media studies. There *are* examples of ethnographic work that feature videogame play, though not as their main focus, again from educational research. These will be noted in the next Part of this thesis which will, therefore, study a game - and its players - in play.

Part 1 summary, problems and questions

videogame studies

In Part 1 it has been argued that videogames and videogame culture are hopeful monsters in the development of a meta-field of new media studies. Though they are central to the development, dissemination and imaginary of new media, their discursive constitution by this emergent field has been notably anxious. It has been argued that this ignorance, marginalisation and demonising can be read as systemic to the development of new media studies which, despite their diverse approaches, are characterised by an imbrication of assumptions regarding their objects and contexts of study. Videogames then are commercial and 'violent', not communicative or social as Internet media are, they appear to establish an unhealthy intimacy between the human and the technological, and are characterised by the ambiguous dynamics of play. Their very accessibility, longevity and popularity is a problem for some new media studies discourses which tend towards futurology and idealism. Yet those new media traditions that do attend to the everyday and the here and now tend to downplay the newness of videogames (and other popular new media), to constantly inscribe them and their consumption into historical and cultural continuity, finding it hard to identify or describe emergent media forms and technocultural practices.

technocultural studies

It was argued that Cultural and Media Studies, in their concern for the everyday, the popular, and the social nature of technologies are a resource for the study of videogame technoculture. Yet, it was also argued that there are profound problems with key underlying assumptions and approaches to this understanding of technology, culture and agency.

subjects and objects

When Cultural and Media Studies does establish registers of radical change or rupture in everyday media culture it is generally around the notions of identity and subjectivity. These concerns resonate and refract throughout new media studies, but, it was argued, with certain highly significant assumptions. New media studies, for all their attention to the new and the possible, display a remarkable (but perhaps anxious) adherence to the human subject as the prime object of study. The technological and nonhuman are largely secondary, props or conduits, for new means of communication between humans.

describing technoculture

Though critical of the attention to videogame culture with Cultural and Media Studies, the usefulness of ethnographic approaches to everyday technoculture has been noted. Don Slater argues for the importance of ethnography in new media studies:

> The strength of ethnography – notably lacking from much CMC literature – is an attention to the specificity of settings that allows the researcher to disaggregate global concepts such as – in this study – cyberspace, Internet, pornography. We see rather an extraordinarily diverse and fluid world of practices, constituencies, media, technologies which can only be recovered through learning the local culture in detail (Slater 1998: 95).

Ethnographic method does not in and of itself guarantee attention to the new and the emergent however. Such studies may still frame their enquiry so as to assert continuity (Alloway and Gilbert 1998). For the purposes of this thesis a particularly small-scale and focussed ethnographic work is required, a microethnography that addresses the actual interaction between player / user and computer / game rather than the conventional, wider, ethnographic framing of the contexts of cultural practices. It has also been noted that there are foundational, humanist, assumptions about the objects of study (evident even in the anthropocentric roots of terms such as ethnography and anthropology), assumptions that must be challenged in any adequate research into technoculture.

play

Play makes its own theoretical and methodological demands. These will be worked with throughout this thesis. Here four points can be reiterated. Firstly, Huizinga and Caillois' insistence on the ambiguity of play as both part of, and separate from, the time and space of everyday life. Secondly, the ambiguity of games as meaningful objects or texts, their ideological operations. Thirdly, that play (or specific instances or events of play and games) may undermine the moral universe of Cultural and Media Studies - to what extent do play and games reinforce established worldviews and power relationships and to what extent might they invert, challenge or destabilise these? Fourthly, and closely related to the third point, that Caillois' spectrum of ludus and paidia undermines commonsense assumptions that 'playing by the rules' is equivalent to cultural/political subservience.

Part 2: playing the game

The ethnographic studies mentioned in Part 1 demonstrated a close attention to some of the key concerns of this thesis: notably to the detail and dynamics of the circuits between computer media and their users or players, and to their current existence in the everyday and here-and-now, not as a stage in a teleological trajectory to some ideal future state. However there is to date very little ethnographic research into the videogame in play. More generally, the concerns and findings of most of these ethnographic studies are shaped and channelled by humanist assumptions and concerns: humans and human forces are the agents or subjects, and the technologies are symbolic or textual, perhaps 'tools', at best new environments within which established human activities and identities are played out or played with.

We can divide these studies into two loose and broad approaches. The first, and most well-established in Cultural and Media Studies, studies the 'insertion' of technologies into households and lives, and their subsequent 'impacts'. The emphasis is generally on how the social forces and contexts of production and consumption, households, generations and gender difference 'limit' technological possibilities, any notion that technologies shape their uses is resisted, sometimes explicitly (Part 3 addresses this resistance in more detail). The language of insertion and impact is symptomatic of the entrenched discursive opposition between the human and the everyday on one side and technologies on the other. In such studies technologies themselves are not agents. The second approach, broadly speaking 'virtual ethnography', is conceptually and methodologically predicated on the critically productive aspects of the former approach, but, with its close concern with the specific nature of networked identity or community, is alive to newness and affordance as well as continuity and constraint. I have argued though that these virtual ethnographies are still primarily concerned with (human) community or identity, and as such tend to let the network technologies slip quietly into the background - a backdrop for novel, but essentially human, exchange. Moreover, if we crudely state that the former approach is concerned with the 'actual', the everyday domestic environment and its interpersonal dynamics, and the latter with the 'virtual', i.e. with communication, identity and power operating within digital networks (though carefully acknowledging the persistence of actual world forces and relationships in the virtual), then the question is raised: how can the virtual and actual be studied together as real, everyday, interrelated (mediated) environments?

Part 2 offers some suggestions for approaching this task. It is centred on a small-scale, 'microethnographic' study of videogame play (part 2.2.). The study describes a videogame as a media object and offers an analysis of a specific event of its playing. It attempts to factor in those agencies and entities identified in Part 1 as largely absent from relevant research and theoretical discourses, notably the possibility that computer technologies (both hardware and software) shape play just as they are shaped by play. It begins with observations of the fluid relationships between virtual and actual space in this play event. The study is premised on a hypothesis of a symmetry of agency between the players and the videogame (and other entities, including toys); and suggests new ways of thinking about both ethnographic research into technoculture, and the topography of everyday technoculture itself. This study also raises questions about the adequacy of theories of identification and subjectivity, and of analytical methods premised in notions of media textuality, when faced with the circuits of new media technoculture. My reflections on the event under scrutiny also attempt to articulate the operations of play.

It should be pointed out that this hypothesis was to some extent applied retrospectively to the microethnographic study presented in 2.2. The event studied involved two young boys (my own children) then aged 3 and 4, and was spontaneous play captured on the family video camera only developed as research some time later as the result of my interest (initially as a parent rather than a researcher) in the video-recorded event. This ad hoc microethnography then began in the context of a home movie, and has subsequently become the basis of a video essay as well (Giddings 2003). So, though I was in part prompted to begin filming because the play event in front of me resonated with concerns in my ongoing research, this event was not set up as research, and as such the 'research' was done afterwards in transcribing, analysing, editing and writing about the video footage.

I coined the term 'microethnography' in an attempt to add some methodological gravitas to this improvised approach, though subsequent literature searches have revealed that the term is already established in certain social sciences, particularly sociolinguistics. These studies are very tightly focussed analyses of everyday speech and language, and though the concerns and aims of such research are quite distinct from mine, I do not think my adoption of the term is inappropriate.

Part 2.1 anticipates the shape and concerns of part 2.2 by discussing a number of ethnographic studies that offer methodological and conceptual resources. Each is small-scale (the implications of scale in ethnographic research are discussed) and each addresses the use of, or play with, media technologies. Most

are concerned, at least in part, with videogames but one discusses the 'interactive' use of domestic video technology. Questions of human and technological agency, of the nature of technological 'consumption' (or 'use', or 'play') and the adequacy of humanist conceptual approaches in ethnographic research are raised.

2.1 towards microethnography as method

In Part 1 it was argued that for an adequate account of the videogame as new technocultural form the 'micro-level' of interaction between player and game needs to be identified and studied. Most studies of videogameplaying to date follow the tendency observed in Part 1 to concentrate on the social or communicative contexts and practices of new media, studying the contexts and practices that frame and inflect playing (e.g. Alloway and Gilbert 1998, McNamee 1998, Wright, Boria and Breidenbach 2002, Ito 1998). Other studies that begin to address the human-technological circuits of gameplay of central concern to this thesis tend to echo cybercultural studies (or film theory) in that their theorisations are based on assumptions about the nature of interaction and immersion, rather than any observation of actual, lived interaction (e.g. Friedman 1995, Morris 2002, Lahti 2003). This is not to argue that either of these approaches is wrong, but rather that there is a gap between them, between ethnographies that say little about the detailed nature of human / media technological intimacy and theories of subjectivity that do, but without the ethnographic concern with observable, lived activities. The microethnography presented here aims to bridge this gap. It should also be noted that in bridging these two broad approaches I do not mean merely to add a missing section in a spectrum of research: this study intends to transform each of these approaches, by establishing a more theoretically rich ethnography and more grounded, materialist cybercultural studies, in part by continuing the interrogation of the humanist assumptions of each.

It is surprising that little Film or Media Studies research has been conducted into the material, embodied relationship between viewer (or consumer or user) and screen media text (or artefact); studies tend to address either the social context of viewing or conduct an analysis of the text. My study attempts to articulate the operations and aesthetics of the screen images and action with their effects in the act of their 'consumption' through play.

Any qualitative research method of course has its strengths and limitations; a very small scale and improvised microethnography such as the one presented below can make only heavily qualified claims to identify broad cultural trends or patterns of media consumption, however it is important to note that whilst broad statistical studies give a sense of scale, access, distribution, discourse and attitude, they are unlikely to be able to say much about emergent phenomena, practices and behaviours. By necessity any study of the

detail and texture of any specific cultural or media practice as experienced by individuals or small groups is small-scale. Also, any identifiable deviation from or innovation in established practices of media consumption are significant, but may initially only be evident at the local level of actual engagement. At the very least this approach can identify new practices that can then be looked for, and tested, in larger scale research.

The examples discussed below each offer productive insights into methods of attending to these objects of study. Each are characterised by important factors: they are small-scale and focussed participant observation; they are more or less methodologically unrigorous and improvised (and therefore receptive to unanticipated phenomena and novelty), and they are attentive to the distinctive form of the videogame (in those that are concerned with the videogame), or (implicitly) to the material use of media technologies, not merely to the meanings or decoding of their 'texts'. It should be pointed out however that in all these examples of research cited below, the factors and characteristics of play / use of media technologies are tangential to the main aims of the respective essays. Walkerdine is concerned with issues of gender, childhood and subjectivity; Sefton-Green and Green, Reid and Bigum with questions of pedagogy and literacies; Sonia Livingstone with more general questions of children and networked computer use. The concerns of my project are the phenomena that these researchers find interesting but peripheral to their research aims. In short, these studies are presented here as source material for thinking about small-scale, descriptive ethnography, and to highlight their limiting factors in their treatment of technology, human agency and play. Other relevant studies not discussed directly here include Kinder (1991), Ito (1998), Tobin (1998).

video replay

Valerie Walkerdine's essay 'Video Replay: families, films and fantasy' (1986) began as a study of the education of 6 year old girls, yet developed into an enquiry into subject formation via domestic media consumption (in this case a video of a feature film). It mounts a critique of film theory, through participant observation simultaneously challenging both film theory's assumptions of an ideal abstract spectator and the epistemological (and subjective) role of the ethnographer. My concern here is both with this theoretical work on methods and theories of media subjectivity (as introduced in Part 1, and to be returned to in Part 4), and with the particularly 'interactive' role of a specific media technology (a video cassette recorder) in the events

under scrutiny. This latter aspect is not one that the author identifies as a factor in her research, yet as I will argue, the affordances of the VCR are instrumental in the events and practices under discussion.

One of the researcher's visits to a girl's home to conduct an interview coincided with the girl's family's viewing a video of the film *Rocky*. Fascinated – and troubled – by the ways in which the film's narrative and action were differentially engaged with by the family and the ways in which its viewing both fitted into and to some extent disrupted other domestic activities, Walkerdine turns her attention to the viewing of the film. This viewing is a process,

> a dynamic intersection of viewer and viewed, a chain of signification in which a new sign is produced – and thus a point of production or creation in its own right (Walkerdine 1986: 168).

In the essay extracts from the transcript of the tape recording are placed in a column adjacent to a column of notes describing the simultaneous action on the video. Walkerdine makes a number of observations from this annotated transcript. Firstly she points out that domestic video watching is quite different from the 'fascinated concentration of the spectator in the darkened cinema' but also from the 'way that television is often used as a backdrop to domestic routines' (Walkerdine 1986: 179). Here the video is engaged with differently by the various members of the family. The engagement of the father, Mr. Cole, is intense and empassioned and structures his communication with other family members. Mr Cole is able to point excitedly to the fighting – once to Joanne [his daughter] 'F: Watch, watch. Cor he ain't half whacking him, ain't he Do? Watch, here', later to Robert [his son] 'F: Hey, watch this, Rob. R: Does he kill him? F: Watch' (Walkerdine 1986: 175-176).

Secondly it becomes apparent that the gendered drama on the video is intertwined with both the control of the video playing and domestic activities and relationships:

> Mr Cole 'sends out for' tea from Mrs Cole, who has to service the family, and also emphasizes that they have not stopped the video to replay it for her. She is told in no uncertain terms that 'we didn't stop it just for you', but for Robert who's 'been trying to watch it'. The fighting (linked to control of playback on the video machine) is in this way most clearly presented as masculine, and something from which the women are excluded (Walkerdine 1986: 179).

Thirdly, the particular articulation of pleasures and power relationships in this event are facilitated by the interactive nature of the technology,

> because – as here – it can be stopped and replayed, it allows for more overt connections to domestic practices and relations (Walkerdine 1986: 179).

This last point is clearly significant for the arguments in my thesis. Walkerdine does not dwell on it as it is incidental to the overall concerns of her essay, however it is worth extrapolating it a little here. As Walkerdine points out, established theories of spectatorship are at best inadequate for media ethnography. *Rocky* as a text may well articulate masculine desires and anxieties, but, in this event at least, it is the dual technology of *video* itself (tape and player) as much as the images it conducts, that is used by the father in maintaining and reworking power relationships. The video-as-technology's affordance of simple interactivity (of being able to be stopped and rewound) is at least as significant as the hermeneutics of identification and positioning by the video-as-text. Thus if Walkerdine is concerned with the relationship between the masculinities offered by the film as text and those constructed and asserted in the actual space of this home in part facilitated by domestic video technologies, my concern for now is the obverse, with the more banal fact that any such relationships can be predicated on, or afforded by, the basic interactive technologies of the VCR, video tape and the handheld remote control unit. This 'obversion' issues a further question regarding agency and determinism: does the father 'decode' the video apparatus to reinforce existing power structures, or does the apparatus through its distinct affordances 'suggest' and/or actually facilitate new forms by which to assert or exercise power? Such questions will be addressed in Part 3. The applicability of film theory's notions of identification and subjectivity to videogame play and players will be explored in Part 4.

rites

Julian Sefton-Green's essay 'Rites: a small boy in a Poké-world' (2004) is concerned with the consumption of the various manifestations of the *Pokémon* game-universe (trading cards, videogames, merchandising, television series, film and so on), through a year-long study of his 6 year old son's investment in this new universe (Sefton-Green 2004). Sefton-Green is primarily concerned with the educational aspects and possibilities of children's collecting and playing with these products. The essay is useful here not only because it studies the everyday videogame play (within the context of *Pokémon* as a transmedia 'entertainment supersystem' (Kinder 1991)), but also for its small-scale and subjective research method. Admitting that 'sociological studies aren't usually personal', Sefton-Green justifies his approach by pointing out practical difficulties in long-term and in-depth ethnographic study of children in their own homes and notes that

> all studies of children's culture pose a series of methodological challenges. It is difficult to get an understanding of how children make sense to themselves of their toys and games. Studies that rely on observation or on discursive analyses are hampered by the researchers' distance from their subject matter (Sefton-Green 2004: 141)

He points out that, because videogames are such a neglected and under-researched media form, 'there have been pitifully few studies of the pleasures or meanings players derive from their game-playing' (Sefton-Green 2004: 141).

Sefton-Green's offers significant insights into computer games as distinct media forms and their play as distinct cultural practices, and does this through 'thick description' of particular play-events and practices (Geertz 1993). For example, Sefton-Green documents his son's overcoming of a difficulty with playing the Gameboy version of *Pokémon*. Gameboy sessions alternated with intense periods of study, poring over the magazines, rehearsing plots and remembering cues. He learned all the maps within the Poké-world and the locations of secret keys and potions. Obsessive discussion about how to get his Pokémon characters to grow levels (evolve) and to have enough strength and / or hit points to defeat the enemy he knew he was going to face...

> Towards the end of the game he did get very frustrated with his ability to defeat the Elite 4 (the penultimate challenge) and eventually he sought help. About 75 hours into the game, on a visit to the home of family friends who had older children (and Gameboys), Sam asked for their assistance. The older boys gave him some advice and also allowed him to hook his Gameboy to one of their machines to swap characters; taking pity on him, they gave him a well-developed Golduck (level 60). At that point, Sam essentially saw the game as a personal individual challenge and because he was not part of a larger community of players he seemed indifferent to the social dimension provided by this aspect of the game. Crucially, from his perspective, when he was given the Golduck, he also learned a "cheat": "You go to Viridian City and talk to this person who tells you how to train Pokémon. Then you go to Cinnabar Island and swim along the right hand edge. When you find a Missingo it changes to what's top of your list [of objects carried with you] to more than a hundred; and if it's rare candy [which enables Pokémon to evolve] you can grow your Pokémon" (Sefton-Green 2004: 147).

This cheat 'transformed his attitude to the game' and he completed it and other versions much more quickly. Sefton-Green's point here is to note the significance of social networks and knowledge often necessary to successfully engage with a videogame. This is more than discussion about a preferred media text in the sense that children and adults talk about popular television programmes. The player must learn to play the game, must often solve puzzles or try numerous different approaches to a level before finding the correct course of action. Not only are games and their playing distinct from television and television viewing, but moreover, they require on some level an understanding of their distinct nature as interactive computer media 'texts' or technologies. Sefton-Green's describes the experience of the *Pokémon* game as one of tension between the game's imaginative world (its diegesis) and its formal constitution as a logical (software) system. For example a hyperpotion powerup might be saved for a favourite character, Butterfree, rather than given to the more strategically powerful Vaporeon:

> For Sam, part of the challenge of the game was learning to see it as a discrete rule-bound process in and of itself and not as a natural phenomenon that could be addressed following the logic of the TV series (Sefton-Green 2004: 151).

Returning to the value of a microethnographic method then, the 'cheat' that proved so useful to Sam may well be identified, in larger-scale approaches to empirical research, as a significant element of videogame culture. But the complexity of its functioning as, at once, a software convention, a gameplay tactic, and a social resource would be invisible, as would the overlap between virtual and physical play (for example role-play games based on *Pokémon* characters and dramas) and the intellectual demands of videogame play. In his play, Sam does not differentiate between old and new media. He made up songs about his favourite Pokémon, played with Pokémon toys in the bath and enacted Pokémon -style battles with friends. Though books and magazines are as much a part of Sam's engagement with the Poké-world as videogames are, Sefton-Green suggests that we may be seeing different kinds of engagement with 'old' media in these videogame play cultures: Sam is an intense auto-didact, educating himself in the minutiae of a simulated world, but devours this printed material not only to immerse himself in an imaginative fantasy world, but as information or tools for play.

Between the accounts of literacies and numeracies, Sefton-Green's study reveals a vision of a transformed everyday life / media culture, newly populated with alien species, shot through with 'colourless energy' and hyperpotions, and governed by the conflicting systems of children's media drama and software logic. Sam lives in an ecology that is both virtual and actual; and simultaneously playful and very serious. It is unfortunate then that Sefton-Green's pedagogical concerns so limit his conclusions:

> If Sam was initiated, we must then ask what was he was [sic] initiated into? One answer would be into the practices of consumer capitalism and the canonical/core texts of contemporary media culture. This raises the question of whether Pokémon is teaching children anything more than how to participate in more practices like Pokémon. In other words, is Pokémon at heart a curriculum in consumption that trains children for accumulation in later life? Or, as I argued in the section above, does Pokémon teach children skills (including how to read various sign systems, including text or number) and attitudes (such as perseverance) that they are able to transfer to other life contexts? (Sefton-Green 2004: 163)

Here the bad objects of commercial popular culture and play return. Sefton-Green forgets all the richness of his son's play and the varied affect of the Pokémon products in this play, validating instead a numbing instrumentalisation of play as educational, its practices 'skills' to be transferred to the more worthy 'life contexts'.

Though small-scale and non-sociological, Sefton-Green's study is still broader than the microethnographic approach I am suggesting. His research data was gathered over a year and covered the

wider social context of Sam's Pokémon play. The next examples to be discussed, both of individual

videogame play events, are closer to the scale of research and mode of attention I am concerned with here

and both – albeit briefly and sketchily – touch on key issues of the distinctive nature of videogames, as

virtual environments in everyday life and as software-based media respectively.

playing the Internet

Sonia Livingstone recounts a story from her research:

> Two eight year old boys play their favourite multimedia adventure game on the family PC.
> When they discover an Internet site where the same game could be played interactively with
> unknown others, this occasions great excitement in the household. The boys choose their
> fantasy personae, and try diverse strategies to play the game, both co-operative and
> competitive, simultaneously 'talking' on-line (i.e. writing) to the other participants. But when
> restricted in their access to the Internet, for reasons of cost, the game spins off into 'real life'.
> Now the boys, together with their younger sisters, choose a character, dress up in battle dress,
> and play 'the game' all over the house, going downstairs to Hell, The Volcanoes and The
> Labyrinth, and upstairs to The Town, 'improving' the game in the process. This new game is
> called, confusingly for adult observers, 'playing the Internet' (Livingstone 1998:436).

This brief account both validates ethnographic research (cybercultural studies could not predict the richness

of these slippages between the virtual and actual) and cries out for a more investigative approach to

ethnography. It is tantalisingly illustrative of the fundamentally enmeshed relationships between technology,

media, imaginative play, 'real' and 'virtual' space, yet the event is offered merely as an interesting aside to the

primary research concerns, and its implications are left unexplored. It is a reflection of the problem

mentioned in Part 1 that new technologies may be visible and available for analysis at moment of 'impact' (or

breakdown) but not once they 'adopted' and naturalised. There are questions here of how to study something

so thoroughly woven into the fabric of everyday life, to use Roger Silverstone's phrase in his book on

television in everyday life (Silverstone 1994: 3). To pursue this textile metaphor, the fabric of everyday life

must be torn, or more accurately - given the fact that even a naturalised domestic media environment is still

woven together from heterogeneous threads – unpicked.

code(s) and zombies

The following extract from a study of videogame play does, in passing, pay attention to the specificity of the

videogame as an actor within the event of its playing. The article identifies intersecting layers of engagement,

play and software. Like Sefton-Green the authors are concerned with the educational implications of

videogame play, but their method – asking one boy to play *Super Ghouls 'n Ghosts* (a Super Nintendo

Entertainment System game published in 1991) and the other to ask questions and commentate – is simple but highly effective in drawing out the complexities of these levels:

> Louis: What is the game play about? What are you actually doing here?
>
> Jack: Well, you're ... what you do is you go around shooting zombies, with weapons like daggers, arrows ...
>
> Louis: Like medieval - time weapons?
>
> Jack: Yes
>
> [...]
>
> Louis: Now, do you like playing the game normally, or do you like having it with the codes inputted?
>
> Jack: I like playing it with ... both
>
> Louis: Oh, OK ... What kind of codes would you put in for the action replay, which we have at this moment, Da Dah!!!!
>
> Jack: I would, I would put ... 'continuous jumping', which means you can just jump, and jump, and just keep jumping
>
> [...]
>
> Jack: Like, how about ... I wish I was Knight Arthur. Could you please explain who Knight Arthur is?
>
> Louis: He is the character you play in this story. I wish I could be Knight Arthur with my little pro-action replay plugged in ... and then I would turn on, I'd turn on the action again. I'd put in, let's see, 70027602 in the code importer, and you would get, you'd be immune to enemy attacks if ... I can walk around it going through flames and lava and big demons like hydras and things
>
> Green, Reid & Bigum (1998: 28)

It is worth noting the sheer complexity of this gameplay – within the same breath the boys are talking in terms of symbolic content (monsters and knights), virtual space, identification with characters / avatars, yet they are also engaging with the game as software, simultaneously ludic and algorithmic, offering tactical variations within a system (cheats): a manipulation of the gameworld at the level of program as well as symbolic content.

This simple but imaginative method of opening up videogame play for study employed by Green, Reid and Bigum is both productive on its own terms and suggestive for this thesis. Three of its aspects are of particular interest: firstly as an example of small-scale participant observation or microethnography; secondly in the insight it gives into the distinct nature of videogames as media 'texts' in play, the layers of literacies, code and activity, it is a rich source for the 'cybertextual analysis' of videogames explored in Part 3.

Thirdly it is notable that even this brief conversation documented by Green, Reid and Bigum would unsettle any attempt to straightforwardly apply Film Studies' concepts of spectatorship and identification to these boys' relationships to these screen images and characters. This will be returned to in Part 4.

summary and issues

The ethnographic studies, discussed above (and in Part 1), demand a more subtle theorisation of the relationships between the virtual and the actual in everyday play than either cybercultural dreams of cyberspace or Cultural and Media Studies' sceptical assertion of the power and persistence of historical, economic and social frameworks and hierarchies. Thus, people do experiment with gender identity in virtual environments such as LambdaMOO in new and playful ways, though this play is shaped by negotiation between actual world identities and virtual world affordances. Children's play, a domestic environment, and a computer game are reciprocally transformed, the everyday lives of children and adults are permeated by colourless energy, by entities that are hybrids of computer code and symbolic figures: medieval knights energised by cheat codes, or the humour and hyperbole of a cyberferret. It is no accident that I have quoted the more exploratory, descriptive passages from these case studies as, I would argue, they demonstrate the necessity of *description* in teasing out and attending to the new and hybrid as well as the established and the familiar.

However, in some of these studies, such moments are at best secondary to the main research concerns and questions. This is in large part due to the issues identified in Part 1, the ambiguous and unsettling role of media technologies within such research, and the a priori assumptions of human agency as prime object of study. It is also due no doubt to the scarcity of theoretical resources in the acknowledgement of play as a salient concept. Sefton-Green is evidently fascinated by the processes of play in his son's engagement with Pokémon, but does not arrive at a conceptual position from which to work with it. The children in Livingstone's anecdote reengineer their world from virtual and actual parts in and through play, yet it is remarkably difficult to explore this world with established critical frameworks, concerns and vocabularies. Walkerdine's observations highlight a crucial aspect of play that has to date barely been mentioned in game studies: i.e. that play may not be an unambiguously creative, 'positive' cultural force. The father in Walkerdine's study plays with the capacities and affordances of the VCR and remote control, and with the rhythms and action-filled moments of the film, but in doing so he reproduces or extends his domestic power. Both a theorisation of play, and a close, descriptive, attention to play itself is needed.

These examples also highlight the surprising scarcity (mentioned in the Introduction), in new media studies, of research concerned with the analysis of software as media or cultural form. The studies by Sefton-Green and Green, Reid and Bigum clearly indicate the need for this, the operations and affordances of videogames as software are inextricable from their uses, meanings and play in everyday life. The microethnographic study presented below acknowledges the crucial role of games as software.

The next section of this thesis then is an initial step towards a descriptive, exploratory microethnography that recognises modes of play, digital media technologies, and questions of agency (human and nonhuman) as objects of study. It does not however lose sight of more familiar research objects: domestic space, established media and toys, familial relationships, and children. This study exemplifies and amplifies some of the key concerns set out in Part 1. It studies the everyday consumption of videogames as new media images, environments and technologies, foregrounding the concreteness of the everyday, domestic context of the gameplay. Beginning with a detailed description of the game itself, the study indicates, on the one hand, the scale and nature of the similarities and differences between videogames as computer media 'texts' and longer established (and more thoroughly theorised) screen media texts of television programmes and films. On the other hand it introduces and describes elements of the game itself, the recognition of which is necessary to a study that highlights the operations of nonhuman entities. It also, I suggest, draws descriptive and critical attention to the improvised behaviours and semiotic excess evident (but undertheorised) in play.

2.2 microethnography of virtual and actual play

Lego Racers 2

Figure 9: playing *Lego Racers 2*

I had picked up a free pack of three computer games on CD-ROMs from PC World, a promotion for NVidia graphics chips (each game uses 3D graphics). One of the games did not work on our PC, but the other two quickly became favourites with my two sons, particularly the elder boy, Jo. One of the games, *Tux Racer* - a racing game featuring polar animals sliding down a mountainside on tracks that combine skiing pistes and bobsleigh runs, was played by both of them. Alex, who is not particularly interested in computer games, could press the key that controls speed whilst Jo, myself or their mother, Penny, steered his penguin, seal or polar bear.

It was the other game, *Lego Racers 2*, however that captured their imaginations. They both enjoyed the novelty of seeing, and controlling, Lego cars and 'men' on the computer screen and the humorous elements of the game that link the virtual world with the actual world of familiar play with plastic toys. The game was played on a PC in the living room. The machine is used by the whole family for game-playing, word-processing, internet access, photo viewing, and web design work. Jo played a range of games on the PC, including Flash games for young children on the BBC website, 'edutainment' CD-ROMs and commercial videogames, often based on media worlds and characters he was already familiar with (e.g. *Scooby Doo*, *A*

Bug's Life, Buzz Lightyear). He also played occasionally on a Playstation, an ageing Nintendo Gameboy, and a handful of Disney-licensed edutainment CD-ROMs on an old Apple Mac set up in the attic.

The commercial strategy of cross-media licensing is well-established in children's culture (Kinder 1991), and *Lego Racers 2* is far from unique in making links between media forms and genres and toys (other successful recent examples include of course *Pokémon*, and games based on the films of *Harry Potter*, *Star Wars*, and *James Bond*). However, *Lego Racers 2* makes direct and witty links between the gameworld and its objects and the physicality of Lego as a toy. For example, the player at the start of the game is given the option of building their own car and driver. A menu system offers ranges of virtual bricks from which figures and vehicles can be built. In the game proper, crashes result in bricks breaking off from the cars. Whilst the cars in the game are controlled in ways familiar from other racing games, they are represented explicitly as Lego cars, built from bricks and – implicitly acknowledging the pleasures of play that constitute the flipside to Lego's promotion of its toys as for *construction* – destructible back into bricks.

the game

The game begins with a computer-animated swirling snowstorm of Lego bricks that quickly settles itself into the Lego logo. The words 'Lego Software' appear, and the face of a Lego man winks invitingly at the player from the 'O' of 'SOFTWARE'. There follows a few more animated logos for the various developers and publishers of the game and then a video sequence is presented.

A dejected figure carrying a crash helmet walks through a sunny environment of palm trees and small buildings. The figure is clearly a Lego figure. Though his body is rendered as being slightly more flexible than the toys themselves, his segmented frame and characteristic geometry are immediately recognisable. It is windy and pieces of paper blow past the man's bowed head until one is blown into his face. He pulls it away and reads what appears to be a flyer or brochure for 'Xalax'. Galvanised, he puts on his helmet, jumps into a Lego racing car and quickly accelerates through a large hoop circumscribing a rippling surface. This device is familiar from a range of science fiction and fantasy texts as well as videogames as a 'portal', a gateway between one world and another. Jo recognised it as such, I suspect from the animated children's version of the television science fiction series *Stargate*. The video sequence cuts from the car disappearing through the portal to its arrival at great speed through the 'other side'. The car speeds past a small group of figures and cars, sending them spinning round in its wake. The scene is no longer a sunny island, but an alien landscape of pinks and purples, populated by blob-like creatures, who quickly jump into

their own cars which, though more futuristic in design, are still recognisably Lego. These aliens give chase and a high velocity race ensues along a track of vertical loops and impossible jumps and ramps. The first car and racer transform (the transformation is rendered through the stripping away of bricks and the reassembly of the car with new Lego bricks) into a sleeker white car with stars and stripes decoration reminiscent of the stunt motorcyclist Evel Kneivel. After further exhilarating jumps over fire and lava flows, and through pipes (the cars driving right over the top of one another as they loop through the pipe), the chase ends – its apparent aggression dispelled as the initial racer and his alien pursuers slap hands in recognition of a well-run race. The racer's triumphant salute is frozen and the scene dissolves back to the island setting and a billboard poster of the racer being lowered into place by a crane.

As is customary with cutscenes (pre-rendered, non-interactive animated sequences) in videogames it is possible, by hitting a key, to stop the video and move straight on to the game. The cutscene establishes the diegesis of the game, hints at levels beyond those immediately accessible to the player, but is largely superfluous to the game itself. The distinction between these two aspects – the animated video sequences and the user interaction with the game proper – clearly maps the videogame's status as at once part of established popular screen media, and as 'interactive' new media form. A 'loading' screen follows – illustrated with a vignette of a Lego-based world, and dominated by an animated bar that travels across the screen indicating the progress of the loading of the first section of the game. Eventually the main menu of the game software appears. If left, i.e. if the player does not soon begin to make selections, the game runs pre-rendered sequences of races in the various levels of the game hinting at the worlds waiting to be explored.

One of the first decisions the player must make is to choose a name. A screen lays out the alphabet on a grid and the player must move a cursor around this grid using the arrow keys on the computer keyboard, selecting letters in order with the Return key. The player, via his or her avatar (the game character controlled by the player), will then be addressed by this name by non-player characters (NPCs) and in results lists throughout the game.

Among the choices offered by this menu is one of choosing between the two main modes of play, 'arcade' and 'adventure'. Arcade mode pits the player against a set of computer-generated and controlled opponents in a series of races round the Sandy Bay track. To progress to new tracks and environments / levels, the player must win or be well-placed in a set number of races. Sub-options include multi-player games and choice of number of laps per race. The adventure mode allows players to forego the race in favour

of more open-ended driving, exploring the environment / level and, if so wished, finding and completing sub-missions. These games-within-the-game are instantiated by finding and driving into tiny whirlwinds, often on the top of hills. Once a mission has been selected the dynamic of the gameworld changes. The topography remains the same, but its NPC population changes and it shifts into a different temporal order – a time limit is set for completion of the mission. This temporal and temporary landscape is now populated by new characters existing only for the duration of the mission. For example a mission might require the player to replace the Sandy Bay taxi driver for a short time. The interface displays a new radar-like map on which are marked the positions of characters requiring a lift. Each character will then give instructions on where they wish to be taken. The mini-game is to complete as many of these journeys as possible within the time allotted. Presumably (neither Jo nor I have yet finished many of these missions) completion of enough of these mini-games allows access to the next level.

The *Lego Racers 2* interface uses a mode of representation common to a number of the most popular genres of contemporary videogames. Its viewpoint is 'third person', i.e. the avatar, or player-controlled agent on the screen is positioned immediately in front of the virtual camera in the bottom half of the screen. Alternative conventions include 'first person', most notably in the tremendously popular genre that is to a significant degree defined by this characteristic: the first-person shooter. Perhaps the most famous is *Doom* (id software 1993), from which many of the most popular online first-person shooter games claim descendence. This terminology is adapted from film theory's notions of subjective camera. In these games the images, space and events are presented on screen as though from the player's own point-of-view in actual space. *Doom*, and its predecessor *Wolfenstein 3D*, introduced the initially humorous, but now thoroughly conventionalised, device of depicting virtual weapons at the bottom of the screen protuding into the virtual space as though carried by the player and 'seen' from his or her first person perspective. Car racing games almost always use the third person (the player's point-of-view / virtual camera angle always hovers immediately behind the avatar as the avatar is directed through the three dimensions of the gameworld – down paths, through tunnels, and up hills and structures) as a default, though many allow the option of a first person viewpoint (i.e. the player's point-of-view in looking at the on-screen events is contiguous with the view out of a car windscreen from a driver's point-of-view). Some adventure games such as the popular *Tomb Raider* series use third person perspective. So the default view of Lara Croft as the avatar is from immediately behind her. Using conventional concepts of genre from Media and Film Studies, the cartoon colours and characters of *Lego Racers 2* seem a long way from the *Indiana Jones*- inspired

action imagery and diegesis of *Tomb Raider*. Videogame genres are often identified by their structure and interface (in these cases the relationship between player and avatar as mediated by the virtual camera) rather than their symbolic content.

Figure 10: top: first-person perspective (l. *Doom*, r. *Halo*) bottom: third-person perspective (l. *Lego Racers 2*, r. *Tomb Raider 2*).

The viewpoint then is of an environment rendered in three dimensions. Again this mode of representation can be traced back to earlier racing games and FPSs. Early arcade games such as *Battlezone* (Atari 1980) used wireframe or vector graphics to simulate conflict within a computer-generated arena, but it is in the development of racing games that the developing aesthetics and pragmatics of depicting (and to a more limited extent exploring) a three-dimension virtual space can be charted. Racing games predate the first person shooter and are one of the more persistent genres.

The interface of *Lego Racers 2*, like those of most 3D videogames, presents a mixture of 'immediate' and 'hypermediate' representational systems (Bolter and Grusin 1999). Its rendering of a three-dimensional,

immersive world is 'immediate' in Bolter and Grusin's terms – the player is encouraged to feel that they are within the gameworld, or at least that the gameworld has some kind of concrete existence and coherence within which they direct their avatar and with which they interact. However this is not 'virtual reality' in its purest sense and other types of information are presented through various representational systems including dynamic maps showing the position and movement of the avatar and NPCs, and numbers informing the player of their position in the race. A number of recent games presenting a military and / or science fiction diegesis naturalise this *hypermediate* representational strategy as a 'head up display' or HUD. In *Lego Racers 2* these two disjunctive representational modes are bridged by a giant green arrow that hovers over the driver / car pointing it in the correct direction. The arrow is at once an abstract informational device, like the HUD maps and timers (a Piercean *symbol* to the *icons* of the figures and landscape), yet it is rendered in three dimensions, so it also exists within the three dimensional game world.

Figure 11: instructional navigation in Sandy Bay

Cars, buildings, trees, furniture, drivers and other figures are all depicted as constructed from Lego bricks, whilst the landscape itself, grass, hills, sand, sea are generated by the standard texture mapping and polygon imagery / structure. Pixellated textures are smeared and blurred to give a more convincing impression of natural variety than the clearly repeated elements of *Doom* and *Tomb Raider*.

playing Lego Racers 2

In 'adventure' mode the *Lego Racers 2* player has first to construct the driver and car. Following the logic of actual Lego construction, the driver / avatar is made up from a selection of bricks 'printed' with various faces and indications of clothing. Constructing the car is more complicated. Menus at the top of the screen scroll sideways, offering a range of types of bricks, and submenus offer particular bricks within these ranges. When a specific brick is chosen by the player (left and right arrow keys slide the menu left and right and the return key is struck once the required brick rests in the middle of the screen) its image hovers over the car under construction. The player positions it over the car and hits return to drop it into place. There do not seem to be many restrictions on the style or number of bricks thus added, and whilst the completed construction subsequently appears in the game, the design itself has no effect on the performance of the car or behaviour of the driver.
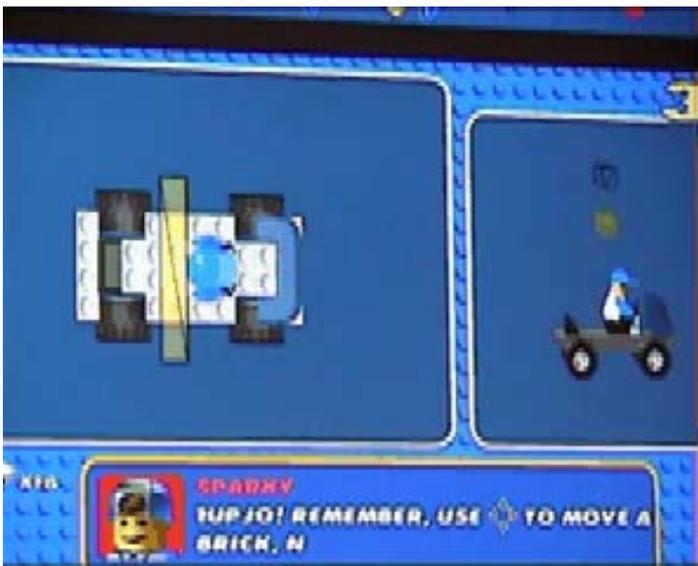
Figure 12: virtual construction

Once the design has been completed, the game itself begins – with a tutorial. An animated Lego figure (in close-up) instructs the player via panels of text. For example the player's first task is to drive the car to a beach to meet the instructor again. The green arrow points the way, and through this simple task the player learns how to direct the car and something of the kinaesthetics of the car and the gameworld. Whilst the movements and speech / text of this instructor are pre-rendered, the contingent avatar car / driver as constructed by the player are also visible in these sequences.

emergent play

As indicated earlier, one of the most immediate differences between videogame play and other forms of screen media consumption is the requirement on the player to possess or acquire the relevant skills or competencies needed to play. These include motor skills, knowledge of game conventions, intellectual skills of deduction, experimentation and problem-solving. Jo quickly found that the arcade mode of racing against the NPCs was no fun, his motor skills of hand-eye coordination that were not yet adequate to competing with the computer in a race. Taking bends with literally mathematical accuracy, the computer-controlled vehicles disappeared from sight almost immediately. However, it soon became apparent to Jo that his car was not restricted to the track, or its immediate borders, as is usually the case in racing games. Rather, the Sandy Bay track loops around a fully explorable island with a beach, a town, and mountains with no marked distinction in virtual friction between track and other surfaces. Even in arcade mode the player can leave the track and explore at will. From this revelation on, the game changed. It first became a game of exploration. Jo adopted a free-roaming, exploratory approach to the game, finding tunnels and tumbling down cliffs. Thus as well as establishing constraints (of ability and experience) on the player, the software also offered different modes of play and facilitated different virtual activities and pleasures.

Figure 13: virtual gravity, virtual death

kinaesthetics

Soon though, certain repetitive patterns of activity became apparent within this overall exploration. Jo soon discovered that the car / avatar could both ascend near vertical cliffs and drive off them with little or no

damage to the car and so he began to explore and play with the gameworld's gravity. These virtual physics retained enough grip to lend a tangible sense that if the player were to stop impelling his or her car forwards, it would tumble back down to the valley. This loose and lunar gravity afforded the kinaesthetic pleasures of exhilarating descents too, the cars bouncing slowly yet inexorably downwards. For a time this offered sufficient pleasure in itself, an exploration of both the extremes of the gameworld's landscape, its hyperreal gravity, as experienced through the control of the car / avatar.

The climbs and falls in Jo's vertiginous game of ascending and descending cliffs do not occur in the friction and gravity-less worlds of *Space Invaders* or *Pac-Man*. The car must have some momentum to make such a climb and as it bounces up the slopes must make enough contact with the ground to maintain this momentum. To play this ascent/descent game the player must implicitly understand this simulated but real relationship between the momentum of the car, the friction afforded by the topography and the gravity of the gameworld.

Even these sketches of a single example of the playing of a videogame demonstrate that to play a game is not only to react to onscreen events or to follow one's own path through an interactive narrative or space; it is also to engage with, learn and exploit the game's 'physics', its gravity, its centrifugal forces and frictions. This is particularly marked in *Lego Racers 2* as the gameworld's physics establish a simulated space whose gravity is significantly less powerful than that of the actual world. The cars bounce higher, and fall more slowly than actual cars or toys. On a practical level these forgiving physics (and pathology) are motivated by the needs of gameplay (and may in fact be a pointer to one of the primary pleasures of videogame agency and control). There are examples of entertainment software (they are not strictly speaking games) that aim to accurately simulate the actual world and its technologies, for example flight simulators or some kinds of military simulators. Their formal differences and the different pleasures they offer highlight the significance of the simulation of non-actual physics for the videogame.

games within games

Though such vertiginous manoeuvres generally had little effect on the car / avatar, beyond a few bricks shed on particularly spectacular impacts, it soon became apparent that the car / avatar could be destroyed if driven or dropped into the sea. Usually 'death' in a videogame marks failure - temporary or terminal - and results in frustration for the player. However given that Jo's exploration had no set goal and the fact that the game was configured to allow infinite numbers of lives, this repeated death became a simple game in itself.

The car / avatar would begin at the race start, veer off the track to pursue the shortest route into the sea and hence into momentary death. The car / avatar would then instantly reappear—re-animate—in a swirl of stars reminiscent of graphic conventions from comics and cartoons of minor head injury.

Figure 14: reanimation

A new variation emerged. Jo found that driving the car slowly and carefully into the sea allowed a more nuanced experience of drowning than that offered by plunging off a cliff. The car could be directed into the water and gently nudged deeper, until, just before its uppermost point (usually the top of the driver's

head) was submerged, it 'drowned'. The motive of this new game then was the identification, and the edging around, of the precise point at which the game switched between life and death.

On watching video footage of Jo playing (often attended and encouraged by his younger brother) it became clear that these little improvised games were constituted by the complex interaction between the gameworld's physics, the affordances of software elements (notably those of the car / avatar), the transmedial suggestions and humour of this particular game (linking it to prior knowledge of the Lego franchise in its actual instantiations), and the characteristics of more traditional children's play and toys, notably the pleasures of exploration and creative destruction. For example, one of the game's funniest features is that when a car crashes, a few of its Lego bricks break off. Enough collisions and the car will eventually be stripped down to a chassis (with no apparent effect on its capabilities as a vehicle). One more crash however and (deliciously) the player is left with the Lego man on his own, no longer a driver but able to blithely run across the gameworld. We were all disappointed to find out that, after much effort and experimentation with collisions and suicidal leaps into the path of non-player cars, the game does not allow the man, as Jo put it, to 'break into two legs'.

a non-virtual video game

I initially resisted picking up the video camera on this occasion as I did not want my pleasure in watching my children's play to be invaded by 'work'. However, when the boys recreated the *Lego Racers* gameworld with actual Lego bricks (and Megablocks, another brand designed to be compatible with the larger Lego Duplo bricks), they replicated the features that most excited them in the game: quickly building steep mountains and drawing a beach and sea on a sheet of paper to lay on the floor beneath the mountains.
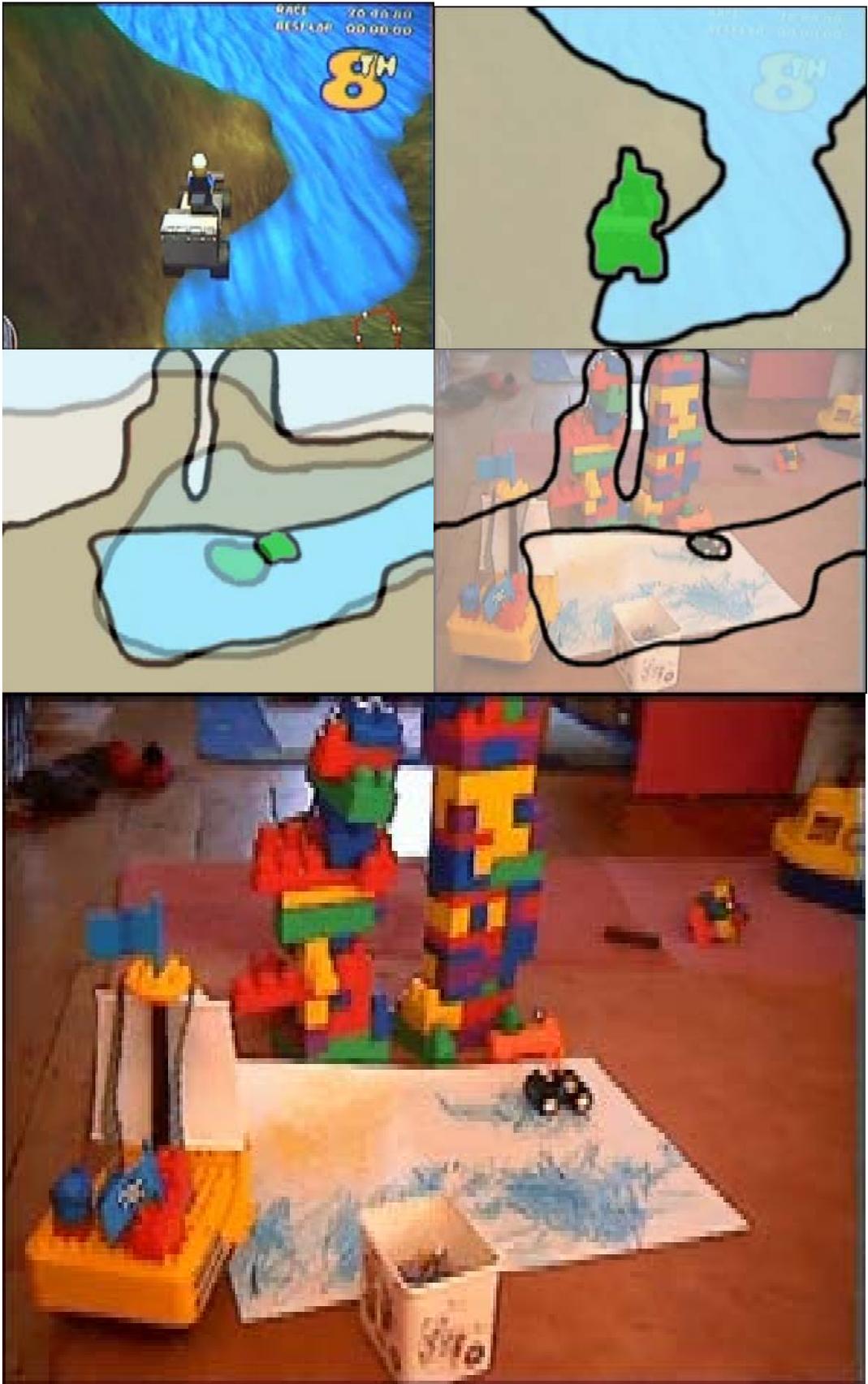
Figure 15: virtual and actual gameworlds

The improvised replication or performance of settings and environments from literature and media in children's play is hardly new and spatial elements such as topographies, maps and architectures shape games and play from Lego and dolls houses to board games and theme parks. However it was apparent that this particular translation was a response to the specificity of computer-generated gameworlds as spatial form. The boys were not merely constructing a backdrop for their translated play of the computer game, they were constructing it *as* space, and as an actualisation of *virtual* space. The topography of the mountains, beach and sea was not only animated by the actions and dramas of driving toy cars, this space and action was animated by both videogame form and a translation of the kinaesthetics of Sandy Bay's virtual physics.

Figure 16: Go!

The boys constructed cars and drivers from actual Lego and raced them around the living room, making engine noises and shouting, before arriving at their plastic and paper gameworld. The 'race' itself was non-agonistic, driven by enthusiasm for the dynamics and noise of speeding virtual cars not

competition. The race over, they began to drive their Lego cars up and down the mountains, but (and I did not notice this until I watched the video footage later) in the tractile dynamics of the cars they simulated the low-gravity physics of the videogame environment. The cars lurched up the cliffs, teetered at a vertex where dwindling virtual momentum succumbs to the faint but insistent pull of virtual gravity, fell back – slowly - bouncing down to the beach. Down here the drowning game was re-enacted, the car and driver held over the drawn sea, hovering, descending, then emerging again. The videogame world's liminal state between land/life and sea/death was re-played out in an actual game environment, the point of death (like the momentum / gravity vertex) determined by an embodied memory of videogame kinaesthetics.

Figure 17: playing with virtual physics

menus

Not only were the images and actions of the computer game being played out with real toys, but the ways the boys played with actual Lego was now quite different from before their experience of the computer game. The boys were not only continuing the game of racing Lego cars begun on the computer screen – its characters, scenarios and dramas – rather they were playing with actual Lego as if it were a videogame. They were on one level playing at playing a videogame. For instance, the actual Lego cars and drivers were constructed through a translation of the videogames menu-driven start up processes. I was instructed by the boys to choose the cars and figures to be played with from a range they had constructed. Initially this choice was made as they were constructing the vehicles, but later the process was repeated more formally, with cars and drivers neatly laid out along the arm of the settee. The process of selection was translated into well-established patterns of actual play: on screen no qualitative or quantitative value is placed on any selection, in our living room effectively two menus were set up, each comprising vehicles built by one of the boys. A

familiar sibling / parent politics of attention-seeking and turn-taking was brought to bear: the eldest boy was most insistent so his car was chosen first, his younger brother Alex was keen to keep his menu in play though: 'later, can you choose this one?'.
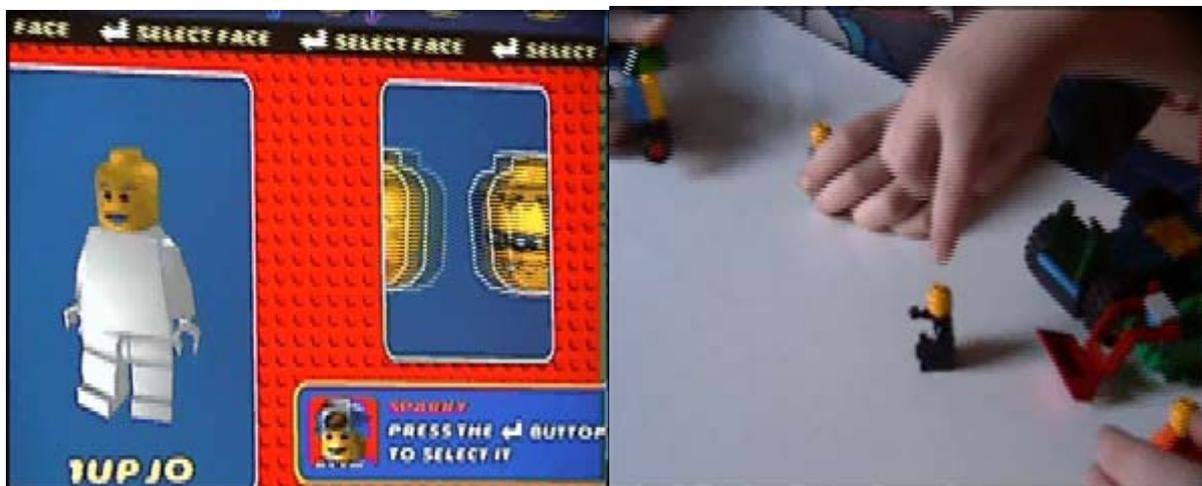
Figure 18: choices and menus

game control / agency

I was not offered any input into the design or construction of the actual cars, the only interactivity I was allowed was the decision over whether one driver should wear his baseball cap forwards or backwards. In fact, on studying the video record, my role in these games proved instrumental to opening a whole complex of actions, choices and translations arising from the peculiarities of the videogame medium and its articulations or channelling of agencies. It became clear that an entirely unexpected set of shifting identifications and affordances was at play in these shifts from screen to living room and back.

As they careened across the floor, racing each other and crashing into and leaping over the mountains, I was instructed to 'use the keyboard'. It became apparent that I was expected to play the role of the 'player', 'clicking' (with my fingers on the arm of a chair or on a book) imaginary keys to make the Lego Racers go 'forward!', and 'faster and faster!'. Of course my role was in some senses redundant – my finger movements had no influence on the direction or velocity of the Lego Racers (human or plastic) – yet the passion with which I was remonstrated when I stopped my performance indicated that this role was, in some way, a significant one.

Figure 19: playing the Player, using the 'keyboard'

My role then was a passive performance of activity or interactivity. The videogame dyad, the circuit between player and avatar, was simultaneously collapsed and expanded: the boys and their cars were the avatars 'in the game', the agency of the player assimilated into the new boy/car/avatar and the residue (the empty performance of key pressing and looking on) displaced to another, 'interpassive', body. The sheer complexity of these circuits, translations and feedback loops was brought home to me with the following sequence of events: at the start of the actual game, once cars and drivers had been selected, Jo asked me to write my name ('D.A.D.D.Y.') on a piece of paper, a translation of the familiar entering of the player's name or nickname at the start of the videogame. This activity is consistent with my passive 'player' role.

Figure 20: enter name

But when I asked Jo why he wasn't writing his own name he replied, hesitantly, 'I don't have to…. I'm the one who makes the Lego Racers go…'. I tried to draw him on this, excited at the implications of this for

theories of identification in videogames. That is, Jo might be identifying himself (through role play) directly with the computer or computer game rather than the characters, the Lego car or man. He was not the 'player' so he didn't 'sign in' but neither was he simply the 'avatar'. It is then the game itself, perhaps thought of as the game software or game engine, that actually 'makes the Lego Racers go'.

Figure 21: 'I'm the one who makes the Lego Racers go'

I asked Jo if he *was* the game, and he hesitantly answered 'yes'. I realised though that I was pushing him and that if he was 'playing *as* the game' in the sense I suspected, he wasn't aware of it - at least not in the terms I was using. I stopped asking questions in this way.

findings

This play-event is a rich resource for the analysis of videogames as new media texts. To describe it required the identification of conventions and elements of videogames that mark them as distinct from other, non-digital, screen media texts. Some of these are discussed in more depth in Part 3.3.

virtual and actual space

In the study of this event it became apparent that the rapidly established distinctions between the virtual and the actual across the diverse conceptual frameworks of new media studies are inadequate. Through play these boys shifted across these two spaces with ease, their play adapting to the different environments, environmental resources and the capabilities and possibilities they afforded. The virtual space in this event of gameplay was neither an ideological illusion, nor a transcendence of the everyday and embodied. On the

one hand this is neither the 'cyberian apartness' of cybercultural theory nor the conflation of the virtual, simulation and hyperreality as function of commodified, spectacular postmodernity. Cyberspace here is not a metaphor for Internet communication networks, but a real space to be explored and in which the player can act, and be acted on.

The virtual and the actual were each contained within the other, intertwining, each inflected by the other. Indeed, it might be more accurate to resist thinking of these gameworlds as pre-existing the play-event itself, rather to think of the ways in which they are reciprocally generated, *produced* in and through play, in and through specific play events.

virtual physics

Videogameworlds are constituted by different types of virtual phenomena. The virtual space of *Lego Racers 2* subjects its players to a range of simulated physical forces. Most notably, the boys quickly (and apparently unselfconsciously), acclimatised themselves to the effects and possibilities of weakened virtual gravity. In balancing the forward momentum of the cars in response to the players' input with a lunar downwards pull, this virtual physics become a ludic element in its own right, as evidenced by these boys' delight in driving their avatar cars up sheer cliffs and plunging them into the sea. And again, their translation of this virtual phenomenon—into actual movement and dynamics as they shift their plastic cars between the breakneck velocities of the living room circuit and the slow motion bounce and plummet over the brick mountains— highlights these virtual operations.

A playful and vertiginous kinaesthesia is coded into the gameworld, affording new kinds of games. Yet this gravity is not a universal physical law in this virtual world: the game applies it only to the movement of the car through virtual space. It is brought into being through the player's input (triggering the car/avatar's movement) and the gameworld's management of that input in relation to 'terrain', surface (virtual friction is a factor here too) and other factors. It exists between the operations of algorithms and variables and their engineering of embodied senses of control and resistance.

beyond interactivity

The term 'interactivity' seems increasingly inadequate in the theorisation of videogames and videogame play. I would suggest that we are seeing here less the game designer Sid Meier's description of videogame interactivity, widely cited in game studies discussion, as 'a series of interesting choices' (Meier, cited in Juul

2005) and more a set of overlapping circuits of agencies between human players, media technologies, software, and actual space, objects and bodies.

beyond text

So too the adequacy of the word 'text' to denote the videogame as a new media artefact can be questioned. Even in this small study it is apparent that the videogame is not a text to be read, but rather a ludic machine, constituted not only by images and words, but by kinaesthetic affordances and circuits of physical and intellectual action and reaction between its own elements and elements of the players. Questions of what 'constraints' these technologies impose, or even what they and their images 'mean', seem misplaced; the pertinent question is what activities and events do these technologies (in play) facilitate or afford? The challenges of these observations to the study of videogames as more-than-interactive objects or artefacts or gameworlds will be taken up in Part 3.3.

misidentification

Even in this small study conventional notions of spectatorship or identification with screen characters are undermined. The shifting of players' 'identification' with screen images is driven more by the demands of the various games in play here than any sense of ideological investment by a subject positioned in relation to a fictional protagonist. These boys slip between a number of 'identifications': being the virtual Lego men and being the virtual Lego car-driver dyad; being the constructors of these men and car-men; being at once the child playing with the actual Lego car-men and coextensive with the car-men they are propelling around the room; being the player of a video game and being a meta-player—perhaps the computer (or game-system) itself—in an actual game. Other agencies are imaginatively displaced onto other human participants in the shift from play in virtual to actual worlds. The complexities and implications of this go well beyond established conceptual frameworks, and they will be returned to in Part 4.

microethnography

In reflecting on the findings of this little study, it became apparent to me that my 'microethnography' is not just a variant on an existing set of methods, but rather that it facilitated—indeed necessitated—a more fundamental rethinking of the proper objects of ethnographic research. The micro-events and relationships identified here cannot be separated out into familiar dynamics or entities. Cultural and Media Studies, with its foundational separations between the human and the nonhuman and its resultant focus on consumption

(of objects by subjects) or identification (by subjects with other subjects or objects), and its denial of agency or effects to technologies, cannot account for the circuits traced above. Again, nor can new media studies' investment in the concept of interactivity. Commonly mobilised to validate new media as facilitating human activity and agency, it becomes clear here that videogame players are acted upon as much as they act, that they must work out what the machine wants them to do (or what it will allow them to do) as well as engage with it imaginatively. A key term here is *agency* not subjectivity, and it cannot be restricted to the human participants here: Part 3 will ask who or what are the agents in these circuits, and identifies conceptual resources that can be called upon to allow new media studies to identity and study them.

the event

My establishment of the 'event' as the basic field of research or unit of analysis can similarly be seen as an important ontological shift. In Part 3.1 I will critique the predominance in Cultural and Media Studies of the 'text' as basic unit of analysis in Media Studies, and 'textuality' as the dominant model for the operations of meaning and action in culture at large. Studying the event allows a description and analysis of these ludic virtual / actual intertwinings and the assembly of new relationships of effect and feedback and a questioning of who or what the event's participants are.

Part 3: Towards a new media studies

So far in this thesis it has been argued that popular fears and academic dismissal of videogames are bound up in anxieties about the intimate relationships between the human and the technological that characterise videogame play, and, by extension, are emblematic or symptomatic of dystopian aspects of existing or near-future technoculture more generally. However it was suggested that these anxieties may have some diagnostic purchase, that the intimacies and reconfigurations of control in the act of videogame play do mark a new form of technoculture, but one that should be studied or described without a priori recourse to dystopian assumptions.

It has been argued that new media studies and Cultural and Media Studies must look to videogames as here-and-now, everyday popular digital media artefacts and practices; and conversely that the study of videogames can draw productively on some of the frames of references and methods of these fields of enquiry. However, it was found that the microethographic approach developed in Part 2.2 and its suggestion of the event as unit of analysis - in identifying new objects of study and new relationships from virtual physics to circuits of effect and affect between player, software and other entities – demands new analytical and theoretical resources.

Part 3 will:

1. (in Part 3.1) further the critique of Cultural and Media Studies and new media studies begun in Part 1.3, addressing in particular the limitations of the prevalent reliance on 'textuality' as a mode of enquiry into media images, and its extension to the theorisation of technologies and culture in general

2. (in Part 3.2) suggest and develop alternative conceptual frameworks – notably Actor-Network Theory – for the thinking through of the implications of the identification of technological agency as a key factor in videogame play and technoculture. It will begin with debates on technological determinism and the 'social shaping of technology' thesis, and then ANT approaches will be introduced and suggestions will be made for their application to new media studies and game

studies. ANT has been applied to the study of a diverse range of technosocial systems and phenomena from the design of weapons systems to the practices of scientific research, from medicine to engineering. To date however it has had little to say about either media technologies or media consumption, but its emphasis on nonhuman agency will be shown to be productive in the study of the autonomous and intentional operations of videogame software.

3. (in Part 3.3) draw on new media studies and game studies for models and concepts for the study of videogames as computer-based media, as ludic software. Questions of agency will be central to this 'software studies' and again concomitant questions of how objects and subjects of research in videogame play might be identified and described are raised. This section asks how a cybertextual analysis might operate, through a case study of the videogame *Advance Wars 2* with particular reference to 'simulation' as both a conceptual and descriptive term.

Part 3 as a whole makes little reference to ethnographic work, to questions of identity (these will be returned to in Part 4) but it is important to note that this part persists with the interest in the event as research object, and that where 'texts' are being discussed it is always with the sense of the text unfolded and realised in real time in play by and with human and technological entities. Adopting ANT's insistence on networks of humans and nonhumans, this section will concentrate on the (overlooked) nonhuman forces and entities before Part 4 attempts to articulate models that allow for such circuits in the technocultural event.

3.1: Beyond the media text

Part 1 identified and questioned a dominant textual metaphor employed by Cultural and Media Studies in addressing the consumption of media or cultural artefacts. Part 3.1 will critique this model and its implications for the study of new media: that of 'texts' that are 'encoded' in their production, and 'decoded' in consumption. It will ask to what extent can this conceptual model account, firstly, for the materiality of new media text/technologies (not least videogames) and their 'consumption', use or play; and secondly to what extent is the 'textual' an adequate model for understanding the technological or technocultural more generally?

text

It should be pointed out that the word 'text' is used in different ways by the writers studied in this thesis. Espen Aarseth, for example, (initially at least) uses the term both in its commonly understood sense of written language and also with a literary studies inflection of the text as privileged object of study – these are not the texts on the back of cereal packets, but works of literature or texts of relevance to the study of works of literature. Aarseth's notion of 'cybertext' will be discussed in Part 3.3. I will begin though with 'text' as it is commonly understood, taught and used in Cultural and Media Studies, focussing on the highly influential work of Stuart Hall.

From the early 1970s Hall effected a synthesis of Raymond Williams' cultural materialism with communication studies notions of text, theories of culture and semiotics (notably the work of Roland Barthes) then in the 1980s and 1990s with post-structuralist theories of communication and identity. I will look in detail at a key text from each of these two moments: in the first Hall critiques contemporaneous dominant assumptions in communication theory (Hall 2000 [1973]), offering a more dynamic model of media communication. In the second, Hall draws on structuralist and post-structuralist thought and semiotics, to develop a linguistic model of culture in general (Hall 1997).

I will follow this with an analysis of the ways in which these textual models have been applied to media technology – in DuGay et al (1997) on the Sony Walkman and Mackay (1997) on domestic technologies, including computer technologies – to illustrate the shortcomings of this model.

encoding - decoding

Hall's discussion is densely argued, drawing on semiotic theories from linguistics to challenge established traditions in 'mass-communications research'. This latter, to put it simply, saw communication as the transmission of a message from a sender to a receiver, a process by which the only changes in the message itself come about through 'noise'. Noise here is a purely physical, unmotivated phenomenon: social contexts are not factors in such models and, importantly, the receiver is not credited with any agency in the interpretation of the message.

Hall then develops what he sees as a more dynamic model in which relationships of power between the sender and receiver, here specifically the 'producer' and the 'viewer' of television programmes, are of fundamental importance to communication. Thus the 'message' is not a given, discrete, unit of meaning, but an ideologically motivated encoding of information in the process of production. Hall's example is that of a news report in which the 'raw material' of a particular event is encoded according to the technical and institutional conventions of broadcasting and shaped by class interest. Moreover, and crucially, the 'viewer', in the moment of viewing this coded message, is similarly dynamic.

> ... there is no necessary correspondence between encoding and decoding, the former can attempt to 'pre-fer' but cannot prescribe or guarantee the latter, which has its own conditions of existence. Unless they are wildly aberrant, encoding will have the effects of constructing some of the limits and parameters within which decodings take place [...] But the vast range must contain some degree of reciprocity between encoding and decoding moments, otherwise we could not speak of an effective communicative exchange at all. Nevertheless, this 'correspondence' is not given but constructed, It is not 'natural' but the product of an articulation between two distinct moments. (Hall 2000 [1973]: 515)

Hall argues that the viewer may not 'read' or 'decode' the message into its intended meanings, and established three possible and hypothetical positions'. The first is the "*dominant-hegemonic position*". This is when the viewer of a news or current affairs programme decodes the message 'full and straight', and the dominant code is transmitted. The second, the "*negotiated position*" is a more complex and contradictory decoding, containing elements accepted from the hegemonic position but also some oppositional or adaptive elements. For example it might accept "dominant definitions of events while reserving the right to make a more negotiated application to 'local conditions'" (Hall 2000 [1973]: 516). Lastly, a viewer adopting the "*oppositional position*" is entirely and consciously contrary to the dominant codes of a message, "He or she detotalises the message in the preferred code in order to retotalise the message within some alternative

framework of reference" (Hall 2000 [1973]: 517). The example Hall gives is that of a debate on wage restraint appealing to 'national interest' which some viewers 'decode' as 'class interest'.

Rejecting what he called the linearity of the circuit or loop of 'established communication theory', Hall proposed a 'structure', 'produced and sustained through the articulation of linked but distinctive moments – production, circulation, consumption, reproduction (Hall 2000 [1973]: 508). This model allows for a degree of autonomy between these distinctive moments of production and consumption of the message but also factors in the operations of power relationships (and resistance to these relationships) within the message and the institutions and practices through which it circulates. Drawing on theories of semiotics and discourse, Hall on the one hand points out the instabilities of meanings in communication structures, but on the other argues that the 'encoding' of meanings (at the moment of production) 'will have the effects of constructing some of the limits and parameters within which decodings take place' (Hall 2000 [1973]: 515). These moments are 'relatively autonomous', but 'determinate' (Hall 2000 [1973]: 508). Whilst there is nearly always some correspondence between encoding and decoding (otherwise we would not be talking about communication at all), 'this 'correspondence' is not given but constructed. It is not 'natural' but the product of an articulation between two distinct moments' (Hall 2000 [1973]: 515). It is a dynamic and political process 'to enforce, and win plausibility, and legitimise a particular decoding' (Hall 2000 [1973]: 514).

Significantly (though frustratingly as he does not expand the point), Hall argues that the relationship between production and consumption is not simply causal, that meaning is not transmitted from the point of production to the point of consumption, that consumption (or reception) are also moments of production. The audience is both 'source' and 'receiver' of the television message, and, making reference to Marx on the complexities of this relationship in industrial production, 'are reincorporated, via a number of skewed and structured 'feedbacks', into the production process itself" (Hall 2000 [1973]: 509). However Hall gives no detail or exemplification of these feedbacks. Indeed if we look at his diagram below there is no indication of the route, nature or mechanism of this feedback.

Programme as
'meaningful'
discourse

encoding
meaning
structures 1

decoding
meaning
structures 2

frameworks of
knowledge
…………………
relations of
production
…………………
technical
infrastructure

frameworks of
knowledge
…………………
relations of
production
…………………
technical
infrastructure
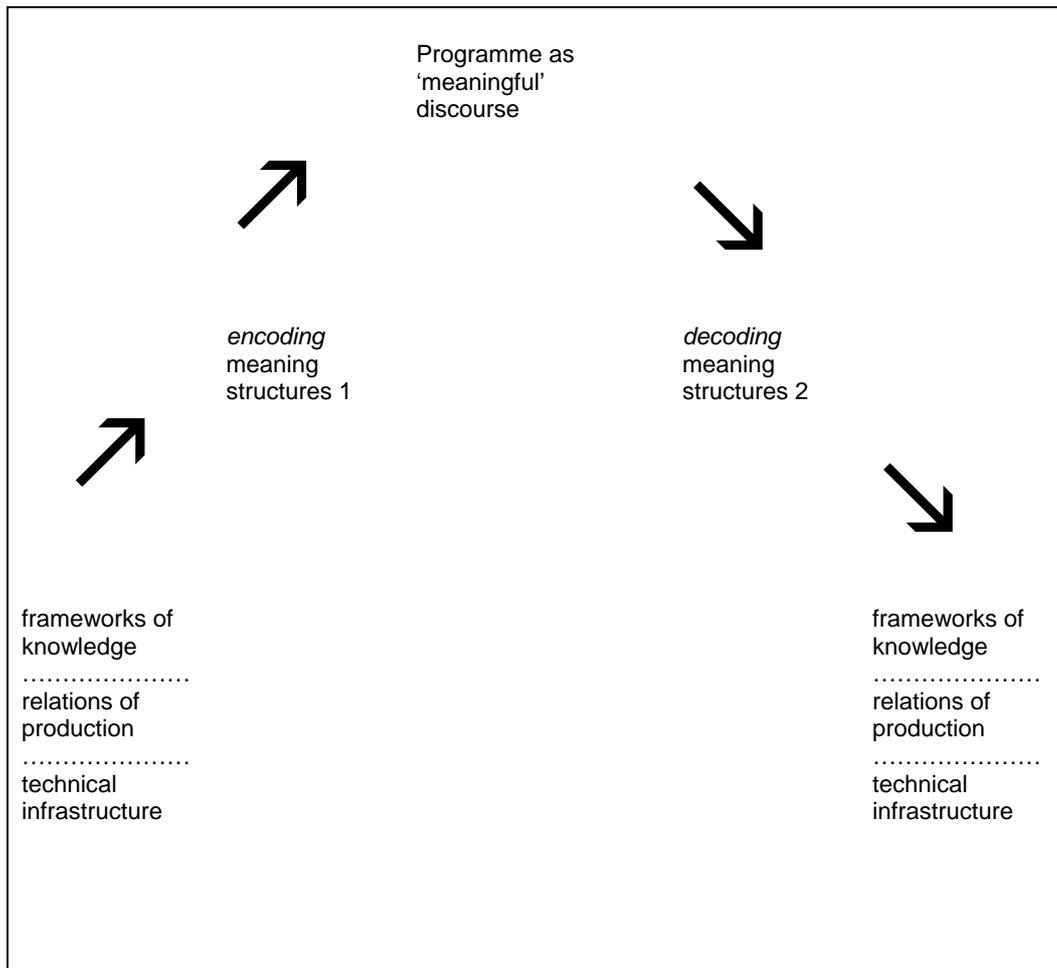
Figure 22: encoding, decoding (Hall 2000 [1973]: 510)

problems with encoding / decoding media texts

Before going on to study Hall's more recent work (and influence) in this field, I will identify the key problems in the encoding, decoding model for the analysis of media/technology. As already suggested, this semiotic / textual model, when applied to the study of the meanings and uses of domestic and media technologies, does some important work, countering ahistorical and idealist assumptions about inherent or inevitable uses of technologies. Yet in important respects it is misleading and profoundly limiting as a theoretical paradigm, because in crucial ways the meanings and uses of technologies are determined by their physical, material characteristics, form and capabilities.

techno-social asymmetry

Technological or techno-social phenomena are listed as factors within Hall's model and diagram, but they are not theorised and appear only in the moment of production:

> The process thus requires, at the production end, its material instruments – its 'means' – as well as its own sets of social (production) relations – the organisation and combination of practices within media apparatuses (Hall 2000 [1973]: 508),

The technological is not mentioned in relation to the moments of distribution or consumption, however. For example, Hall points out that 'events can only be signified within the aural – visual forms of the televisual *discourse*' (Hall 2000 [1973]: 508 my emphasis), not then the aural –visual forms of the television *set*.

This sublimation of the materiality of artefacts into the textuality of discourses has important consequences for the analysis of new media from Cultural and Media Studies perspectives. At the very least a model more attentive to the distinctions between media technologies and media texts and images is required. The distinctions between the 'technologies' and 'texts' of domestic entertainment media (television programme and television set, recorded film and the VCR, music on cassette and Walkman for instance) are generally seen as so clear and obvious that they are rarely stated. Roger Silverstone's book *Television and Everyday Life* (Silverstone 1994) is an exception:

> Television is doubly articulated into a household because its significance as a technology depends on its appropriation by the household both as an object (the machine itself) and as a medium. As an object the television becomes both an element in a national and international communications network and the symbol of its domestic appropriation. As a medium, through the structure and content of its programming as well through the mediation of public and private spheres more broadly, it draws the members of the household into a world of public and shared meanings as well as providing some of the raw material for the forging of their own private, domestic culture. In this sense, through its double articulation, the medium does become the message, though that message is not pre-given by the technology (Silverstone 1994: 83).

This notion of double articulation may be a useful starting point for thinking about videogames and other popular computer media as at once 'messages' and technologies, though the final sentence is evidence of the persistence and ubiquity of humanist assumptions of the ultimate impotence of technology in media culture. If nothing else this demonstrates the necessity of emphasising – and theorising – the operations and effects of the technological half of this articulated dyad.

material media

Yet in so doing we should be careful to resist reinforcing solid distinctions between the technological and communicative aspects of popular media. Both the television set and the television programme can be pulled out of the skip of discourse, as the latter has a technical and material existence too. That media texts themselves (from news reports and photographs to videogames) are not wholly 'textual' in these terms, that they are also material artefacts, even machines. There are resources within Cultural and Media Studies for supporting and developing such claims in relation to 'old' media, particularly in ethnographic based research into audiences for, or fans of, popular media – other forms of consumption that are less 'decoding' and more 'repurposing' (or playing). Henry Jenkins' influential research into fan fiction is predicated on an implicit understanding of media images and 'texts' as material to be worked with, copied, parodied and used in new circuits of communication or in acts of display. Similarly Paul Willis studies young working class people's styles of dress, their decoration of their bedrooms with posters, etc. as symbolic creativity – bound up in consumer culture, but by no means a decoding of it. Indeed Willis is critical of what he calls the 'detective' approach to the study of everyday meanings of popular culture, for him it is not the cultural scholar's identification of aberrant reading positions that is important, but lived experience and expression (Willis 1990).

We might think of other, under-researched aspects of the use of or play with media messages: the use of newspaper or magazine photographs for homemade birthday cards, the compilation of home tapes or MP3 CDs, or home video recordings. The materiality or physical characteristics of these media objects, materials and technologies, at least as much as their textuality, are key in these practices. And the notion of reading positions is similarly inadequate; assuming an intellectually active, but physically passive, audience. Media technologies, images and artefacts have a material existence as does their 'consumption': they are handled, swapped, cut up, copied, plugged in and glued together.

This point is pertinent for the study of videogames: the 'message' or content of videogames is clearly technological, these games are of course computer software. It might be more productive to think of an overlapping or imbrication of these modes, rather than just their articulation. Moreover this model assumes a discrete, unchanging consuming subject; at odds with recent ideas from cybercultural studies (or, as discussed later in Part 3, from ANT) of intimacies or translations between machines, their 'messages, and humans, or of the configuration of human action by the technological.

playing with texts: what's wrong with a preferred reading?

Hall's three hypothetical positions set up a moral-political hierarchy of types of response that may do some critical work in specific relation to news reports but do not fit other forms of popular media quite so well. The assumption that this is a model of mass media communication in general has been questioned in more recent work on media audiences and reception. As Shaun Moores points out, the encoding / decoding model is problematic even when applied to other media genres such as comedy or drama – genres which - more or less - necessitate acceptance of a 'preferred reading':

> ... the concept might be better suited to some forms of representation than others – better suited, for instance, to understandings news and current affairs than it is to analysing TV soap opera. Popular fictional drama can exert a strong ideological force, yet it rarely offers audiences the same sort of substantive propositions to contend with. (Moores 1993b: 29)

The notion of encoding and decoding is even more problematic for videogames. Firstly, videogames are games, rule-based or procedural. To play a game 'properly' is generally to completely accept its 'preferred reading'. Yet to what extent is the playing of a game of *Tetris* an acceptance of a dominant ideology (beyond the general – though highly significant - issue of accepting the call to consumption in the first place)? It is hard to imagine an aberrant playing of *Tetris*, the game's demands on the player are so precise and prescribed. Or, conversely, in what possible way can the act of accepting the 'preferred' mode of play of *Tetris* be analogous to a television viewer's acceptance of the preferred meaning of a news report implicitly critical of the strike it claims to report objectively?

Play itself is, as has been noted, under-recognised in media theory and it fits awkwardly into the encoding, decoding model and its reading positions. Arguably Jo didn't play *Lego Racers 2* according to its preferred meaning, yet his exploratory, open-ended approach to play was designed into the game and as such by no means 'aberrant'. In fact it is a feature of recent developments in videogame design that 'emergent' tactics or approaches to games be facilitated in the design of the gameplay. The complex interrelationships set up by the boys between virtual and actual Lego were not designed into the game (though of course it was facilitated by the cross-media marketing strategies of Lego – again the question of engaging with consumption on the basic level of playing the game in the first place arises), but neither are they strictly 'aberrant'.

This categorisation of the consumption (decoding) of media texts along lines of political value echoes the moral hierarchies ascribed to different types of children's play in the criticism of videogames discussed in

Part 1.4. 'Emergent' or open-ended gameplay, with its correspondence to notions of free, creative children's play, redeem this perception of videogames' rule-based or responsive gameplay as uncreative or damaging. Here Caillois' ludus-paidia axis is salient, resisting the moral judgements and validating 'playing by the rules'.

The ubiquity of the term 'decoding' in Cultural and Media Studies elides alternative concepts of the relationships between humans, media content, and media technologies and media consumption. For this project, the terms *use* and *play* are more pertinent and productive. Both are premised on a sense of dynamism in the relationship between producer and consumer analogous to that in Hall's schema, but both imply an engagement that goes beyond the 'decoding', aberrant or otherwise.

problems with encoding / decoding media technologies

I will now turn my attention to more recent conceptualisations of the relationships of media production and consumption by Stuart Hall. Though Hall's three reading positions have been amended, augmented and critiqued in the decades since the essay was written, metaphors of textuality and the establishment of discourses as primary objects of cultural research have proved foundational to the development of Cultural and Media Studies. Not least through an extremely widely used and influential series of text books published by Sage for the Open University. I have already made reference to one of this series (Mackay 1997), I will also be referring to Hall ed. *Representation: cultural representations and signifying practices* (1997) and to Paul du Gay et al *Doing Cultural Studies: the Sony Walkman story* (1997).

sticks and stones: the cultural and the material

Returning, for the sake of analytical clarity, and for the time being, to a conceptual distinction between media texts and media technologies, I will study in some detail the ways in which this series attempts to study media technologies in the 'circuit of culture' – the diagram below is reproduced in each book. Firstly I will concentrate on the Hall volume as it most thoroughly expounds the dominant 'representation' model of culture. Second to address how problems with the dominant 'linguistic' model of culture within Cultural and Media Studies limit the analysis of media technologies, I will look in some detail at du Gay et al's book *Doing Cultural Studies: the story of the Sony Walkman* (1997).
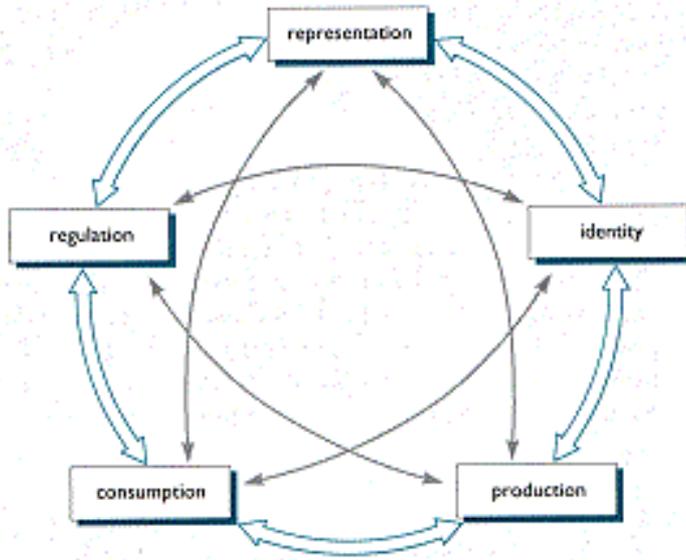
The circuit of culture

Figure 23: the circuit of culture (Hall 1997)

On the first page of Hall's book, the centrality of language to our sense of the world and our place in it is emphasised:

> Language is the privileged medium in which we 'make sense' of things, in which meaning is produced and exchanged. Meanings can only be shared through our common access to language. So language is central to meaning and culture and has always been regarded as the key repository of cultural values and meanings (Hall ed. 1997: 1).

Whilst reality exists outside language, it is always mediated by and through language; what we can know and say has to be produced in and through discourse. Discursive 'knowledge' is the product not of the transparent representation of the 'real' in language but of the articulation of language on real relations and conditions (Hall 2000 [1973]: 511).

Whilst this diagram does some important work unsettling idealist notions of communication, its weaknesses become evident when we begin to try to interpret the material, artefactual elements of culture – and not only technologies. The material world does not intrude into this solid state circuit, and material existence and operations of technologies, physical forces and bodies are split from their discursive operations and ejected entirely from the realm of the cultural. For Hall, and indeed for any undergraduate seminar on semiotics, sounds, the written word, musical notes, 'even objects' 'stand for or represent to other people our concepts, ideas and feelings' (Hall 1997: 1). Any sense of the material existence of objects is

resisted, indeed they seem illusory, deceitful: 'so-called 'real' objects' (Hall 1997: 62). Objects in culture then are never objects as such, but signs for something else, immaterial concepts, ideas and feelings.

> Primarily, culture is concerned with the production and exchange of meanings – the 'giving and taking of meaning' – between the members of a society or group. (Hall ed. 1997: 2)

And yet the metonymic shift of communication into the totality of cultural practice and meaning into the totality of cultural content is deeply problematic. This is evident even at the level of engagement with popular media. For example, to play a board game or a computer game may well involve the production and exchange of meanings, but not necessarily. The context of a game of solitaire (deliberately deciding not to play with others, filling empty time etc.) may well have culturally determined limits and possibilities, and the deck of cards has its own long cultural history, but a particular playing of the game itself can be more or less 'meaningless' in communication terms - it communicates nothing.

This series of books are at pains to point out that signification does not occur in some disembodied linguistic realm but that it is always embedded in material and historical practices. But this emphasis is not sustained in or supported by the analysis. And there is an ambiguous distinction between material *use* and discursive *meaning*. The former is in places included within the realm of meaning-making, elsewhere it appears to fall into some pre-cultural and thus - in these terms - *meaningless* zone.

> It is our use of a pile of bricks and mortar which makes it a 'house'; and what we feel, think or say about it that makes a 'house' a 'home'. (Hall 1997: 3)

Here then 'houses' seem to exist in some pre-symbolic, non-cultural realm, becoming meaningful only through their representation in languages. To an anthropologist (or architect) the use of particular building material and the forms into which they are shaped are as crucial to understanding a culture as are the linguistic frameworks within which they are articulated. There may be communicative aspects to most if not all cultural phenomena, but these aspects may not be the most significant. For example, statues on the outside of a building have a message, but the ways in which that building organises the space and movement of the people within it (as theorists of the urban or architectural environment, or Foucault (1997), have established), do not 'signify' as such, but are fundamental to the shaping of everyday life. Subsequently, then, these books tend to subsume *use* into *language*, and the materiality of both artefacts and the practices of their use are elided:

> Even something as obvious as a stone can be a stone, a boundary marker or a piece of sculpture, depending on *what it means* – that is, within a certain context of use, within what philosophers call different 'language games'... (Hall 1997: 3)

Here then is an untheorised, near tautological, insistence on the absolute significance of language not only in, but *as* culture. Language and meaning are the territory of the cultural and all else, fall beyond into the noncultural.

immaterial culture

Hall then asserts that culture, 'the symbolic domain', marks the dividing line between 'the 'human element' in social life from what is *simply* biologically driven' (Hall 1997: 3. My emphasis). A less rigid demarcation might recognise that much that is significant in social life (having babies, eating food, dying, to name but three) can only be understood as overdetermined by both the symbolic and the biological. One would only have to glance at the wide range of debates and publications within cultural theory in recent decades on 'the [human] body' to recognise there is much work negotiating the overlaps as well as the borders between the material and the symbolic (e.g. Atkinson 2005, Fraser 2005, Shilling 2005). A model that makes sense in the dissemination and reception of meanings in a news report, when developed as an ontology of media and culture, dissolves the materiality of media, technology, bodies and actions.

To make these points is not to deny the significance or power of meanings in culture though it could be argued that this textual approach might limit our understanding of the material operations and effects of immaterial meanings.

> [Meanings] mobilize powerful feelings and emotions, of both a positive and negative kind. We feel their contradictory pull, their ambivalence. They sometimes call our very identities into question. We struggle over them because they matter – and these are the contests from which serious consequences can flow. They define what is 'normal', who belongs – and therefore, who is excluded. They are deeply inscribed in relations of power (Hall ed. 1997: 9).

Nor is it to argue that the material world is a self-evident entity, one with which we engage beyond the mediations of language. Hall's linguistic approach counters what he calls the 'conventional view' – that things exist in the material and natural world, outside language, their meanings solely determined by their material characteristics.

As I have suggested already, one task is to acknowledge aspects of culture that are not primarily effective through their transmission or manipulation of meaning per se. Alongside this we need to recognise that where meanings do exercise power, it is in the shaping of everyday realities – meanings have a material existence too (or else how would they effect their power, how could they be struggled over?). Moreover is it necessary to recognise that meanings arise from a material world, they are not arbitrary. This is clearly

evident in the politics of contemporary technoculture, in which identities, technological imaginaries, and power are inseparable from the material capabilities, affordances and applications of networks, reproductive technologies, genetics and cybernetics.

pressing play: the immateriality of media technologies

The application of this problematic paradigm to the study of consumer media technologies will now be explored. The authors of *Doing Cultural Studies* use the Sony Walkman as a case study to rehearse this linguistic approach to culture and media technologies. In familiar terms they explain that

> Meanings help us to interpret the world, to classify it in meaningful ways, to 'make sense' of things and events, including those which we have never seen or experienced in real life but which occur in films and novels, dreams and fantasies, as well as objects in the real world. You can play the actual Walkman but you cannot *think* with it, or *speak* or *write* with it. Meanings bridge the gap between the material world and the 'world' in which language, thinking and communication take place – the 'symbolic' world. They dissolve any fixed distinction between the so-called 'real world' and, for example, the world of the imagination with its 'small objects of desire' – like the Walkman or other consumer goods which we often fantasize about (du Gay et al 1997: 10).

The assumptions bound up in this paragraph are complex and need to be unpicked (the idea that a Walkman cannot be thought, spoken or written with is an intriguing one, and I will return to it). Firstly then, the Walkman, throughout the book, is not allowed any existence as anything but a discursive construction. The book constantly asserts the metaphorical status of the Walkman:

> [...] the *image* of the Sony Walkman – sleek, high-tech, functional in design, minituarized – has become a sort of metaphor which stands for or represents a distinctively late-modern, technological culture or way of life. (du Gay et al 1997: 11).

No doubt, but the Walkman doesn't just *stand for* this, it isn't just a metaphor; it *is* part of this technological culture, part of the stuff of technoculture. The authors claim they chose the Walkman as their case study because 'it is a typical cultural artefact and medium of modern culture...' (du Gay et al 1997: 2). This seems rather disingenuous. Certainly the range of sources and supplementary material gathered in the book suggests the Walkman had a marked economic, cultural and phenomenological impact, i.e. it is precisely *not* typical. The appeal and popular success of the Walkman is no doubt partly due to the operations of marketing and advertising and the manipulation of signs of modernity, personal freedom and choice, and so on, but the book repeats Hall's schema: assert the importance of 'meaning' and then disregard any facets of everyday life, culture and experience that are not immediately 'meaningful'. It seems that any material basis

for meaning (beyond a vague conception of the economic context of a consumer-oriented society) is now lost:

> The Walkman had no meaning of itself. It is us who, through the process of using words and images to form concepts in our heads which refer to objects in the real world, construct meaning, who made the Walkman mean something. (du Gay et al 1997: 15)

Here again culture is presented as synonymous or coextensive with communication, yet the Walkman, it could be argued, succeeded also because it instantiated or realised these meanings – its technological form made these meanings possible. The material and technical characteristics of the personal stereo mean that it does transform individuals' experience of everyday life and modernity. Walkman owners may not all have been transformed into the roller-skating ecstatics of the 1980s advertisements, but anyone who does regularly use a personal stereo would, I venture, have their own accounts of how the experience of dull journeys, or moments of relaxation or reflection, can be transformed (see Bull 2001a and 2001b for ethnographic studies of Walkman experiences). Far from not being able to think with it, the Walkman – and the user's selection of meditative or exhilarating music – can be used to encourage thought or moods.

Part of the success of the Walkman is no doubt due not to its cosmetic design but to its *ergonomic* design, i.e. the relative scale of the machine to the human body, the way it fits into a hand, the feel and sound of buttons and openings, and the way in which all these characteristics facilitate a mobile body's pleasure in technological use and music consumption. But neither this ergonomics of the human-machine interface nor the experiential pleasures and uses of the Walkman have a place in the 'circuit of culture'. I would suggest that the microethnographic approach I have developed in this thesis offers one way of attending to the material as well as the 'meaningful' operations of everyday technoculture.

The construction of the divide between culture and non-culture described above in relation to houses and bricks is reinscribed here, now in terms of central importance to theorising technoculture:

> What is important is that, though these practices [of use or consumption of the Walkman] involve bodily and physical movements, it is not their physical or biological character which makes them culturally significant. Simply moving the hand to press the 'Start' button is not, in itself, culturally distinctive. What matters for *culture* is that these practices, too, are meaningful […] It is meaning that translates mere *behaviour* into a cultural – a *signifying* – practice (du Gay et al 1997: 18).

Even within the post-Saussurean tradition of cultural analysis this is nonsense: at the very least pressing the 'play' button is a moment of interpellation, the consuming subject accepting the invitation to play (Althusser 1984). Other questions can be asked: is it only pressing the play button that is behavioural and pre-cultural?

What about fast-forwarding to a favoured track? Indeed, the logic of this argument would position many of the material experiences of mediated music consumption beyond the cultural and hence beneath consideration; from the lowering of the stylus to a vinyl record and the crackling moment of anticipation before the music begins to the satisfyingly smooth glide of the CD tray.

Broad assertions of the immateriality of culture are unsustainable in the study of specific technocultural artefacts and practices. For instance, du Gay et al's conceptual model gets a little shaky when they describe

> A succession of developments, from the portable transistor radio to the car stereo, [that] has made it possible to transport this inner landscape of sound with one wherever one goes, simultaneously taking the pleasures of private listening into the very heart of the public world and the qualities of public performance into the privacy of the inner ear (du Gay et al 1997: 20-21).

Thus the overall argument is undermined in two important respects. Firstly technological developments (and by implication the material possibilities they produce) *as well as* meanings determine or facilitate distinct new modes or experiences of media use; and secondly that these modes and experiences can only be made sense of in relation to the individual's bodily interaction with the particular devices and software. This inadvertent embrace of bodily interaction with material technologies and technological determinism is quite extensive:

> [...] now the scope, volume and variety of meanings, messages and images which can be transmitted (i.e. *media-ted*) have been vastly expanded by the harnessing of culture to the new electronic technologies. This has opened up a new frontier in modern cultural life and completely transformed the process of 'meaning-making' which, we have argued, is at the heart of culture. Meaning-making lies at the interface between culture and technology (DuGay et al 1997: 23).

This curious shift from a strict 'discursive shaping' approach at the local level of the consumption of media technologies to inadvertent technological determinism at the global or epochal level of technoculture and historical change is quite common in Cultural and Media Studies (it is evident in, for example, Morley and Robins 1995, Burnett and Marshall 2003). Hall too allows at the macro level technological effects of scale and velocity that are ruled out in the everyday, micro-levels of technoculture:

> [Meaning] is also produced in a variety of different *media*; especially, these days, in the modern mass media, the means of global communication, by complex technologies, which circulate meanings between different cultures on a scale and with a speed hitherto unknown in history (Hall 1997: 4).

Mackay, moreover, clearly links these global changes to local and subjective ones, in terms that belie his assertions that deny technological agency. Thus, television and radio in everyday life link us with distant events, transform our senses of self and identity and are central to new arrangements of time and space (Mackay 1997: 10).

constraints, creativity and affordance

For Mackay, the central dynamic in the negotiation of the meanings (and to a lesser extent the uses) of domestic media technologies is one between 'constraint' and 'creativity'. Loosely analogous to Hall's preferred and aberrant reading positions, its critical purchase for theories of active consumption is clear. In the table below, Ryder and Wilson (1995, cited in Flew 2005: 8) list affordances (which will, temporarily, be taken as synonymous with 'creativity') and constraints of the Internet.

Yet a closer look at these lists reveals the limitation of this dynamic. For communication or entertainment technologies – 'tools' not 'texts' – this notion of constraint is, on the whole, redundant. The only significant constraint in the list above is the first: 'Ability to participate limited in practice by literacy, access to technology, and differing communicative competences', that is constraint from actually using the technology in the first place. The rest are possible shortcomings or design factors in the use of these media, they are functions of the material existence of the Internet itself as a technocultural entity. Limitations of access to the Internet (the 'digital divide') in an environment in which such access is increasingly integral to work, services and political activity as well as leisure is clearly a serious constraint. 'Difficulties in maintaining remote associations' is not a constraint as the remote associations would presumably not exist without the Internet media in the first place. It is here that the implications of the concept of 'affordance' over 'creativity' become pertinent. Creativity in consumption generally refers to the aberrant readings of media texts or the processes of identity 'construction' through consumer choice, fashion or bricolage. Affordance denotes material characteristics of (media) technologies, characteristics that allow their users to do new things. To recast a point made in the critique of the encoding, decoding model, what is wrong with using a computer for word-processing or email? The preferred / aberrant dualism underpinning that of constraint / creativity does not allow for the instrumentality of media technologies.

	Issue	Affordances	Constraints
1	Freedom and personal control	Unprecedented access to information from multiple sources, and opportunities for free expression	Ability to participate limited in practice by literacy, access to technology, and differing communicative competences
2	Cultural forms and status	Possibility of barriers to participation based upon gender, age, race, nationality, disability or economic status being less relevant in online environments	Culture predominantly constructed by middle-class white males, predominantly from North America; low status of newcomers ('newbies') into online environments
3	Rapid growth	Value of participation in a network grows exponentially as more people are on the network, and as more information is made available though the network	New security issues arise, such as privacy concerns and the threat of computer viruses and email 'spam'
4	Hypertext Web structure	Ability to access multiple and interconnected information sources	Non-linear browsing presents issues of choice, and problems of being 'lost in cyberspace'
5	Multiple information sources	Ability to augment 'local' sources of information with resources from multiple localities, and to compare conflicting points of view	User increasingly required to assess value and validity of online information in absence of filters and gatekeepers
6	Dynamic information	Online information sources are current and timely	Problem of 'disappearing information' as sites are no longer functional, or information is removed
7	Intimacy and locality	Possibility of 'safe' communicative and other relationships conducted online and over distances	Difficulties in maintaining remote associations; variances between 'online' and 'off-line' personas

Figure 24: affordances and constraints of the Internet (Ryder & Wilson 1995, cited in Flew 2005: 8)

Even this new binary of constraint and affordance can be interrogated. Caillois' paidia-ludus axis is pertinent here: the rules of chess are a tight constraint on the range of possibilities in any game of chess yet without them chess as such would not exist at all. The Lego Racers event described above was marked by

'creative', emergent (a term adopted by game studies from ALife), even 'aberrant', activities. But these activities were facilitated by the 'constraints' of the gameworld (its virtual physics, its) and the cybernetic loops (of control, of negative feedback, of management) between player, hardware and software that instantiate it in the moment of play. Again the assumption that game rules and cybernetic control are identical with political or social rules misleading. In systems, constraints afford.

The arguments in this section highlight the need to rethink the dominant emphasis in Cultural and Media Studies on representation, signification and 'meaning'; and the need to address questions of the materiality and affordances of artefacts in general and media technologies in particular. The next section will suggest other theoretical disciplines that offer more productive ways of conceptualising technoculture.

3.2: augmenting Media Studies

It is usually only in times of great technological change (or failure and breakdown) that machines are shifted to the centre stage of popular or academic attention (Gunning 1990, Lister et al 2003, Marvin 1988). This may be one of the reasons why Media Studies (as well as the investment in textual conceptual models discussed above) has only intermittently concerned itself directly with technological factors in communications and entertainment media. Television as a medium for example has tended to be constituted as on the one hand, a set of corporate and cultural institutions, frameworks and practices, and on the other as the content, the programmes and schedules broadcast. The structures, functions, limitations and possibilities of televisual technologies are rarely addressed, except as part of an analysis of the economics of televisual production. The same point can be made for other mass media - radio, telephony, and (with certain exceptions as will be seen) cinema. Studies of popular media have, by and large, addressed the political economy, or aesthetics and ideologies of popular media texts or audience's practices of consumption, i.e. how audiences use and make sense of media texts.

This section is concerned with recent debates within the humanities and social sciences that have taken technologies, and the nature of their relationships with social and historical forces, as their object of attention. Firstly it will summarise some of the arguments of a seminal book in Cultural and Media Studies, Raymond Williams' *Television: technology and cultural form* (1990 [1975]). This is partly to suggest that there are valuable resources in Cultural Studies before the 'linguistic turn', particularly in Williams' materialism; and partly for its attention to the specificity of communications media, for instance in the relationship between media technologies and media 'texts'. I will then turn to the 'social shaping of technology' thesis, the assumptions and theoretical frameworks of which have been implicitly and explicitly adopted by Cultural and Media Studies to apply to different objects (computer-based media, electronic and cinematic media technologies, non-media domestic technologies, or - indeed - technological artefacts and systems in general). As such SST is not a discipline but a cluster of approach and conclusions, however – importantly - underpinning it is a more or less explicit critique of technological determinism. The notion of technological determinism will be explored in some detail and then this section will assess the theoretical challenge to the social shaping thesis and its critique of technological determinism by STS and actor-network theory.

Whilst there is surprisingly little concern within either SST or ANT for either computer technologies or media, I would argue that it is essential that these debates and approaches are assessed. They explicitly tackle questions of determination, effects and agency in technoculture at large.

media technology and cultural form

The influence of Raymond Williams on Cultural and Media Studies is profound. Even though he may rarely be cited in current writing, his arguments and approaches are foundational and there is evidence of a resurgence of interest in his work in new media studies, in particular his critique of McLuhan (Balsamo 1998, Lister et al 2003, Flew 2005). The marxist schema of his seminal book *Television, technology and cultural form* (Williams 1990 [1975]) firmly resists technological determinism in theorising the development of television, whilst at the same time leaves space within the argument for material factors within technology's sociality. It develops a sustained critique of technological determinism, in particular Williams is countering the ideas of Marshall McLuhan. So, whilst Williams argues that whatever form any particular developing media technology (or more accurately, set of technologies) make take, there is for him 'nothing in the technology to make this inevitable', but there is an implicit recognition of the materiality of technological devices and techniques.

Though the focus is television in particular (and media technologies by extension), Williams develops his argument through a consideration of the social shaping of technology in general. The key points he makes (and the correlation between these and the discourses discussed in the section on everyday life are evident) are firstly that technology is not autonomous, nor is it 'symptomatic'. Secondly the role of intention in research and development is crucial - technological devices or systems are not the inevitable result of either clear consumer demand or their own inherent logic:

> the reception and success of any particular technology or system is dependent not on its own inherent qualities or characteristics but on its fit into the social complex. For example, television was successful over cinema not because it improved picture quality (it patently didn't) but because it fitted the logic of the rising centrality of the privatised home in Western society (Williams 1990 [1975]: 28).

Williams' emphasis on the social shaping (rather than the material characteristics) of media technology is in part a reaction to, on the one hand, the crude technological determinism of the advertising and promotion of technological products, and, on the other, the considerable contemporaneous influence of Marshall McLuhan for whom communications technologies determined epochs in human society. For Williams,

McLuhan's ideas are idealist and ideological: substituting the technological products of social and economic forces for those forces themselves as the motor of historical change.

Yet though Williams argument downplays the materiality of media technologies, it is not ruled out as it is in post- 'textual turn' Cultural and Media Studies from the 1980s. His account of the social shaping of television is predicated on a rich model of interactions and effects between technology, cultural form, economics, and aesthetics. As communication technologies become part of wider circuits of determinations and effects (though Williams does not spell this out), the technologies themselves play an active role in these processes. A useful example is his discussion of the effect of a technical development (colour television) on programme content. Programmers, he argued, looked for particularly 'colourful' subjects and ideas to exploit this technical development. On the one hand of course the simple fact of colour technology did not inevitably cause or create new programmes or subject matter, and the operations of economic factors, and consideration of audience expectations, are clear. But, on the other hand, in a significant way this technology did have an effect – to use more recent terminology, it was not so much 'decoded' as used or exploited. It *facilitated* new programme content, aesthetics and modes of presentation.

Consumer electronics producers refer to 'black boxes', as particular configurations of entertainment and / or information technologies packaged as a single, commercially successful product. The term has been appropriated and critically repurposed in theories of the sociology of technology. Cynthia Cockburn points out that no technological artefact is ever a coherent, discrete device, but always a more or less arbitrary (and temporary) closure on a diverse field of uses, technologies and meanings. This closure is effected by a network of agents (in the case of popular new media this network might include producers, consumers, retailers, software publishers, legal and governmental agencies):

> To build a 'black box', whether this is a theory or a machine, it is necessary to enrol others so that they believe it, take it up, spread it. The control of the builder is therefore seldom absolute. The new allies shape the idea or the artefact to their own will – they do not so much transmit as translate it (Cockburn 1992: 34).

Williams refers to the history of the origins of television as one of the non-teleological coming together of diverse formats, devices and intentions. Also, in an updated chapter in the second edition of the book, he reflects on recent developments in television (such as cable and satellite) and speculates on their possible trajectories, again giving the sense that 'television' is not a coherent and static medium or set of technologies,

but a contingent and temporary arrangement of particular technologies, institutions and forms, at times apparently stable, at other times more obviously in a state of flux and transformation. Television, like all technologies, is constituted by 'scattered techniques' (Williams 1990 [1975]: 25).

SST and technological determinism

The anthology *The Social Shaping of Technology* by Donald MacKenzie and Judy Wajcman is one of the most widely cited and influential books in Media Studies' address to technology. The two editions of the book record a highly significant repositioning and 'flowering' of the debates over the decade and a half between their publication. In the first edition (1985) Donald Mackenzie and Judy Wajcman summarise technological determinism thus:

> This is the theory that technology is indeed an independent factor, and that changes in technology cause social changes. In its strongest version, the theory claims that change in technology is the most important cause of change in society (Mackenzie & Wajcman, 1985: 4).

From this viewpoint (or perhaps more accurately, set of untheorised assumptions) technology is largely autonomous, originating actually or metaphorically outside of society (in the realms of science or even nature) and erupting into the social world via technologists' adaption of scientific discoveries, where it has an 'impact' or 'effects'. These 'effects' are significant: they support the notion that technological innovation causes social change. We may have some choices about the direction of social change, but the options are limited, and limited by the technological itself. For example Mackenzie and Wajcman refer to predictions from the early 1980s of the microchip directly causing mass redundancies. The choice, it was popularly understood at the time, was between mass unemployment or a radical rethinking of the relationship between work and leisure. The impact of the microchip itself is taken as given and inevitable in this formulation. This theoretical approach removes technology from the sphere of politics – society is left to adapt to, rather than influence, appropriate or shape new technologies.

So, broadly social constructivist in orientation, SST is a critical counter to a perceived dominance in popular, political and professional discourses of technological determinism in the understanding of the cultural and social role of technologies. It emphasises the social factors of history, economics and ideology as giving shape to technologies rather than vice versa.

the critique of the critique of technological determinism

However Mackenzie and Wajcman make a vital point:

> It would be terribly mistaken, however, to jump from the conclusion that technology's effects are not simple to the conclusion that technology has *no* effects (Mackenzie & Wajcman 1985: 7).

This significant qualification is developed through the inclusion of an influential essay by Langdon Winner. In asking 'do artefacts have politics?', Winner establishes two broad categories of 'technological politics'. One of these covers technological systems 'that appear to require, or to be strongly compatible with, particular kinds of political relationships' (Winner 1999: 29-30). Nuclear power is an example of an 'inherently political technologies' as it requires particular economic and political structures to function, from ancillary industries to scientific research, state subsidy and security considerations. Moreover once such a technological system is introduced it can then function to reinforce and extend the factors that facilitated it in the first place:

> It is still true that, in a world in which human beings make and maintain artificial systems, nothing is 'required' in an absolute sense. Nevertheless, once a course of action is underway, once artifacts like nuclear power plants have been built and put into operation, the kinds of reasoning that justify the adaptation of social life to technical requirements pop up as spontaneously as flowers in the spring (Winner 1999: 37-8).

If hard technological determinism presents science and technology as external to culture, by implication (and sometimes explicitly) 'natural', Winner's 'flowers in the spring' demonstrate this ideological naturalisation, but – crucially – highlights that this naturalisation is due to the historical establishment and material characteristics of existing technologies and hence not reducible to the realm of the symbolic and ideological.

Winner's other technopolitical category, 'technical arrangements as forms of order', is of more immediate concern here as it is more directly applicable to everyday artefacts and technological environments. Architecture and urban planning are clear examples of this. Winner discusses the design of parks on Long Island in the United States. Bridges supporting overpasses on the roads through these parks were built to a height of only nine feet, deliberately to block buses from the park's roads, thereby limiting the numbers of poor and black people visiting the parks. Baron Haussman's extensive rebuilding of Paris in the mid-nineteenth century is another example – the new, wide boulevards both allowing troops to enter the centre of the city quickly to suppress political unrest and making the construction of barricades by dissenters and revolutionaries much more difficult:

> The issues that divide or unite people in society are settled not only in the institutions and practices of politics proper, but also, and less obviously, in tangible arrangements of steel and concrete, wires and transistors, nuts and bolts (Winner 1999: 33).

Partly in response to Winner's essay, Mackenzie and Wajcman raise three objections to the anti-technological determinist 'no effects' conclusion. Firstly, that technologies are not necessarily neutral, dumb tools to be adopted and adapted freely by societies. Rather they can be political, offering or facilitating certain social uses and restricting or foreclosing others. Secondly, that existing technologies or technological systems play a crucial role in determining the development and adoption of new technologies: 'Road and rail systems remain – and influence patterns of housing and industrial development – long after their designers are dead' (Mackenzie and Wajcman 1985: 7). Thirdly, technologies have a physical existence with biological and ecological implications. 'Technologies can and do feed, clothe and provide shelter for us; they can and do also kill and poison' (Mackenzie and Wajcman 1985: 7).

For the second edition of *The Social Shaping of Technology*, in recognition of (and involvement in) significant new work on the relationships between technology, culture, and society, Mackenzie and Wajcman develop these rather parenthetical qualifications to the critique of technological determinism. They suggest a distinction (after Smith and Marx 1994) between 'hard' and 'soft' technological determinism. As they point out, the former is not a good theory of social change, but contains a partial truth: that technology matters. To accept 'soft technological determinism' is to argue that just because the effects of a technology are complex and contingent it doesn't necessarily follow that the technology has no effects.

One important concept which offers ways of treating technology as both socially shaped and socially shaping is that of the technological paradigm. Adapting Thomas Kuhn's work on historical change in scientific thought and method, Mackenzie and Wajcman identify two interrelated senses of the concept. Firstly the technological paradigm is an exemplar: a particular development or solution to a problem that is then taken as the model for future developments. They use the example of the US and the Soviet Union, after the Second World War, basing the technical research and development of ballistic missiles on the German V2 missile. This first sense links to the second: a wider sense of an 'entire constellation of beliefs, values, techniques...' shared by a technoscientific community. Such paradigms are not inevitable laws of technical development but a resource (Mackenzie and Wajcman 1999: 10). This concept has resonances with the notion of technological systems as used by historians of technology. Mackenzie and Wajcman assert that

> a technical system like an electric light and power network is never merely technical; its real-world functioning has technical, economic, organizational, political, and even cultural aspects (Mackenzie & Wajcman 1999: 11).

There are two important points that can be made here: firstly that it may be more theoretically productive to always see any particular device or technique as part of a system, and secondly, as we will see, this sense of a system or network of diverse aspects, elements and determinants is very useful.

Finally, the editors argue for a distinction between a 'social shaping' thesis and a 'social construction' thesis. Unlike the latter, they argue, the former acknowledges the 'recalcitrant material world' (Mackenzie & Wajcman 1999: 16), and can be characterised thus:

> What is being shaped in the social shaping of artifacts is no mere thought-stuff, but obdurate physical reality. Indeed, the very materiality of machines is crucial to their social role (Mackenzie and Wajcman 1999: 18).

or:

> the material world is no simple reflection of human will, and that one cannot make sense of the history of technology if the material world is seen as infinitely plastic and tractable (Mackenzie and Wajcman 1999: 24)

This is more than a shift of emphasis. They expand on it in their reflections on their former arguments in the first book. In looking only at the influence of social relationships on artefacts, they neglected

> the valid aspect of technological determinism: the influence of technology upon social relations. To put it in other, more accurate, words, it is mistaken to think of technology and society as separate spheres influencing each other: technology and society are mutually constitutive (Mackenzie and Wajcman 1999: 23).

Whilst there are distinct resonances between, for example, Winner's flexible yet political systems and devices and the 'encoding' and 'decoding' of media texts, there are also fundamental differences, differences that have significant implications for social constructivist theories of media and technology, and that open up new areas of enquiry. For if the material world and the artefacts in it are 'obdurate' and 'physical' not textual (though this is not to claim that some knowledge or experience of the material world is possible unmediated by language), and society and the material world (technology, nature) are mutually constitutive, then it becomes difficult to maintain the assertion (or assumption) that humans are the only agents in the world, shaping and moulding artefacts, but never vice versa. Rather, it raises the question: can machines and artefacts be considered to have agency? Or: to what extent can society and culture only be understood *in*

relation to the technological. In Bruno Latour's terms, as we will see, society is never just society, human relationships are always sociotechnical. It is clear that the implications of such questions pose fundamental challenges not only to the critique of technological determinism, but also to the theorisation of society and culture in general.

Actor-Network Theory

In important ways Science and Technology Studies (STS) and Actor-Network Theory (ANT) are compatible with the SST thesis, yet as indicated, their divergences from the social constructivism underlying SST are of crucial significance. Whilst some overlap is evident in their varying constitution of the significance of the materiality of technologies and their effects, there is a key faultline between them, as ANT insists on acknowledging machines and artefacts as agents or actors in a technosocial world.

an 'anthropology' of technology...

Mackenzie and Wajcman introduce ANT as identifying 'the reciprocal relationship between artefacts and social groups' (Mackenzie and Wajcman 1999: 22). Or, as John Law puts it

> If human beings form a social network it is not because they interact with other human beings. It is because they interact with human beings and endless other materials too […] Machines, architectures, clothes, texts – all contribute to the patterning of the social. (Law 1992).

A study proceeding from an actor-network theory hypothesis then would assume symmetry of agency between humans and non-humans (whether artefactual, scientific or natural), implicitly or explicitly rejecting the humanist worldview of the humanities and social sciences. The implications of this are far-reaching and go beyond the nuances of the effects and determinations studied as SST. It questions engrained conceptual distinctions between nature and culture, humans and artefacts, subjects and objects:

> Both society and technology, actor-network theory proposes, are made out of the same 'stuff': networks linking human beings and non-human entities ('actors', or, in some versions, 'actants') (Mackenzie and Wajcman 1999: 24).

To explore ANT and to identify salient approaches and conceptual resources for this thesis, I will first use two essays, a collaborative pair for the book *Shaping Technology / Building Society: studies in sociotechnical change* (eds. Bijker & Law 1992). Each essay addresses notional criticisms of their approach from, very broadly, sociologists (of technology, or not). These rhetorical interlocutors are not precisely identified, but the objections ascribed to them map partially onto the sociological discourses of technology

already identified (SST in particular). The second essay, by Bruno Latour exemplifies his performative approach to his subject and writing. The first by Madeleine Akrich identifies more clearly these points of departure, using examples drawn from her work as an anthropologist.

Akrich draws on examples from her fieldwork in Africa as case studies to elaborate conceptual concerns around the relationships between technical devices and systems and people. One of her main arguments is that technical objects can have 'moral' content, and she cites Winner's New York bridges as an example. In terms that, initially at least, resonate strongly with a social constructivist approach, Akrich emphasises the contingencies of any technology's design and use:

> Machines and devices are obviously composite, heterogeneous, and physically localized. Although they point to an end, a use for which they have been conceived, they also form part of a long chain of people, products, tools, machines, money, and so forth (Akrich 1992: 205).

One of Akrich's examples is that of a photoelectric lighting kit - a simple array of a solar panel, a storage battery and a lamp - designed for use in Africa in homes not connected to an electricity grid. She analyses how the shape of this apparently straightforward, functional and non-commercial device (the kit was a French government project promoting new energy sources) was in fact constituted by, and in, a complicated process of inscription and de-scription in its production and consumption.

> Accordingly, the shape of the lighting kit can be treated as a description of the way in which this network operated -- a network characterized by the circulation of certain types of resources and the exclusion of other actors' (Akrich 1992: 209).

Thus, beginning with the difficulties in the adoption and maintenance of these devices, she traces key aspects of their technical form back to decisions made by their designers in Paris. Each of these difficulties was the product not of mistakes but of rational design decisions. For example the kits ran on direct rather than alternating current because the latter requires an energy-hungry transformer. However this meant that the contractor installing the kits had to insist that local electricians (who may not have any knowledge of direct current) not be employed to fix any problems. The user would have to rely on the twice-yearly visits of the contractor instead. The components of the kit (battery, panel and lamp) were connected by fixed length wires and nonstandard plugs both to limit the amount of wiring and to discourage users rewiring the device themselves to fit different sized rooms as this might damage the kit or reduce its performance.

On one level these examples support the social shaping thesis, i.e. even ostensibly simple and functional devices are the product of social as much as technical factors, 'even the most mundane objects appear to be the product of a set of diverse forces' (Akrich 1992: 205). Or as Winner puts it, devices are

'designed and built in such as way that it produces a set of consequences logically and temporally *prior* to any of its professed uses' (Winner 1999: 32). Akrich calls this building in of uses or consequences *prescription*:

> the kit represented a large set of *technically delegated prescriptions* addressed by the innovator to the user (Akrich 1992: 211).

Akrich's *prescription* (*inscription* of uses during design and manufacture, *description* in use or consumption) echoes the textual metaphors of *encoding* and *decoding*:

> The technical realization of the innovator's beliefs about the relationships between an object and its surrounding actors is thus an attempt to predetermine the settings that users are asked to imagine for a particular piece of technology and the pre-scriptions (notices, contracts, advice, etc.) that accompany it (Akrich 1992: 208).

Here too, there are no guarantees that the innovator's prescriptions will result in users playing their envisaged role. These actors may attempt to reconfigure the technology and its uses.

Yet there are crucial differences in this approach and its implications. The emphasis in this particular example is not, as we might expect from a social constructivist approach, on either the user or designer shaping the lighting kit (important though their roles are), but on *the lighting kit's shaping of its user*. The lighting kit is not autonomous - its limitations and uses are inscribed by its designers - but neither is it 'textual'. Its material existence and physical limitations and facilitations allow certain uses (and hence users), deny others, imposing (or allowing) a range of activities and agencies on its user. In ensuring that the device would function under a range of conditions and circumstances, the lighting kit (and its designers)

> worked by a process of elimination. It would tolerate only a docile user and excluded other actors such as technicians or businesspeople who might normally have been expected to contribute to the creation of a technico-economic network (Akrich 1992: 211).

A crucial aspect that separates this approach from that of social constructivism is the assertion of 'the obduracy or plasticity of objects' (Akrich 1992: 207). The meanings and uses of technologies, other artefacts and objects in general are not wholly determined by the linguistic operations of culture. Their material existences and physical properties facilitate some possibilities and meanings and foreclose on others. They are 'used' as well as 'read' or 'consumed' and as such can be theorised as agents or actors along with the human actors with whom they 'participate in building heterogeneous networks' (Akrich 1992: 205).

Moreover, in this technico-economic network it is impossible to set out clear conceptual distinctions between the human (designer, user) and nonhuman (lighting kit) as subject and objects. The agency of the

nonhuman node in this circuit then is not reducible to a meaning to be decoded, aberrantly or otherwise, but is also bound up in its material status as a technology. As well as inviting a negotiation of meaning it affords competences and in so doing shapes its user: as the user configures the technology through description, the user him or herself is reciprocally configured.

> technical objects define actors, the space in which they move, and ways in which they interact. Competences in the broadest sense of the term are distributed in the script of the technical object. Thus many of the choices made by designers can been [sic] seen as decisions about what should be *delegated* to a machine and what should be left to the initiative of human actors (Akrich 1992: 216).

If technological determinism ignores the structural effect of a network by looking at only the technical objects, social constructivism is conversely inadequate because it 'denies the obduracy of objects and assumes that only people can have the status of actors' (Akrich 1992: 206)

...the missing masses

> [I] see only actors - some human, some non-human, some skilled, some unskilled - that exchange their properties (Latour 1992a: 236).

In his essay in this pair, Bruno Latour contributes to this anthropology of technology, suggesting detailed models of the power relationships, of *delegations* and *translations* in heterogeneous networks. He takes an everyday and banal occurrence as the launching pad for an entertaining and counter-intuitive enquiry into what he calls the 'missing masses'. These are the innumerable non-human devices and objects that, he asserts, make up the 'dark matter' of society - unobservable using established sociological lenses, but necessary to the existence of human relationships and activities. He sometimes refers to these non-humans as *lieutenants* (from the French - holding the place of, or for, another):

> If in our societies, there are thousands of such lieutenants to which we have delegated competences, it means that what define our social relationships is, for the most part, silently prescribed back to us by non-humans. Knowledge, morality, craft, force, sociability, is not a property of humans but of humans accompanied by their retinue of delegated characters. Since each of these delegates ties together part of our social world, it means studying social relations without the non-humans is impossible (Latour 1992b).

He argues that the idea that society is made up only of human agents is as bizarre as the idea that technology is determined only by technological relations. Hence to follow this logic, hard technological determinism is a 'mirror image' of social constructivism and as such each is inadequate.

Latour's use of the term delegation relates closely to Akrich's 'scripts' and competences. Not only do artefacts restrict or facilitate particular uses by human users, they are also constituted by the delegation of

particular human activities, they translate and perform human agency. To explain how Latour arrives at such ostensibly anthropomorphic constitutions of machines and artefacts, I will summarise the essay.

The mundane occurrence that begins the essay is a sign placed on a door at La Halle aux Cuirs at La Villette in Paris: 'the groom is on strike, for God's sake keep the door closed'. The groom is a French term for an automatic door closer. The talk that Latour was attending at La Halle aux Cuirs was in February and so if the door did not close automatically the place became cold and draughty unless people remembered to close the door. For the purposes of his argument Latour takes the anthropomorphism of this wry joke on machinic agency straight, at face value.

Latour asks the reader to think about the hinged door as an invention, inviting them to compare the effort of getting through a wall with and without a door. The hinged door is then an elegant solution to the 'hole-wall dilemma', a way of getting through a wall with minimal effort, yet preserving the wall's qualities or function as security or shelter (i.e. once the door is closed again). This is a simple illustration of Latour's key term 'delegation' (or displacement, translation, shifting), a 'transformation of a major effort to a minor one'. So, the human effort of getting through the wall (presumably of knocking a hole in a wall and then bricking it up again) is delegated to the hinged door. A human activity is delegated to a non-human and is, in the process, transformed.

> Every time you want to know what a non-human does, simply imagine what other humans or other non-humans would have to do were this character not present (Latour 1992a: 229).

As a solution to the hole-wall dilemma however, the hinge is not perfect as it cannot ensure that the door is closed (the wall fully reinstated) after it has been used. Latour proposes two possible solutions to this dilemma (in public spaces particularly) these being, 1. to instruct or discipline the door's users to close it behind them, or 2. to employ someone to open and close the door. If the latter solution is chosen then only one person has to be disciplined. Here both hinge and commissionaire are, in Latour's terms, 'delegated characters'. Each functions as a displacement or translation of the initial activity. Straight away, even in this simplest of 'heterogeneous network' (here – hinged door, commissionaire, people passing through the door), clear distinctions between subject, object and agency are hard to maintain. Both solutions of course have their down sides. Injunctions to groups of people to behave in a certain way are rarely effective, and the employment of a commissionaire or concierge is problematic in that it is expensive, and even the disciplining of one individual may not be effective if that individual is performing a boring task at low pay (Latour 1992a: 230-231).

Both solutions so far are made up of a non-human character (hinge) and human characters (either the general public or an individual employee). The door-closer (when not on strike) represents a third solution, one constituted by a non-human character (hinge) and another non-human character (the door-closer, or groom). This is a clear illustration of delegation or displacement - the laying off of humans and their replacement by technology is familiar in industry. However, Luddite objections to automation notwithstanding, the employment of the groom is still not a perfect solution. The door-closer will attempt to close the door regardless of whether anyone is in the way or not. Door-users familiar with particular doors will be able to dodge or anticipate the closing door, whilst others may find the door slamming in their face. Thus, 'An unskilled non-human groom thus presupposes a skilled human user. It is always a trade-off' (Latour 1992a: 232).

Latour points out that this particular delegation is characteristic of the reciprocal delegations that Akrich identifies in the configuring of users by technologies. In Latour's example, behaviour is imposed back onto the human by non-human delegates. Again, this prescription can be moral or political. The door-closer may discriminate against the inexperienced user, but also against, for example, children or the elderly. Like Winner's bridges in New York, 'the non-humans take over the selective attitudes of those who engineered them' (Latour 1992a: 233).

Latour's concepts are congruent with, and extend, the notion of affordance as I have developed it so far. In an essay theorising cars and their drivers as 'assemblages', as 'driver-cars', Tim Dant explains the material effects of technologies thus:

> The notion of 'affordance' [....] points to the way that the materiality of an animal 'fits in' with some material aspect of its environment [...] An object does not have affordance as a general property (such as its weight or chemical composition) but affords particular things to the materiality of particular species. An armchair affords a bed to my cat but affords a seat to me (Dant 2004: 65).

Affordance then is a relational not absolute concept, and is not a 'property' but it is not separable from the object's material existence. The armchair's varying affordances as bed or chair are premised in its softness and its convenient semi-enclosed horizontal surface. Later Dant argues that the concept of affordance is limited, it 'does not tell us anything about the rather more interesting social relations with objects [...] designing, making, adapting, learning to use, maintaining, policing, and so on (Dant 2004: 67).

configuring the user

In an essay on his ethnographic research into the design and manufacture of a home computer in the 1980s, Steve Woolgar introduces some terms and concepts that will be adopted and worked with later in this thesis. This is, Woolgar asserts, an 'ethnography of computers' rather than (just) an ethnography of computer producers and designers. He makes the distinction in order to 'maintain ambivalence about the appropriate unit of analysis, as a way of exploring assignations of agency' (Woolgar 1991: 66). This is congruent with Latour's insistence on any social / technical activities or artefacts as assemblages of human and nonhuman, but Woolgar takes it further – arguing that the commonsense distinctions between nonhuman (whether artefactual or conceptual in nature) and human actors within the network become increasingly redundant:

> In particular, our preconceptions about the nature and capacity of different entities shape what counts as legitimate accounts of action and behaviour (Woolgar 1991: 59).

Woolgar's 'ethnography' documents the social construction of the anticipated user of these home computers through the pre-scription of competences in the choice of components, interfaces and openness of the devices. He calls this 'the configuration of the user'. As he puts it, the

> design and production of a new entity [is] a process of configuring its user, where 'configuring' includes defining the identity of putative users, and setting constraints upon their likely future actions (Woolgar 1991: 59).

It is important to note that it is not only the identity of the user which is constructed. The design process not only encodes symbolic meanings as Du Gay et al argue in relation to the Walkman; rather it also entails an attempt 'to define and delimit the user's possible actions', 'setting parameters for the user's actions' (Woolgar 1991: 61). Thus the user is *configured* as much as assumed or constructed, and clear conceptual distinctions between subjects and objects are weakened: 'as a result of this process, the new machine becomes its relationship with its configured users' (Woolgar 1991: 59). And, presumably, vice versa: the configured users become their relationship with the new machine. It is the *relationship* that is central here, the *becoming* is the object of study. This is particularly pertinent to the microethnography developed in this thesis, as it shifts critical attention from human subjects and technological devices in themselves to the relationships of translation and configuration between them. We are no longer looking at just a 'technology' and its 'users' but the event of their relationships, of their reciprocal configuration. In any particular technocultural assemblage then, deeply ingrained conceptual distinctions between human actors and activities on the one

hand, and technologies and artefacts on the other, are less significant than the distribution of delegations across them:

> The distinctions between humans and non-humans, embodied or disembodied skills, impersonation or "machination", are less interesting than the complete chain along which competences and actions are distributed' (Latour 1992a: 243).

However it must be emphasised that the direction of attention to relationships, becomings and translations does not rule out the materiality of the human and nonhuman actors, their skills and effects. The 'unit of analysis'—the event—is a relationship of *parts*.

The fact that Woolgar's object of study is the network and actors involved in the production of computers is evidently of interest for this thesis. On the one hand, much of Woolgar's discussion could be applied to the design and manufacture of any consumer product: such processes always entail the construction of a notional user and all build concomitant competences into their product to configure that user. On the other, the specific complex, open, nature of the computer as actor in this network is hinted at. Woolgar here is concerned with the 'actions and capabilities of […] animate entities […] with which we populate our world' (Woolgar 1991: 60), implying a distinction between animate and inanimate technologies. Parts 3.3 and 4 will pursue this notion of animate technologies as key to videogame play and players, exploring in detail the configuration of the player and/as the 'new machine' not at the moment of production, but in all the subsequent moments of 'consumption': in the real-time feedback loops of the videogame play event.

the object hypothesis

Woolgar develops this argument that non-humans have agency or prescriptive effects, and that in the technosocial world it makes little sense to insist on firm distinctions between the human and the nonhuman, in a critique of what he calls the 'object hypothesis'. He counters the common sense assumption that entities are bounded and discrete from other entities and the environment in which they are situated, 'one of the foundational ordering principles of our phenomenal world', with the notion of the real world as a continuum, 'a flux of varying viscosity':

> By taking the flux of varying viscosity as heuristic, we see the world as comprising a range of objects whose boundaries exhibit varying degrees of definition (in both senses of the word) (Woolgar 1991: 64).

He gives a variety of examples including: the positioning of the 'soul' in Western Namibian cosmology as in the body but just below the left elbow; and the differing philosophies on deviancy within Western culture, for conservatives located firmly within the individual deviant, for liberals outside the deviant and hence beyond their control. His main study though is more immediately applicable to the discussion at hand. In the computer manufacturer's usability trials for their new microcomputer,

> neither machine nor user is settled / experience / established. Consequently, the interactions are part of the process of establishing the identity of the interacting entities. In other words, in this situation, the interaction between machine and user invites assessment both of whether or not the machine is acting like a real machine *and* whether or not the user is acting like a real user (Woolgar 1991: 82).

Just as the differences between Akrich's pre-scription / de-scription and Hall's encoding / decoding were established earlier, it is important to distinguish Woolgar's position from that established in Cultural and Media Studies' 'linguistic turn'. The latter would account for differing philosophies on deviancy, for instance, only in terms of systems of language and subjectivity. The definition of the microcomputer (Woolgar's noting of two senses of 'definition' is significant) occurs both through semiotic operations and through this new machine's affordances as a set of material technologies. It is defined in a material event in which its users are also brought into definition as material entities.

ANT & everyday cyborgs

Dialogue between ANT and STS and Cultural Studies has to date been limited and sporadic. Mainstream British Cultural Studies and particularly Media Studies have yet to engage with these debates (though see Couldry in press), though North American Cultural Studies has been more receptive (Balsamo 1998, Eglash 1998, Slack & Wise 2002). Some British sociologists have engaged with ANT and STS in work that should be more widely read within Cultural and Media Studies. Some of this research will be drawn on later in this thesis (e.g. Dant 2004, Law 1991, Lupton 1999, Woolgar 1991).

> Tim Dant points out that there is within ANT a striking and

> general absence of any attempt to explore how the human and the non-human actors interact. There is no reference to video or observational data, no account of how things work or how people use them [...] ANT expands on the social and historical character of affordances but tells us little about the lived nature of human beings and objects (Dant 2004: 69-70).

Latour 'leaves much unsaid about the routine, everyday, lived, embodied relationships between human beings and the material objects around them' (Dant 2004: 71).

STS has had an oblique influence on Cultural Studies and new media studies however, through cyberfeminism's critical attention. There is for example a wary reciprocal acknowledgement of each others' work on technoscience between Donna Haraway and Latour. An assessment of cyberfeminism's misgivings about some of ANT's assumptions and intentions lies beyond the remit of this thesis, but the resonances between Haraway and ANT's postulations of the hybrid, the heterogeneous and the monstrous in technoculture are central to my microethnography (see Part 4.2) .

everyday cyborgs

As befits something so monstrous, the cyborg is heteromorphic. For Donna Haraway it is chimerical, an ironic yet utopian being made from actual and symbolic parts. As noted in Part 1.3 N. Katherine Hayles' cyborgs manifest themselves in three forms: the fictional (e.g. Robocop); the literal (e.g. the human body augmented by a heart pacemaker); and the (misleadingly named) metaphoric—constituted by intimate, though temporary, circuits between the human and the technological, and exemplified by the videogame player (Hayles 1999: 115). Whilst the phenomena and conceptual concerns addressed by this 'cyborg theory' are of integral interest to this thesis, I suggested that the 'cyborg' itself is too unitary and anthropomorphic a figure to fully account for these circuits of the human and the nonhuman in everyday technoculture.

A number of STS-influenced sociologists have discussed the everyday technoculture of cars and their drivers in cyborgian terms. Tim Dant usefully adopts the term *assemblage* from ANT to denote these impermanent but significant couplings of the human and the nonhuman (Dant 2004, also Haraway 2004, Latour 1999). These 'car/drivers' (Lupton 1999), or 'driver-cars' (Dant 2004), then, are assemblages of human and machinic components within a technologised environment of roads and street furniture, more than the sum of their parts:

> The driver-car is neither a thing or a person; it is an assembled social being that takes on properties of both and cannot exist without both[...] The car does not simply afford the driver mobility or have independent agency as an actant; it enables a range of humanly embodied actions available only to the driver-car (Dant 2004: 74).

For Deborah Lupton 'when one is driving, one becomes a cyborg, a combination of human and machine' (Lupton 1999: 59). The contemporary technocultural phenomenon of road rage is bound up with this cyborg ontology:

> When other car/drivers invade our space, appear to put us in danger, when they touch our hybrid bodies with their own or yell at us, our sense of being in a private space within a public sphere is violated (Lupton 1999: 70).

Angry drivers, Lupton suggests, force the breakdown of the automotive actor-network, threatening 'the complex social order of the road and its heterogeneous network of human, non-human and hybrid actors' (Lupton 1999: 70). This is an example of ANT applied to everyday here-and-now technoculture. It describes a cyborgian network of the human and the nonhuman as characteristic of the most familiar and mundane activities:

> Many of our engagements with machines challenge notions of the accepted dichotomy between human and non-human, between self and other. Drawing a distinction between the 'animate' and the 'inanimate' and 'human' and 'non-human', therefore, suggests dichotomies which perhaps should be viewed as continual or hierarchical categories. Actors may better be conceptualized as the products of networks of heterogeneous factors interrelating with one another (Lupton 1999: 58-9).

Though ostensibly similar to Lupton's car/driver, Dant's driver-car is terminologically, and ultimately conceptually, distinct. He is clear the driver-car is not a cyborg: he makes a distinction between the *cyborg* as a human augmented by 'feedback systems incorporated into the body that can be used to replace or enhance human body part' and *assemblages*, the temporary constitution of human and nonhuman actors (Dant 2004: 62). The assemblage 'comes apart when the driver leaves the vehicle and which can be endlessly re-formed, or re-assembled given the availability of the component cars and drivers' (Dant 2004: 62). In denying any cyborgian characteristics to the driver-car assemblage, Dant reinscribes a solidly humanist position, arguing that 'human subjectivity is in no sense constituted by getting into a car; it is a temporary assemblage within which the human remains complete in his or her self' (Dant 2004: 62). This is indicative of a key irony in much cyborg theory: the anthropomorphic figure of the cyborg-as-augmented-human is established as radically posthuman; whilst the heterogeneous engineering of human and nonhuman in technocultural events is, implicitly, reassuringly humanist. If the cyborg is to do any descriptive, analytical or conceptual work for assemblages such as car/drivers and videogame/players, it must be through emphasising its hybrid monstrosity in the 'temporary' and the 'eventual' nature of everyday technoculture.

So, as Lupton's vision of the car/driver as one actor-network circulating eccentrically within and across many others indicates, there is little humanist reassurance in stepping out of the driver-car:

> the network of social relations, norms and expectations around car use, such as road rules, and material and spatial aspects such as the physical nature of roads, the presence of traffic lights and of other cars, represent everpresent structuring features of car use. Cyborg subjectivities, therefore, are not simply about how we, as bodies/selves, interact with our machines, but about how we interact with other cyborgs as part of a cyborg 'body politic' (Lupton 1999: 59).

conclusion: from anthropology of technology to microethnography

> ... technical objects and people are brought into being in a process of reciprocal definition in which objects are defined by subjects and subjects by objects. It is only after the event that causes are stabilized. And it is only after the event that we are able to say that objects do this, while human beings do that. It is in this sense, and only in this sense, that technical objects build our history for us and 'impose' certain frameworks. And it is for this reason that *an anthropology of technology is both possible and necessary* (Akrich 222: my emphasis)

For this thesis, an anthropology of technology must think of videogames, videogame play and videogame players as actual cybernetic phenomena: a non-ironic and non-figural vision of human-machine relationships in everyday life, in a ludic technoculture. I propose that the microethnography developed in this thesis is an important contribution to an anthropology of cultural technology. It both draws from, and challenges, the ethnographic approaches of Cultural and Media Studies and new media studies. The problems and possibilities here are both terminological and actual: how to study the lived nature of humans and objects in digital culture? An emergent 'cyborg anthropology' (Downey, Dumit and Williams 1995), or 'cyborgology' (Gray, Mentor and Figueroa-Sarriera 1995), would at least need to interrogate the humanist assumptions of both the cybernetic organism and the anthropos.

There are questions of the site, as well as the objects, of ethnography. Christine Hine outlines an established view of ethnography as 'the sustained presence of an ethnographer in the field setting, combined with intensive engagement with the everyday life of the inhabitants of the field site, which make for the special kind of knowledge we call ethnographic' (Hine 2000: 63-4). Traditional ethnography then is site-specific: Miller and Slater argue that even Internet ethnography can be sited in actual places, 'by investigating how Internet technologies are being understood and assimilated somewhere in particular...' (Miller and Slater 2000:1).

Other critical ethnographies of everyday virtualities (Hine's research for instance) have explored the apparent paradox of fieldwork in nonactual place and insist on their interpenetration with the actual world; though this is usually in terms of communication or identity formation, the persistence as well as the transformation of established structures or relationships of families or gender. However the cyberspaces of MUDs and chatrooms tend to be downplayed in favour of the communication practices they facilitate, at best they are considered at their boundary with the actual world. Before going on to consider what my own modest ethnographic study may reveal about the virtual and the actual as sites of fieldwork, I wish to note a

distinction that Hine makes (after Clifford Geertz) between two broad and contradictory approaches to 'traditional' ethnography:

> The ethnographer is able to use this sustained interaction to 'reduce the puzzlement' (Geertz, 1993: 16) which other people's ways of life can evoke. At the same time, ethnography can be a device for inducing that same puzzlement by 'displacing the dulling sense of familiarity with which the mysteriousness of our own ability to relate perceptively to one another is concealed from us' (Geertz, 1993: 14) (Hine 2000: 64)

This latter strategy, of inducing puzzlement (perhaps denaturalising, 'making strange') is particularly suggestive for the study of the researcher's own culture (or subcultures or groups thereof). Hine is clear that her intentions, in studying the Internet, are thus oriented; and the microethnography developed in this thesis roots itself in this strategy.

anthropology of media technology?

Neither SST nor Actor-Network Theory have had much to say about media and communication technologies. The 2nd edition of *The Social Shaping of Technology* includes an essay by Paul Ceruzzi on personal computing, though this is mainly concerned with the social construction of the meanings of the PC in advertising. In Woolgar's study, the new computer is understood as a *machine*, rather than as a communication or entertainment medium. As Nick Couldry has argued, this is in part due to the historical lack of contact between Media Studies and ANT. He also suggests limitations of ANT that would become problematic when applied to Media Studies, in particular ANT's concern with how networks come to be formed, but its lack of interest in how those networks are sustained over time :

> What limits the usefulness of ANT as a research tradition for media analysis generally is its relative lack of interest in the long-term power consequences of networks' establishment for social space as a whole and its equality or inequality (Couldry: in press)

I would add that though ANT offers useful resources for theorising media technologies as agents (rather than texts), it does not immediately suggest ways of thinking of 'soft' media artefacts - music tracks, television programmes, images – as aesthetic entities or agents within the heterogeneous networks of media consumption or use. What kind of agent might a videogame be in its network of software, hardware and players? This, in part, will be the concern of the next section. The rejection of a simple binary between artefactual and human actors in a circuit is suggestive for the analysis of the player's immersion in and interaction with the videogame. The ANT project of an anthropology of technology, together with critical cybercultural studies, compiles a bestiary of actants (both figurative and non-figurative): delegates,

lieutenants, hybrids and cyborgs. Part 4 of this thesis establishes microethnography as a method for researching these monstrous entities and circuits in, and as, everyday computer media events.

objects, agents and events

Before the microethnography is revisited however, it is necessary to think through the specificity of computer media. They must be conceptualised as both symbolic and material. On the one hand, videogames are toys, popular media, performative events, characterised by symbolic content derived from established popular screen media. On the other hand, the analysis of videogames as a computer-based medium demands the description of a special category of nonhumans, software entities (in the language of computing, 'agents') that act more or less autonomously, or effect emergent behaviour. These automata will be discussed in the development of a cybertextual analysis in Part 3.3. It will – echoing Woolgar's critique of the object hypothesis – resist conceiving of the videogame as a discrete and 'whole' object. Rather it will identify and analyse some of the components of the videogame, software components that effect their own operations and semi-autonomous agency within the videogame system. This model of an event-system and its constituent parts will extended in Part 4 to reconsider the videogame event as constituted also by the player as constituent part(s).

3.3: cybertextual analysis

> Any cyborg field, as any communicative field, is dominated by the issues of domination or control. The key question in cyborg aesthetics is therefore, who or what controls the text? (Aarseth 1997: 55).

Day by day the antagonists launch missile strikes, generate new troops, weaponry and vehicles from factories, seize cities, calculate risks and trade insults. And yet it would be hard to generate a moral panic over the violence in this war-simulation game. On defeat, the units do not explode in the gibs of a fragged FPS avatar, but are rendered in generic animated sequences - gracefully sliding from the screen. The warriors are the Commanding Officers (COs): cartoon characters, a number of them apparently teen-aged, each with a set of characteristics, interests and moods familiar from the economical sketchings of personality traits of their television animation forebears.

The popularity and success of this game, *Advance Wars 2*, relies on the sophistication of its tactical and puzzle-based gameplay rather than the cinematographic photorealism of other recent popular games. It is a game for the Nintendo Gameboy Advance platform – it makes the most of the 2D graphics and the portability of this handheld console.
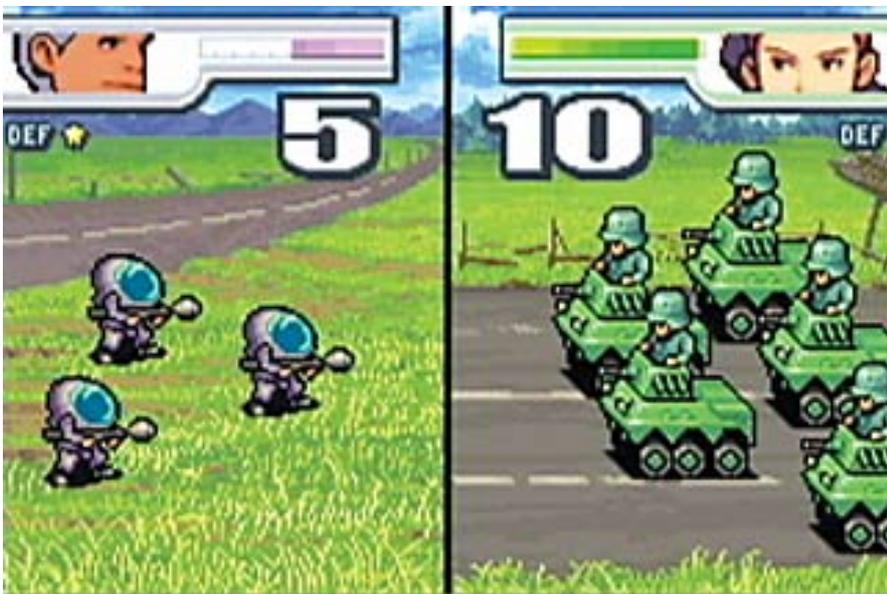

Figure 25: *Advance Wars 2* (2003)

The player commands an army against a computer-controlled enemy army on a battlefield – one of many maps/territories in 'Wars World'. Various units are mobilised: infantry, artillery, different kinds of tanks,

planes and ships. Most battles require the defence of a base and the capture of the enemy base, and many have a particular puzzle-like element that must be solved for victory. With the characteristically iterative temporality of the videogame as a form it may take a number of attempts at a battle for example to realise that an airport must be seized and held for victory to be possible.

Figure 26: a Wars World map

Play proceeds on a turn-by-turn basis similar to that of board games and this structuring of play, agency and time defines this game genre: it is a turn-based strategy game (TBS) rather than the now more popular real-time strategy game (RTS). The RTS was made possible by increased graphics processing power and developments in game software design. The *Advance Wars* series capitalises on the more stylised yet elegant imagery of a more 'primitive' genre. Each day / turn the player moves or refuels his or her units (according to their range of movement and the kinds of terrain they can traverse), generates new ones (funds and possession of factories permitting), and launches attacks on enemy units. Once all movement and attacks have been completed, the enemy (computer-controlled) CO takes his or her turn. At the end of this turn, the game-day ends and the cycle begins again. Game-battles can be over in four or five turns / game-days, or can rage for game-months. Moreover, given the infinite iterability of both games (digital or otherwise) and software, any battle can be refought until victory finally allows the player to move on to the next battlefield and the next battle.

This section is concerned with the analysis of videogames as an entertainment computer media form. It will selectively draw on literature from new media studies and game studies that addresses the distinctiveness of videogames, and the formal characteristics and operations of videogames-as-software. It

will explore ways of theorising the dynamic operations of games, leading toward a consideration of the nature of their agency in the gameplay event.

Aarseth's rather paranoid statement with which this section starts introduces cybernetics as both a new field of enquiry to contemporary Media Studies and as always-already dangerous. The following analysis of *Advance Wars 2* argues that an understanding of cybernetics is essential, but rejects the assumption that the relationships of domination and control within Wars World are necessarily mapped onto broader postindustrial political realities. I do want to ask who or what is in control, but I want to bear in mind that 'cyborg fields' can be playful too.

Picking up on the foregoing critique of both the critique of technological determinism and the textual metaphors of dominant theoretical paradigms, this section will develop a 'cybertextual analysis' (after Espen Aarseth's notion of the cybertext, more below): a set of suggestions for, and examples of, approaches to the analysis of videogames as both popular screen media and as computer-based media. These proposed analytical approaches foreground the general issues of nonhuman agency discussed above, but also the specific nature of videogames as computer media: their dynamic, processual operations; their instantiation through interactive or cybernetic relationships with human players; and their status (and agency) as simulations and simulacra.

Again the literature surveyed here is not adequate to the description or analysis of the videogame play microethnography. I will pull out and develop the most salient and productive terms and approaches, those which emphasise the dynamism of videogames-as-software: from a broad sense of artefacts as actors in ANT to specifically responsive, initiatory, autonomous operations of software as media technological artefact.

simulation versus representation in Wars World

Just as the dominant analytical concepts of encoding / decoding, representation and textuality are inadequate to the task of analysing videogames as media technologies, so too are they problematic for analysing the symbolic content, the images sounds and dramas presented to the players, the videogame 'text'. A number of commentators and scholars have noted a shift from representation to simulation as dominant modes of the organisation of cultural objects and their significatory relationships to the world (Woolley 1992, Frasca 2003, Lister et al 2003) with the advent of computer media. The concept of

simulation will be discussed in more detail below, here I wish to explore why 'representation' might be less than useful for analysing the significatory operations and 'meanings' of videogames as popular new media.
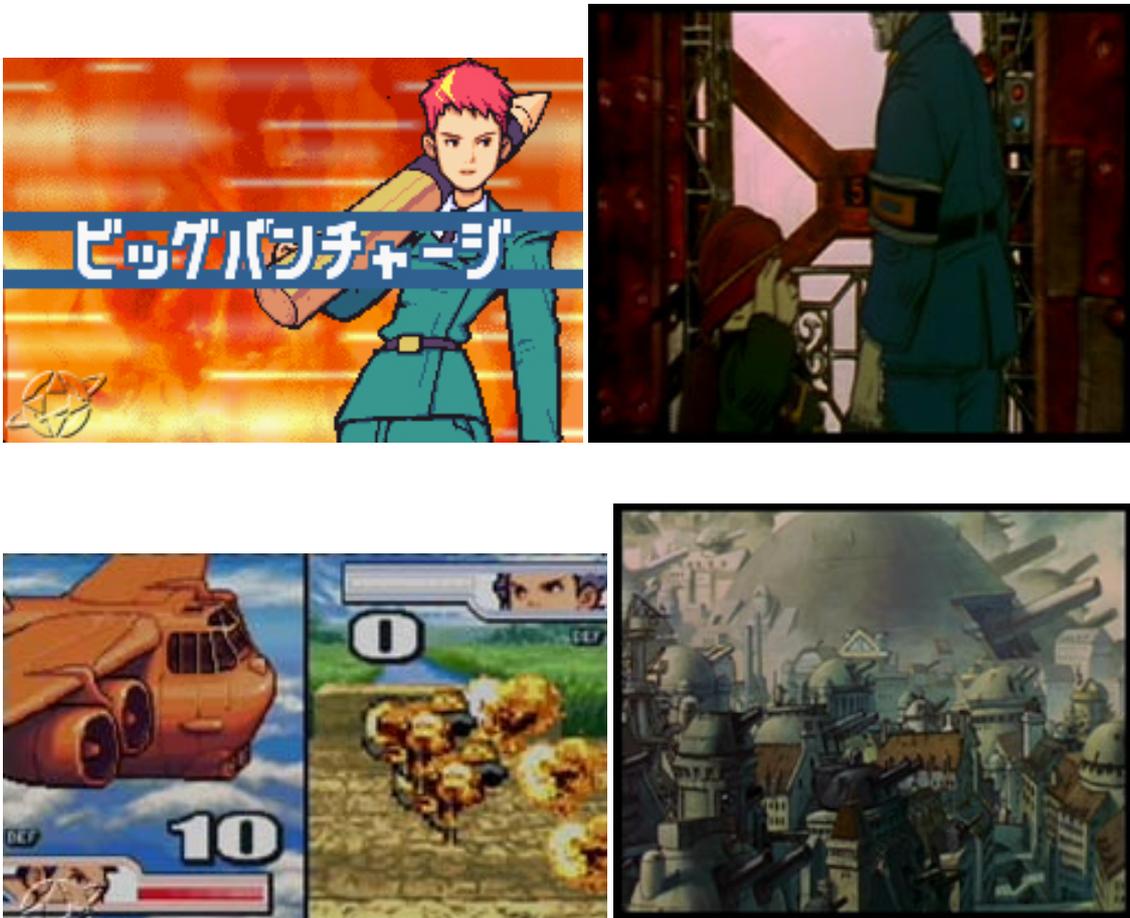
Figure 27: *Advance Wars 2* **(l) and** *Cannon Fodder* **(1995) (r).**

A brief comparison between *Advance Wars 2* and an ostensibly similar screen text, the animated film *Cannon Fodder* (Otomo 1995), highlights the radical differences in their operation and meaning, and the relative analytical relevance of what they 'represent'; and hence the necessity of alternative modes of analysis. The fictional worlds in both are portrayed as existing only for total war. In *Advance Wars 2* the topography and its inhabitants exist only for war, whilst *Cannon Fodder* presents a future city constructed entirely for war (here against an apparently unknown and remote enemy), from the buildings bristling with artillery to its uniformed citizens and domestic spaces constructed from discarded ordnance. Both are Japanese, and they share marked stylistic characteristics, each has a hand-drawn rather than photorealist or

hyperrealist aesthetic, and each pictures its weaponry and characters as a futurist version of World War II styles and technologies.

However their differences are marked. *Cannon Fodder* is an anti-war parable, its tone that of pathos. As with any screen narrative its meanings are open to various readings, and a large part of its attraction is the quality and fluidity of its animation, but it is safe to assume that many viewers will see it as a didactic film, an allegory of the contemporary inhumanity of war. No such pathos is evident in the unfolding events in Wars World though. Here, whilst the diegetic details of weaponry and characterisation on the one hand, and the overall military theme and motive on the other, are important aspects of the appeal of the game, they do not 'represent' as such, that is – whatever significatory or ideological meaning could be read into the game's images and scenarios they play a secondary (and to a certain degree, arbitrary) role to that of the abstractions of gameplay. That is to say that whilst *Advance Wars 2* as an organisation of images, sounds, characters is as open to ideological critique as any media text / artefact, such analysis of its representational operations hardly touches on its reality as a game or a playful experience.

games as anti-representational

In the early development of game studies hard line positions were struck. A 'ludologist' would argue that chess or *Tetris* are evidence of the radically non-significatory nature of games. Chess sets have been designed with characters from *Star Trek* or *The Simpsons* rather than the traditional tokens, but the game is unchanged (Eskelinen 2001, Juul 2001). This formalist approach does not concern itself with the contingencies of gameplay, and makes assumptions about the relationship of the player to the game. Whilst it tends not to consider the digital nature of such games as of conceptual significance (the object of study here appears to be all games from noughts and crosses to sport, digital games being perhaps only a particularly interesting or contemporary instance of games), it does highlight the distinctive nature of games that are characterised by symbolic elements, from chess to videogames in terms of a radical critique of assumptions (from literary or film studies for example) of the primary importance of signification or representation in games as media.

Jesper Juul argues that the relationship between this symbolic content of the game (which he terms 'material') and the underlying structure of the game ('program') is arbitrary. He illustrates this by comparing *Space Invaders* with a version of the game Juul himself wrote to support an anti-EU campaign in Denmark. Juul's version features Ecus and the circle-of-stars EU flag to be fired at instead of alien invaders. The

argument is straightforward: narrative elements frame the game's action and motive and particular sets of imagery or icons dramatise it, but neither elements constitute the game. The game – as program – is an abstract set of rules and potentials – 'perfectly formal' Juul argues - engaged with in play rather than the notions of reading or spectatorship familiar from literary and media theory.

It should be noted that this argument tended to subsume all forms of meaning-making, cultural context and communication as 'narrative' which has not served to clarify the argument or make it more productive. It should also be noted that Juul has subsequently revised his position, talking of the 'fictional worlds' of games to discuss the symbolic yet non-narrative form of many games (Juul 2005a).

Yet from the comparison between *Advance Wars 2* and *Cannon Fodder* above it is clear that the symbolic content of videogames signifies differently from conventional screen media texts. The figure below shows screenshots from two FPS games, *Wolfenstein 3D* and *Doom*, both id software.

Figure 28: *Wolfenstein 3D* (1992); *Doom* (1993)

They represent an action drama in a fictional World War II setting and an action drama in a futuristic science-fiction setting respectively. Theories of representation drawn from Media Studies would analyse such 'texts' in terms of the codes with which they articulate their symbolic content. How does the game frame its historical and political subject matter for instance, what ideological construction of Nazi Germany is effected in *Wolfenstein 3D*? Whilst such textual analysis or ideology critique may be of interest, it says very little about the games themselves or even what they might *mean* in play. This is more than a question of various decoding positions. There is very little difference in the experience or actions of playing these two games, the gameplay is practically identical. The games are closely related in a material as well as generic

sense. *Doom* is a development of the *Wolfenstein* engine. The flexibility of game engines in the production of new games and other virtual environments is evident in the modding culture mentioned in Part 1.2 (see also Mactavish 2002, Morris 2002, Giddings & Kennedy 2006) in which fans adapt games or create new ones. Akrich's prescription and description dynamic would be very useful in the study of how game engines both facilitate creative and technical engagement with the videogame whilst also shaping the modes of interaction and simulated space.

On one level then any cultural critique attempting to identify the ideological effects of these games would have to shift its attention from the specific imagery (historical stormtroopers, future mutants) to the underlying motive of the game. The motive of single-player action-FPSs such as these has been characterised as 'navigate, annihilate, accumulate' (Dovey & Kennedy 2006). The player must explore the virtual space via his or her avatar, shoot anything that moves and pick up anything that doesn't (ammunition, powerups, currency). If an ideology critique is possible then it is at the level of the performance or the activity of the player as directed by the form of the game. It is at once more abstract and more embodied. Certainly the popular anxieties about videogames discussed in Part one often operate at least in part on this level: violent games 'train' players to shoot without thinking and / or internalise a model of a relationship between the world and the individual in which the former is mere territory to be exploited or assaulted by the latter. These moral panics contain a germ of analytical usefulness, however unhelpful their conclusions and ignorance of the mediating role of play.

ludic cyberspace

A key aspect of videogames that distinguish them from longer established popular screen media is their organisation and presentation of, and mode of interaction with, virtual space. The FPS genre is named after its point of view and its primary motive (i.e. to shoot), but it is also characterised by its simulation of space. *Wolfenstein 3D* made this point in its title, subsequent games have not had to. The organisation of the game as a 'text' and an 'interactive' play experience is around virtual 3D space. As indicated in the discussion of FPSs, the peculiar constitution of genres in videogames reflects the ambiguous status of the symbolic content of this medium. Film genres denote content (Westerns, science fiction, and so on), whereas video games are generally categorised according to their spatial structure and mode of interaction. *Wolfenstein* and *Doom* are examples of the FPS genre, not of historical or science fiction. The orientalist fantasy of *Prince of Persia* and the science fiction scenarios of *Sonic the Hedgehog 2* both fall within the genre of the platform game.

Figure 29: the platform 'genre'. l: *Prince of Persia* (1989); r: *Sonic the Hedgehog 2* (1992)

A number of new media and games theorists have foregrounded the 'spatial' characteristics of computer media in general and videogames in particular. Yet what kinds of space are being talked about here? The ideological basis of much early celebration of cyberspace as a new frontier or virgin territory has been thoroughly debunked, and some commentators have questioned the ideological motivations underlying discourses of 'space', of 'navigation', 'exploring', electronic frontiers, etc, whilst others have questioned the analytical accuracy of studying networked new media as spatial (e.g. Nunes 1997). I won't rehearse the arguments here, but it is worth noting that whilst it might be argued that the World Wide Web might be more productively described in terms other than cyberspace, videogames as a new media form always organise and present their material in spatial terms and can only be played with and through an understanding of them as virtual space whether this is the two dimensional abstract world of *Tetris* or the sprawling three dimensional worlds of MMORPGs. At the very least, the videogame interface is organised as a spatial structure and can only be played as virtual space. They are intangible, but not metaphorical, they are kinaesthetic and dynamic: their explorers feel their virtual physics through the play of cybernetic feedback.

Whilst the symbolic content of gameworlds can be interrogated as 'representational', my microethnographic findings presented so far indicate that it is at least as important to understand them as spatial, as virtual, as simulational. The game event was formed by the children's engagement with both actual and virtual space. Exploration of the gameworld was the first element of the game to catch their attention and imagination and it was the ludic topography that they translated into actual space, objects and play.

Studying the representation of space, and fictional characters' traversal of it, is well-established in literary and film theory. Mary Fuller and Henry Jenkins offer a discussion of videogames that draws on literary theory but approaches an understanding of videogames-in-play as processual or performative. Comparing (the playing of) Nintendo games such as *SuperMarioLand* to travel narratives (journals, ships logs, etc.) from the exploration of the Americas by Europeans in the 16th and 17th centuries, they emphasise both the spatial nature of these different forms and hence the invitation to the reader or player to vicariously explore and conquer.

Figure 30: ***Supermarioland*** **(1989)**

Here they suggest the beginnings of an ideology critique of computer games and other 'spatial' forms of computer media: 'part of the drive behind the rhetoric of virtual reality as a New World or new frontier is the desire to recreate the Renaissance encounter with America without guilt' (Fuller and Jenkins 1995, see also Manovich 1998).

The specific political conclusions of such critiques are not of immediate interest to this project (though questions of the subject position of the videogame player are, and will be discussed in Part 4) – what is worth noting however is that it is not the symbolic or 'textual' content of Nintendo games that is suggested as ripe for ideology critique it is the games' generation of explorable 'narrative' space. Or, more precisely, it is the exploration of this space in the acts of playing that is regarded as the most meaningful aspect for the

critical analysis of these games. It is the act of movement, of exploration, of conquering spectacular virtual spaces that is a primary characteristic of gameplay and the primary locus of the meaning or ideological operations of a game, not the 'representation' of particular characters per se (though these may be brought to bear to support the main critique).

On the one hand then this approach would suggest that further research into the meanings and operations of games should shift to a theoretical or ethnographic consideration of the activities and performances of the players as the game is played. I have argued that this is essential. But on the other hand, given what has been demonstrated so far, it is crucial to avoid shifting analytical focus back onto the exclusively human entities and contexts losing sight of virtual space as a nonhuman actor in the game event network. Fuller and Jenkins' account for instance presents gameworlds as fixed spaces, texts to be traversed in ways not too far removed from reading. The distinction with computer-generated space, such as videogames, is that it is the player as well as the character (here, the avatar) that explores, maps and traverses real (though virtual) space. New media studies and game studies to date rely on a clear distinction between the virtual space of the game and the actual space of the player, a distinction that the Lego Racers microethnography indicates are unsustainable. The distinction is often supported through reference to film studies and its insistence on an immaterial, psychic relationship between the virtual and the actual. There are a few exceptions within recent game studies research that begin to address the material relationships between the virtual and the actual via the avatar-system and these will be surveyed in Part 4.

The motive of *Advance Wars 2* is evidently spatially driven, the human and nonhuman players struggle to traverse and control territory. Though the game presents a certain narrative frame (which can be 'switched off' in a set-up menu), the war/play takes the form of exploitation and conquering of a territory rather than its exploration. Predigital analogies would be not the quest saga or explorer's itinerary but rather the board game (particularly chess) and the military planner's sandbox or bunker charts with pins and flags. I have already noted that the game characters themselves refer to each battlefield as a 'map'. Ted Friedman highlighted the distinctiveness of simulation of space in videogames as both map-like 'representation' (though of course not a representation of an existing territory) and as spatio-temporal simulation:

> Simulation games are a way to make the maps tell the whole story. As a still frame is to a movie, as paragraph is to a novel, so is a map to a simulation game. Simulation games are maps-in-time, dramas which teach us how to think about structures of spatial relationships (Friedman: 1999) .

the Sandy Bay system

Jo and Alex were not playing merely in a playground, a Euclidean space or stage for the interaction between discrete bodies and objects. Rather they were playing with the gameworld as a system, a game system in which the positioning and relationships of objects, avatars and topographical features are determined by ludic navigation (perhaps the closest actual analogue would be a theme park), and a virtual cosmology with its own (again ludic) virtual physical laws of soft gravity and friction that warp their temporal and spatial dimensions. Videogames require the development of new skills by players. They facilitate play in virtual as well as actual worlds, play that can only be understood through the study of the material characteristics and affordances of the virtual as software, facilitating game events with, for instance, simulated space, virtual playgrounds that not only frame but respond dynamically to the player (and vice versa). The videogame – as computer software medium – is a simulation before it is a representation: a virtual event instantiated by realtime circuits between player, computer code, and interface, actively suggesting or facilitating some activities and restricting or foreclosing others.

Figure 31: *Doom* **(1993) and** *Myst* **(1993)**

Manovich (1998) highlights this apparent contradiction between videogames as fundamentally spatial media and the ambiguous and intangible nature of computer-generated virtual space. He establishes a key analytical distinction between screen images and the databases and algorithms of the software that generate these images. All computer-generated 'spaces' are at root a computational processing, and graphic presentation, of data: they are interfaces to databases and the relationship between the symbolic content of the interface exists in a more or less arbitrary relationship with the database. For instance, the same data can be presented in quite different ways. The 'maps' that *Doom* players can call up to orient themselves are generated from the same data and co-ordinates that generate the gameworld. The figure below is a page from

a manual for *Doom* but the maps are generated in the game itself. Strictly it is not a map as such but an interface to the game's database just as the main game screen is.

Figure 32: map of *Doom* (Barba 1994: 153)

Each mode of presentation is as much the gameworld as the other. The game as a new media text/object assigns hierarchical values to these interfaces so that one is 'map' and the other 'world'. Graphically simpler games, particularly Gameboy games such as *SuperMarioLand* and *Advance Wars 2,* often feature interfaces that function simultaneously as map and world.

The illustration of the structure of *Myst* below demonstrates the formal construction of the illusion of three-dimensional space. It is not an image presented in the games itself but a diagram of how the game's static images, held in its database, are linked together to present to the player a sense of a coherent and navigable three-dimensional space.
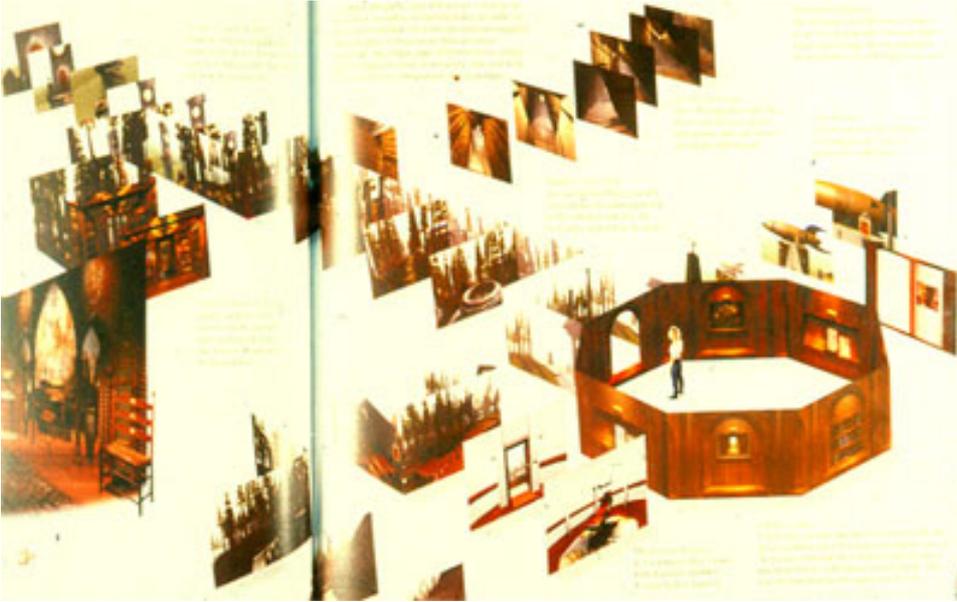
Figure 33: *Myst* as database

cybertext: beyond interactivity

The significance of the experience of virtual space to videogame play is clearly illustrated by my children's translation of it into actual space. However it would be a mistake to think of it only as a space in terms of actual playgrounds and spaces facilitating broadly analogous playful, imaginative (if physically constrained) experiences in the actual world (pace Jenkins 1998). As the figure above illustrates, a virtual world such as that of *Myst* does not pre-exist the act of play; it is brought into being for the player and around the avatar in the moment of play. It actively manages the player's exploration and actions through the setting of traps and puzzles, and it is populated by semi-autonomous NPCs. Popular game criticism will often judge a game on its 'AI', and this may mean both the successful generation of convincing NPC behaviour and the 'behaviour' of the virtual environment more generally. Virtual space is both an interface and a particular form of computer system, a software system of components including AI algorithms and automata.

To develop a model of the videogame event as one in which software itself can be theorised as a self-moving system in play, I will draw on passages from Espen Aarseth's book *Cybertext: perspectives on ergodic literature.* Whilst the theorisation of software agency is not one of Aarseth's primary concerns his book contains some very suggestive analytical terms and approaches.

> The concept of the cybertext focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange (Aarseth 1997: 1).

Though he is concerned to emphasise that his notion of cybertext covers a historically broad and formally heterogeneous 'constellation' of textual phenomena from the ancient, the *I Ching* for example which requires its readers to cast coins to determine which passages are read and interpreted; the avant-garde, such as Surrealist poet Guillaume Apollinaire's word-picture 'calligrammes'; and the computer-based, for instance Michael Joyce's pioneering interactive novella *Afternoon, a story* (1986); it is his analysis of the latter, of computer-based cybertext, that is of immediate relevance here. This section will briefly explain the constellar notion of cybertext, before focussing on Aarseth's analysis of a text-based computer game, an analysis that allows for the techno-aesthetic conventions, configurations and affordances of the game-as-software in play.

Though Aarseth is now an influential figure in game studies, this book is the work of a literary scholar, and his discussion of computer games is in the context of identifying a new category of literary works and objects. The games he discusses are text-based and are included as popular manifestations of experimental literature, not as games per se. The cyber- prefix refers not specifically to computer media, but to the material activities and feedback between the reader and these distinct textual forms or, as he sometimes refers to them (non-metaphorically), textual machines. This is ergodic literature, defined by its relationship to its readers in the cybernetic process of reading: the reader / user must do some 'non-trivial' work, making sense of the text by making links, solving puzzles or performing activities that go beyond the 'trivial' work of merely turning the page.

> Cybertext [...] is the wide range (or perspective) of possible textualities seen as a typology of machines, as various kinds of literary communication systems where the functional differences among the mechanical parts play a defining role in determining the aesthetic process [...] As a theoretical perspective, cybertext shifts the focus from the traditional threesome of author/sender, text/message, and reader/receiver to the cybernetic intercourse between the various part(icipant)s in the textual machine. (Aarseth 1997: 22)

Aarseth's term part(icipant)s here is richly suggestive though he does not dwell on its ontological implications. I will appropriate it and develop it as a key concept in my microethnography in Part 4.

The 'mechanical parts' here are real not metaphorical. By necessity, because of the cybertext's 'mechanical' nature, the reader must do 'non-trivial work' to engage with it, to explore the narrative pathways of a hypertext novel or generate variables to randomly select passages to read from the *I Ching*. A more contemporary example (though not one that Aarseth cites) is the interactive fighting fantasy series of paperback books (e.g. Livingstone 2002 [1983])). These books have close generic and genealogical links with

the videogame as both are in large part inspired by the tabletop role playing game *Dungeons and Dragons*. The reader follows a trajectory through the book that is both narrative and spatial (events and action are driven by the 'exploration' of the fictional space of fantasy castles and tunnels) but that is also ergodic: the text is broken into small sections that are navigated numerically (via 'links'). Dice are used, like the coins or sticks of *I Ching*, as a randomising device to develop the proto-simulation of a dynamic supernatural world to determine strength and health levels, and the outcome of battles with monsters.
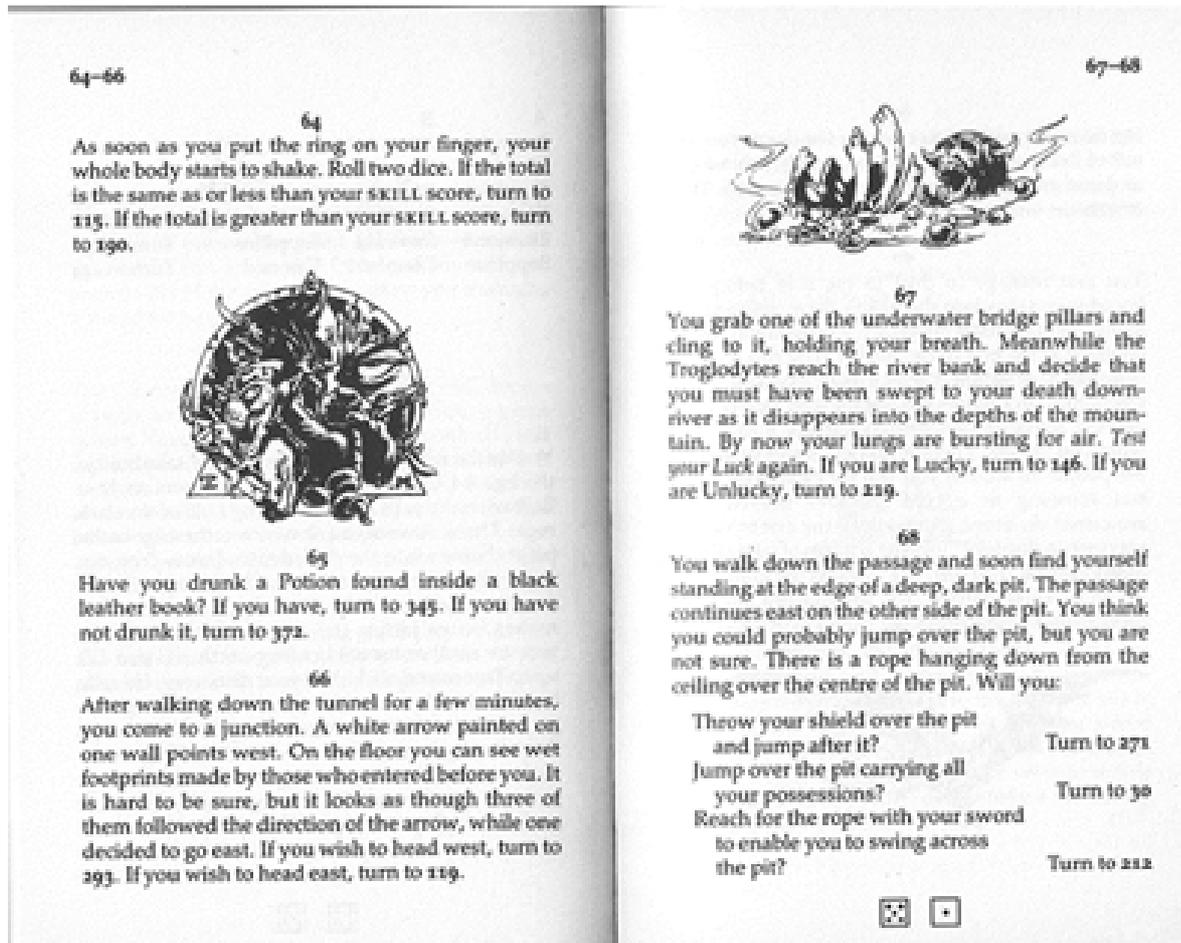
Figure 34: *City of Thieves* (2002 [1983])

Aarseth is at pains to point out that his model of reading as non-trivial work is quite distinct from the various theories of 'active' reading in literary studies, theories premised on the argument that reading is never (or rarely) a sequential receiving of the author's message, rather it is always to some extent indeterminate and nonlinear, its readers doing imaginative or interpretative work to make sense of *any* text. Aarseth acknowledges these approaches but argues that the process or act of reading or using or 'traversing' a cybertext is qualitatively different from reading conventional 'codex literature':

During the cybertextual process, the user will have effectuated a semiotic sequence, and this selective movement is a work of physical construction that the various concepts of "reading" do not account for (Aarseth 1997: 1).

So the distinction he is making is not that between different readings or decodings of a text, but of a different order of 'reading' from the outset. The point is not that the traversing of cybertexts is qualitatively superior to more familiar (or critically validated) modes of reading, it is that it is materially different.

It is this identification, and beginnings of analysis, of the distinctive characteristics or elements (Aarseth uses the technologically apt 'components') of computer media that is of particular interest for this project. How then to conduct a 'cybertextual analysis' (though it should be pointed out this is not a phrase Aarseth uses himself)? Aarseth studies a range of computer-based cybertexts, and I will concentrate on two of his examples: hypertext and the adventure game. Whilst both are discussed as textual machines, the differences Aarseth identifies through his analysis will be useful for the study of contemporary videogames.

hypertext, the adventure game, and its components
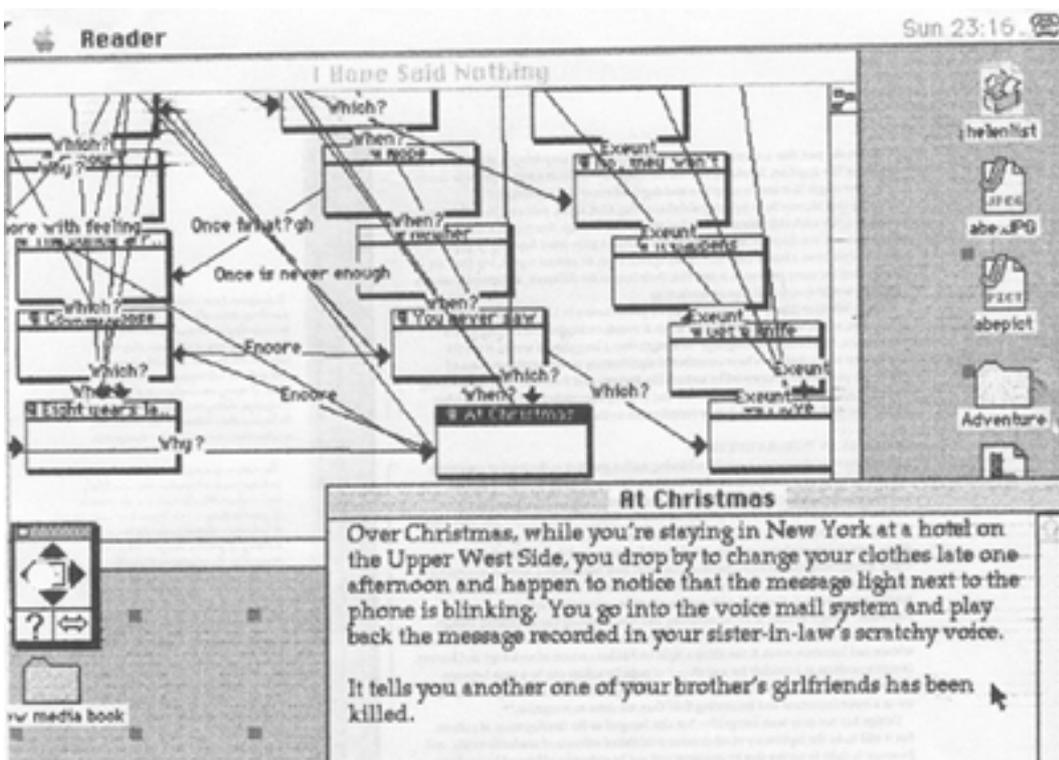
Figure 35: screenshot from Apple Mac version of Michael Joyce's *Afternoon, a story* (1986)

Hypertext then, whether in the form of an interactive novel, or a website, immediately requires a different concept of text:

On the physical level, the surface of reading was divorced from the stored information. For the first time, this breaks down concepts such as "the text itself" into two independent technological levels: the interface and the storage medium (Aarseth 1997: 10).

These two levels roughly correspond to Juul's 'material' and 'program', and Manovich's more developed exploration of relationships between interface and database in new media. Clicking on links in 'static' hypertext allows the user to chart their own course through a database and Aarseth discusses in detail the literary implications and possibilities of this navigation. However, more complex consumer software (including computer games) require an extension of this interface/database structure. Compare an interactive story written in static hypertext such as Michael Joyce's *Afternoon, a story* (1986: see figure above) with the first text-based computer adventure games. The former could be a highly complex network of links, of pathways, decisions and causes and effects, but its traversal is solely effected by the reader / player, following the links established by the author. In many ways they are analogous to the Fighting Fantasy books, though even the simple 'technology' of these book-games have elements that go beyond static hypertext. They require the reader-player to keep lists of objects found, of levels of health, etc. and to roll dice both to increase the sense that this is a dynamic story, but also as a simple form of simulation: the book sets out algorithms for the reader-player to compute using the variables of health and the roll of dice.

In the first computer-based adventure games the software delegates to itself these tasks of generating variables, computing algorithms and maintaining inventories. *Adventure*, originally written by William Crowther, developed by Don Woods, and released in 1976 over Arpanet became, with its dissemination by home computer users in the late 1970s, one of the first domestic entertainment computer media applications. Aarseth outlines the technical-aesthetic structure of the text-based computer game genre that *Adventure* initiated:

take a popular fiction genre, for example, the detective novel, create a background story (the more stereotypical the better, since the players would need less initiation), create a map for the player to move around in, objects to manipulate, characters to interact with, a plot tree or graph with several outcomes, depending on the player's previous decisions, and add descriptions, dialogue, error messages, and a vocabulary for the player. This literary database is accessed via a subprogram called a *parser* that interprets the player's input commands (e.g., hit dragon, eat sandwich, go north) (Aarseth 1997: 100).

This last component – the parser – is highly significant. It is an example of simple artificial intelligence being used for entertainment purposes, as the software and player attempt to communicate through the matching of verbs and nouns in simple clauses.
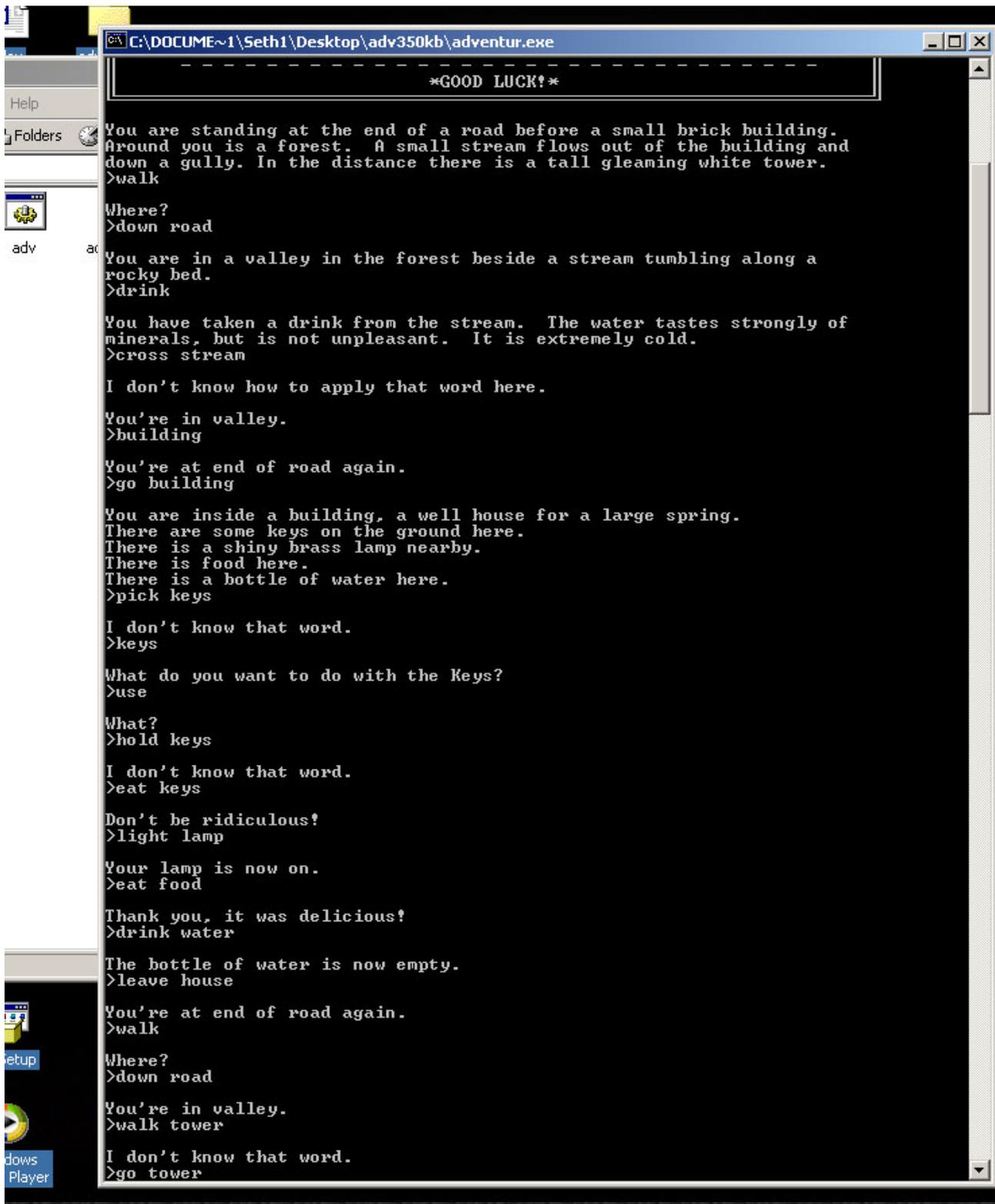
**Figure 36: _Adventure_ (c.1976)**

The figure above is a desktop document of the beginnings of a play-event of _Adventure_. It can be read from

the top down as a record of interaction between software and player. It works as follows: the game makes a

statement, generally about the player's location, with a brief description and a list of objects in the location. It then prompts the player to respond with a simple one or two word instruction. If the game recognises or understands the instruction it will take action, moving the player through the gameworld, noting the consumption of food, or the acquisition or use of an object. The game's 'intelligence' is limited: it often claims not to understand a word that in other contexts it does understand, suggesting that the program is constituted by many little databases, each only available or applicable at particular nodes in the game. The main frustration of *Adventure* is that progress is impossible if the player cannot work out what he or she can do at any particular point; the game allows only for a narrow range of actions. One of the more charming aspects of the game is when a frustrated player types a ridiculous or abusive command and finds that the game's designers have anticipated this frustration and have provided a droll reply. In the illustration above for example my frustrated attempts to do something with a set of keys result in an irritated 'eat keys'. The game responds 'don't be ridiculous!'.

Adventure games are significantly different from static interface / database applications because the programme *dynamically* mediates between the player's actions and the stored data. For all its similarities to Fighting Fantasy books for example, *Adventure* is quite distinct. On one level the game is one of navigating a fictional world, but on another level it is a conversation with a soft technology: the player's key objective is to work out what the game / software / gameworld will allow, or expects, him or her to do. Moreover the game's database responds to the player's actions, storing his or her position and possessions (and in subsequent games other variables such as health or intelligence, i.e. the player has a virtual presence within the database). The 'two layer' analytical model (program / material or database / interface) is inadequate for this game relationship.

For these more complicated cybertexts, Aarseth identifies four key 'layers', layers mapped more closely onto the material structure of hardware and software (see figure below). Component 1 (data) would be the read-only database in a static hypertext, but as the diagram indicates, includes other elements (bots, objects, variable data) for a dynamic cybertext. The interface is component 3, accepting the user's commands and translating them for use by the simulation engine (Aarseth 1997: 105), and presenting back to the user the results of his or her input once processed and retranslated via the representation engine.
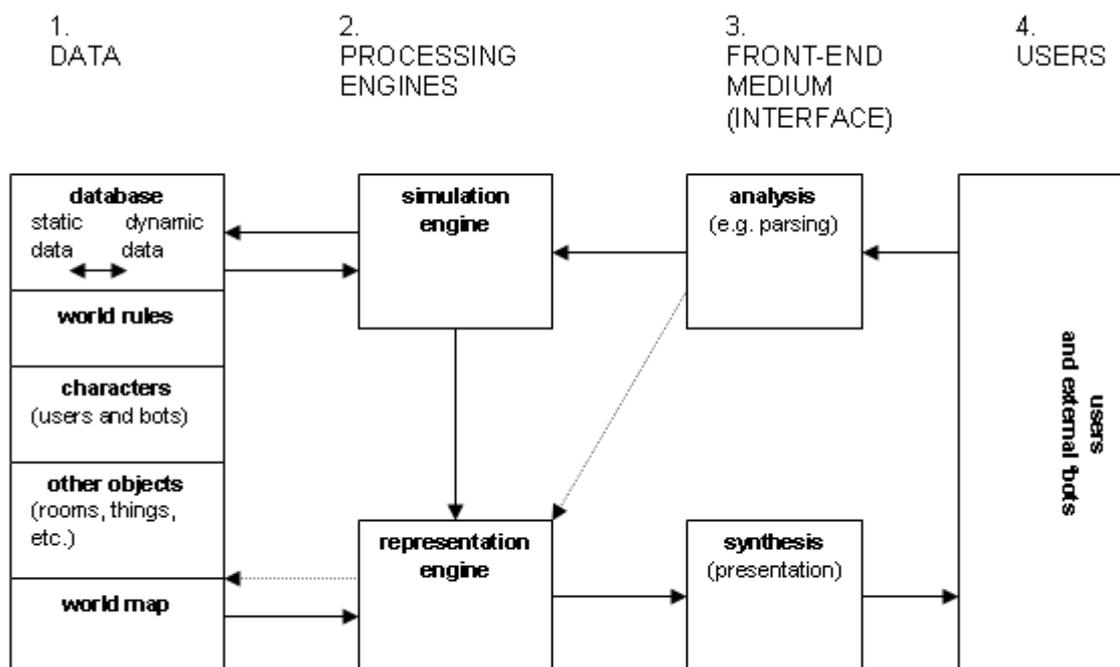
Figure 37: "a generalized conceptualization of the functionality of a typical, but advanced, adventure game" (Aarseth 1997: 103).

The simulation and representation engines comprise component 2: 'In the simulation engine, the course of action is decided, based on the user's impact, the cybertext's idiosyncratic rules, and the current state of the simulated world. (Aarseth 1997: 104). Events in the simulation are calculated and sent to the representation engine. There are two types of simulation events:

> the ones generated by user input (user events) and those generated by the simulation itself (system events), normally caused by certain conditions coming true, for example, the passing of a specific period of time. Typically, the early adventure games were driven by user events only, and time was measured by counting the number of user moves. If the user did nothing, time stood still (Aarseth 1997: 104-5).

The representation engine

> presents the results of the event to the user by providing a personal perspective on the simulated world. It shows only those events that directly relate to the user's character and its surroundings, such as actions observed by, or participated in, by the user's character (Aarseth 1997: 105).

The diagram implies then that the player only ever sees aspects of the gameworld, the gameworld's algorithmic operations and coded totality are fully known only to itself, and revealed only partially to its players. Of course in relatively simple games such as *Adventure* the game designers can presumably predict most if not all the possible occurrences as well as some of the future player's responses to these occurrences.

However the possible occurrences generated by feedback between players and more complex games go beyond the designers' predictive abilities. This predictive threshold is in itself a highly significant phenomenon. It will be discussed in more detail later in this section.

Though Aarseth says little about the ramifications of his diagram beyond an explanation of its components, his model has significant implications for a cybertextual analysis of videogames (and the theorisation of the event of gameplay). It identifies a reciprocal relationship between the operations of screen representation and dynamic computer simulation in which simulation is at least as important as representation. At the very least this displaces the assumptions of established modes of the textual analysis of screen media. The images and scenarios depicted in a videogame are only one factor in its operations as a media form. The player must also implicitly or explicitly understand that he or she is engaged with the dynamic simulation of virtual spaces and entities. *Adventure* demands its players speak to it, demands they respond to it as a navigable space and as an intelligent one.

This attentuation of the role of representation, and the inverse emergence of simulation, are functions of the shifting operations of agency in the new screen medium of the computer game. These operations go beyond established notions of interactivity as the operations of user / player 'choice', as Aarseth grants the 'mechanical parts' of the cybertext a material function, an agency of sorts. Since *Adventure*, the development of the simulational components of computer and videogames has multiplied the types and operations of machine agency in play. Like *Advance Wars* 2, *Adventure* has infinite patience when it is the human player's turn to respond to its prompt, whereas more recent games tend to impel the player to act. Sonic the Hedgehog famously faced the player and scowled, tapping his feet, if not immediately driven through his loops and platforms; other games have time limits to levels, or NPCs that will act on the player's avatar if it does not act itself. Whilst early adventure games would remain completely inactive between moments of human input, later games – particularly sim games – once started will blithely play themselves until further human input is received or until the entropy that such games have designed into them (precisely to necessitate and prompt human input) brings about the crash of the simulated city, country or ants' nest in a virtual economic and/or environmental catastrophe.

So, intriguingly (though Aarseth does not follow this up), layer four of his diagram is a remarkably cyborgian component, in which users (presumably human) and external bots (unequivocally nonhuman) are given equal billing. He only hints at the fuller implications of machinic agency in the cybernetic loops of

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contemporary technoculture (a brief citation of autonomous or intentional cybernetic systems will be discussed below). The diagram presents a closed, solid state circuit though: the agential equivalence of these human and nonhuman components are safely contained. The findings of my microethnography indicate that there are wider loops bringing together even more heterogeneous part(icipant)s. In Part 4 of this thesis my schema will be deployed to suggest ways of charting links between the users / bots in (the actual) Level 4 (Players) and the users / bots in (the virtual) Level 1 (Data).

Lastly, the ergodic possibilities available to the cybertext reader are configured by the text-machine. One of the main problems for the player of a text-based adventure game is to work out what the game-software will allow, what it 'wants' the player to do. The parser will accept only a limited number of clauses at any point so the stuck player is often met with the frustrating response 'I don't know that word', or just 'What?'. Early adventure games were unforgiving and required their players to solve every puzzle correctly to proceed. The design of any game must, by necessity, facilitate a limited range of anticipated or acceptable actions and responses, actions and responses that the player must learn if he or she is to play the game at all. In terms that resonate with Madeleine Akrich's notion of technology users being defined by their artefacts, Aarseth notes a historical shift in the configuration of the adventure game player:

> There has been a shift from the 'ideal reader' of the early adventure games (solving all the riddles) to the contemporary assumption that the user is "more flexible, less dependable (hence more responsible), and freer" (Aarseth 1997: 105).

However the point is not that the player is 'assumed' to be more flexible or responsible, the player has to take on these characteristics in order to exist as a player of this game, or to return to Woolgar's formulation, the player must learn to become their relationship with the machine. The implications of this for the theorisation of the gameplayer and nonhuman agency will be returned to in Part 4.

implications and limitations of cybertext

Aarseth's study of adventure games broke new ground in suggesting the complexity of aspects of the relationship between the player and the game. His model, though abstracted and formalist, is predicated on material relationships. The concept of cybertext in general, and the 'non-trivial work' it demands, offers a counter to the textual paradigm dominant in Cultural and Media Studies for the detailed analysis of videogames and their playing. The arrows in the diagram above indicate real relationships of cause and effect: they highlight the *real* activity generated by the software itself and not just the player, and trace cybernetic feedback loops within a system of software agents. Thus in important ways it also goes beyond

new media discourses of interactivity. The adventure game model indicates some key flaws in interactivity as a premise. It highlights the operations of nonhuman elements in a game system rather than human control over, or communication through, the system. Indeed as the users/players in Layer 4 could be external bots, it presumably allows for the possibility of an event in which human agency is wholly displaced. This thesis will adopt the part(icipant)s and mobilise them for the microethnography of nonhuman and human behaviour and action in Part 4.

And yet, Aarseth's formalist concerns and methods necessarily reinscribe some of the key limitations of discourses of 'interactivity'. The potential of the adventure game's part(icipant)s to challenge fundamental ontological distinctions between 'reader' and 'text', 'player' and 'game' is not developed, not least because Aarseth's diagram maps only a closed system. The 'reader' remains the abstract, disembodied figure from literary and film studies and as such allows for no consideration of particular events of the game's playing, or the circuits with and through the material-cultural contexts and bodies that constitute these events.

simulation: beyond cybertext

The relegation of 'representation' (albeit 'representation' in this formulation is not strictly coterminous with the 'representation' deployed by Cultural and Media Studies) to the status of the product of one component of the game—functionally equivalent to 'simulation'—implies a significant challenge to the predominance of 'representation' and textuality in new media studies and in Cultural and Media Studies when dealing with digital media. Aarseth's useful distinction between extractive (e.g. static hypertext) and generative (e.g. adventure games and computer games generally) cybertexts raises the possibility that generative software may be thought of as a particular class of simulation: that of *automata*. To study simulation as automata requires a theorisation of nonhuman agency in software-based media.

Figure 38: *Gran Turismo 4* (2005)

What is meant by simulation, and its distinction from representation, in this context? The screen images generated by the videogame *Gran Turismo 4* represents a car race (or more accurately they remediate television's representations of motor racing), but playing the game is little like watching a race on television. The pleasures of controlling and responding to the screen representations follow the logic of the game itself, a logic of variables within a system. Videogames are, in the strict sense of the word, simulations. Games then, the media scares around FPSs and real world violence notwithstanding, cannot be analysed only in terms of methodologies of film or television textual analysis. They exist within the real world, but they also model it (and others). Neither *Monopoly* nor *SimCity* are accurate models of the complex systems of property markets or urban development. Each is a game, with its own structure and economy set up to defer and grant pleasure, to facilitate the solitary passing of time, or social interaction. Perhaps due to the mathematical basis of computer code a number of commentators have seen computer and video games as powerful models of economic relationships (Poole 2000, Stallabrass 1993).

which simulation?

There are two very broad ways in which the term simulation is put to use in the analysis of new media. One is Jean Baudrillard's identification of simulation as hyperreality (Baudrillard 1983). According to Baudrillard, simulacra are signs that can no longer be exchanged with 'real' elements, but only with other signs within the system. For Baudrillard reality under the conditions of post-modernism has become hyperreality, disappearing into a network of simulation. In postmodernist debates over the past few decades the nature of simulation over representation has been posited as of fundamental importance for questions of the future of human political and cultural agency.

The second is a more specific concern with simulation as a particular form of computer media (Woolley 1992, Lister et al 2003, Frasca 2003, Prensky 2001). The two concepts overlap however. Baudrillard's simulation, though formulated before the rise of computer media to their current predominance and predicated on – crudely speaking – the electronic media and consumer culture, is now widely applied to the Internet, Virtual Reality and other new media forms. Discussions of the nature of computer simulations often also entail a consideration of the relationships (or lack of) between the computer simulation and the real world. Both make a distinction between 'simulation' (where a 'reality' is experienced that does not correspond to any actually existing thing), and 'representation' (or 'mimesis', the attempt at an accurate imitation or representation of some real thing that lies outside of the image or picture) – though often with very different implications and intentions. A simulation can be experienced as if it were real, even when no corresponding thing exists outside of the simulation itself. (Lister et al 2003: 390-1).

There is another facet of simulation of direct relevance to the study of technological agency. One root of the terms simulation and simulacra that is rarely picked up on in theories of media, games and cyberculture is the automaton. Automata in general then are 'self-moving things' (and historically this category has included animals and humans). Lister et al trace the concepts back to the classical differentiation (in the *Iliad*) within automata between the simulacrum and the automaton. Automata are devices that move by themselves, with simulacra as a subclass of self-moving devices that simulate other things (humans, ducks, etc.) (Lister et al 2003: 314-352).

Marc Prensky, in a book that espouses the use of computer games in education and training, offers three definitions of simulation: any synthetic or counterfeit creation; the creation of an artificial world that approximates the real one; a mathematical or algorithmic model, combined with a set of initial conditions,

that allows prediction and visualisation as time unfolds. For the task in hand – the identification of analytical concepts and approaches in the study of videogames - Prensky's third definition – simulations as material (and mathematical) technologies and media is very useful. Simulations are used in many different contexts, for example by economists to predict market fluctuations and geographers to analyse demographic change. Prensky cites Will Wright discussing simulations as models quite different from, for example, balsa wood models. The simulation is temporal, modelling processes such as decay, growth, population shifts, not physical structures.

It is important to note that whilst all videogames are simulations by this definition, there is a videogame genre known as simulation games or sim games. These are games in which complex social, historical, geographical, or fantastical interactions are modelled by the computer (for example, *Populous*, *Sim City*, *Theme Park*, *Sim Ant*, *Civilisation*). Sometimes known as 'God games' the player is usually 'omniscient', the interface is a birds-eye view or isometric map-like representation of the game's world over which the player can scroll. The player is not, however, omnipotent. The object is not to fully control the simulation, but instead to intervene within the unfolding complex developments (geopolitics, city development or fantastical evolutionary processes), to shape these dynamic forces according to the games' algorithms.

the virtual economics of play

Figure 39: *The Sims* **(2000)**

This distinction between representation and simulation is highly significant and an implicit understanding of it is essential to play many, if not all, games. For example: watch someone who is unfamiliar with sim games playing *The Sims* for the first time. Building houses and naming characters is straightforward enough, but as the characters go about their daily artificial lives the tendency is to treat them as if they were real people, or at least as fictional characters who behave according to established conventions of narrative, and try to intervene accordingly. However the game's dynamics are driven by algorithms which rarely map directly onto any sense of actual (or fictional) human behaviour. The mathematical or economic foundation of the gameplay is made clear in the game's instruction manual: the key to success lies in managing the characters' lives as an 'economy' rather than looking for the conventions of psychological depth and narrative coherence familiar from television or film drama. The manual advises that *time* is the player's most precious resource, and

> can be converted to anything else in this game either directly or indirectly. The efficiency of the conversion will determine your success. Time can be converted into money through work [...] Time can also be converted into hunger satisfaction: the efficiency in this case will depend on the furnishings of your kitchen, the layout of these furnishings, the cooking skill of your Sim as well as their energy level (they move slower when tired).
>
> So one path to increasing hunger satisfaction over time would be to first convert time into money (through work), then take some of that money and buy a better equipped kitchen [...] This same idea applies to the social side of the game. As your Sims spend time developing better relationships in the game you will notice that they are able to fulfill their social needs in less time. (*The Sims instruction* manual, Electronic Arts 2000: 11)

The Sims is representational on one level: its onscreen images of houses, human figures and ornaments are familiar from the universe of popular media culture. But to play the game is to interact with a profoundly different kind of environment to that of a film or a television programme. The gameworld, its dynamics, relationships and processes, is mathematically structured and determined. *The Sims* adds a 'highly intuitive, fun interface' to a cultural form rooted in science and mathematics, and traditionally presented only as numbers on the screen (Prensky 2001: 210).

Here then is another intriguing connection between Baudrillard's simulation-as-hyperreality and the everyday simulation of the videogame. Baudrillard inverts Borges's story in which a map is drawn to be so detailed that it eventually covers and replaces the territory it was supposed to represent. For Baudrillard then, the territory rots over the map not vice versa. The map is both the hyperreal territory and the marker of the absence of the 'real' territory. In Wars World, NPCs instruct the player not to defend a battlefield or country, but to 'play the map'. This terminology is common, particularly in videogames (such as *Advance Wars 2* but also FPSs such as *Counterstrike*) in which the player can modify or create these map-worlds.

Such map-worlds are, to repurpose Baudrillard's terminology, copies without originals (maps without terrain), and hyperreal in that they are experienced as real and are augmentations of the real rather than duplications of reality.

Figure 40: in Wars World the territory is the map.

There are significant differences between these two conceptions of simulation however. To analyse a videogame as a computer simulation is to understand it as an instance in everyday life (albeit, arguably, an increasingly common instance in media culture) rather than as Baudrillard's all-encompassing hyperreality. Moreover, Baudrillard's maps and copies-without-originals carry little sense of the dynamic and procedural characteristics of videogame / computer simulation. Studied as such, computer simulations can be seen not only as the visual presentation of artificial realities (as Baudrillard's central concern with screens suggests) but the generation of dynamic systems and economies, often with (not least in videogames) an assumption of interactive engagement written into the models and processes:

> Representing flux and change is exactly what a simulation can do, by replacing the stasis of two-
> or three- dimensional spatial models with a map that shifts over time to reflect change. And this
> change is not simply the one-way communication of a series of still images, but a continually
> interactive process (Friedman 1995).

For the purposes of developing cybertextual analysis as a method I will discuss videogames as, in part, simulations in Prensky's algorithmic, processual, terms. The relationship between the simulation and 'real world' processes and environments is not of immediate concern (though the challenges of simulation to established notions of 'representation' have been mentioned and will be returned to briefly in Part 4.1). Instead, I will follow Baudrillard in his emphasis on the simulation as a copy without an original, generative,

rather than mimetic, of reality. A recent editorial in the British videogame magazine *Edge* illustrates the salience of this approach to simulation in popular games discourse. It argues for a shift of critical understanding away from the notion that the videogame-as-simulation replicates the actual world (either through graphic verisimilitude or the modelling of actual world forces):

> To be classified as realistic, a game doesn't have to exhibit any knowledge of, let alone respect for, how people act, how objects work, how day follows night, how physics (or even 'physics') governs our world. Instead, it just needs to look as close as possible to what a photo of those things would look like if they occupied real space [...] the moment games start looking real is when they start limiting their interactions to [sic] things we recognise. In the wake of the quest for visual realism comes a swathe of tasks, procedures and dynamics that we do recognise from life: gameplay mechanics which mimic real-world economic or legal systems, for example. Systems of cause and effect and checks and balance [...]
> But isn't one of the wonders of games that they can model things that don't exist? [the world in *Every Extend* is given as...] something which has no model or corollary in the real world. (*Edge* no.156, Dec 2005: 35).

Figure 41: *Every Extend* (2004).

I would also draw attention to the descriptive possibilities of the terms simulacra and automata. As a virtually self-moving entity, the videogame could in itself be discussed as an automaton. To keep the game-as-system in mind however I will use the term to discuss self-moving elements *within* the game software. There are compelling precedents for this, not least the cellular automata of ALife research.

simulacra and automata in videogames

playing with machinic agency: AI and intentionality

Alex watching Jo play the last boss battle in *Lego Star Wars* (21st May 2005):

> A: It's not fair... the computer never falls off does it?

J: Of course not – it's the computer.

A: The computer knows where it's going!

Some commentators have identified the sheer complexity of the operations of computer software as threatening to established notions of human agency. As Espen Aarseth points out:

> When a system is sufficiently complex, it will, by intention, fault, or coincidence, inevitably produce results that could not be predicted even by the system designer. (Aarseth 1997: 27).

His examples include computer viruses and the complexity of global trade networks. These cybernetic phenomena are, he argues, genuinely autonomous. The global financial market is autonomous

> since is cannot be controlled, shut down, or restructured by a single organization or even a country. Its machine-human borders are also unclear, since the interface could hide a human trader, a machine, or a cyborg, a combination of both. Such a system, even if it consisted purely of autonomous agents, is not a model or a representation of something else; it is itself, a cybernetic entity that communicates with all and answers to none. (Aarseth 1997: 28).

The notion of emergence has been addressed in game studies in the study of relatively 'open' games the complexity of which facilitates actions and play strategies not anticipated by the game's designers (Juul 2002, Giddings 2003). The concept will be returned to in this thesis.

For now I want to address Aarseth's third example of cybernetic automata: the chess programme that beats its programmer. This device is central to an influential essay of 1971 in which Daniel Dennett explored philosophical issues arising from research into artificial intelligence. The essay makes important points both about machines as actors, and about a relationship between a human player and a digital game that is addressed neither by ANT or cybernetic models. Moreover it is telling that Dennett's example is a computer game.

Figure 42: Gary Kasparov plays Deep Blue. 1997.

His argument runs as follows: the strategies of a sophisticated chess computer are so complex that they cannot be predicted by a human player. Hence it is only possible to play chess with a chess computer by ascribing intentionality to the computer, by reacting to it as if it were an intelligent player:

> when one can no longer hope to beat the machine by utilizing one's knowledge of physics or programming to anticipate its responses, one may still be able to avoid defeat by treating the machine rather like an intelligent human opponent (Dennett 1971: 89).

This is the 'intentional stance', and Dennett distinguishes it from the 'design stance' in which a detailed knowledge of how the computer or program is designed would allow the designer (or user or player) to predict the system's response to any input or operation. In the case of chess, the design stance would entail the player knowing enough about the instructions coded into the game-as-program to definitively predict every move the computer would make (Dennett 1971: 87-8). Yet,

> on occasion a purely physical system can be so complex, and yet so organized, that we find it convenient, explanatory, pragmatically necessary for prediction, to treat it as if it had beliefs and desires and was rational (Dennett 1971: 91-2).

Dennett offers this concept as a practical, *pragmatic* way of understanding the operations and agency of complex systems that at once acknowledges the very palpable (and perhaps unavoidable) sense of engaging with a system as if it had desires and intentions, whilst rejecting idealist versions of anthropomorphism:

> The concept of an Intentional system is a relatively uncluttered and unmetaphysical notion, abstracted as it is from questions of the composition, constitution, consciousness, morality, or divinity of the entities falling under it. Thus, for example, it is much easier to decide whether a machine can be an Intentional system than it is to decide whether a machine can *really* think, or be conscious, or morally responsible (Dennett 1971: 100).

So this intentionality does not assume that complex systems have beliefs and desires in the way humans do, but that their behaviour can, indeed often must, be understood *as if* they did. Or perhaps, and Dennett hints at this, their 'beliefs' and 'desires' are not so much metaphorical as analogical.

This 'unmetaphysical' notion of the intentional system both resonates with Latour's nonhuman delegations and suggests ways in which we might theorise our material *and conceptual* engagement with complex computer-based media, sidestepping a whole range of largely unhelpful speculations on imminent realisation of actual machine consciousness. It suggests that the experience of playing (with) these game/machines be theorised as one of engagement with artificial intelligence without slipping into naive anthropomorphism or frenzied futurology.

AI at play

The intentional stance usefully sidesteps the speculative cul-de-sacs of arguments over machine consciousness and allows a concentration on what complex systems, in this case software, actually do: what behaviours they exhibit, what effects they have. Artificial Intelligence (AI) is perhaps the most commonly understood instance of simulation as autonomous agent in digital games. In a game AI generally refers to the components of the program that respond most sensitively to the actions of the player. The term covers both the coding of the behaviour and responses of NPCs and the overall sense of the gameworld as a system that is responding convincingly to the player's engagement with it. In this sense the playing of such a game involves Dennett's intentional stance: the player ascribes intentionality ('intelligence') to the game and its entities. Michael Mateas (a theorist and a game-designer) has outlined the key aspects of what he calls 'expressive AI'. On the one hand firmly rooted in the discourses and technologies of computer science research, but on the other hand looking at the use of AI for non-scientific purposes, for entertainment: 'expressive AI' in games

> covers a diverse collection of programming and design practices including pathfinding, neural-networks, models of emotion and social situations, finite-state machines, rule systems, decision-tree learning, and many other techniques (Mateas 2003).

Game AI is

> about creating a sense of aliveness, the sense that there is an entity living within the computer that has its own life independently of the player and cares about how the player's actions impact this life' (Mateas 2003).
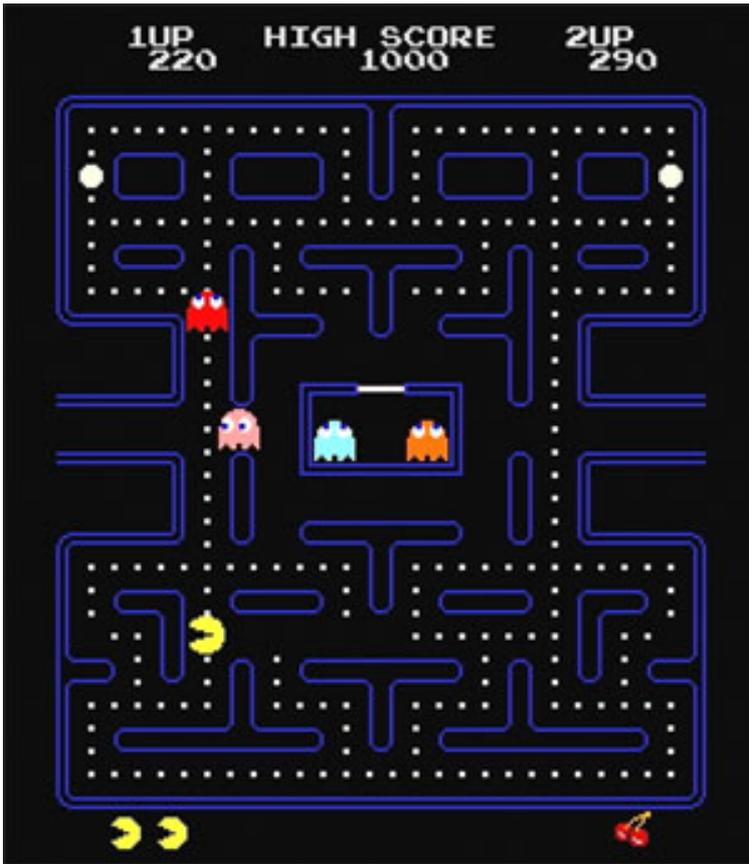
Figure 43: *Pac-Man* (1980)

A simple example of this is the behaviour of enemies in an FPS: the player must ascribe them with the intentions of killing the player's avatar and avoid being killed themselves. It is not restricted to anthropomorphic characters but also to 'intelligences operating behind the scenes' for example, the sense of the presence of the enemy commander through actions of troops in an RTS. Mateas uses the behaviour of the ghosts in *Pac-Man* as case study. The ghosts do not simply hunt down the avatar as quickly as possible, which would be easy to program but would result in a very limited game. Rather, each ghost has its own AI behaviour. There is no definitive account of the algorithms of these respective behaviours (and Mateas' analysis is drawn partly from a published interview with the game's designer Toru Iwatani and partly from analysis by fans of the game), yet Mateas concludes that each ghost has its own algorithm (one chases Pac-Man directly, one is directed to a point immediately in front of Pac-Man, and so on) and in addition they attack in waves, gradually attacking more often. Hence the ghosts' AI must be both complex enough to deny the player a 'design stance', yet controlled enough to facilitate an exciting game:

> This behavior must challenge the player without being impossibly difficult, and be unpredictable enough to make the ghosts feel alive and responsive to the player's activity (Mateas 2003),

And later,

> The relatively simple algorithms of the ghost AI yields a richness and unpredictability of behavior that supports multiple interpretations, giving the ghosts an "inner life". Devising architectures and algorithms that create rich behavior supporting player projection is one of the fundamental goals of game AI (Mateas 2003).

The enemy units in *Advance Wars 2* are, at a very basic level, artificially intelligent. For each map they have an 'unintelligent' *strategy* (for example move towards the player's base to seize it, or to capture cities). Their *tactics* are artificially intelligent though: within the context of their overall motive, they will stop or divert to engage with the player's units. Importantly they respond to the contingencies of the player's units' positions and movements. The unerring mathematical basis of the enemy agents' AI facilitates *Intentionally* fiendish tactics: hanging back just out of the player's units' range so that they can move forward to make the first attack, calculating all the options and risks and bringing them all to play in a manner beyond the capabilities of many human brains.

ALife at play

Computer simulations based on Artificial Life (ALife) principles and algorithms have been widely used in computer-generated imagery in popular cinema. The Disney films *The Lion King* (1994) and *Mulan* (1998) both use 'flocking' routines in the generation of scenes containing a large number of moving characters; a stampede of wildebeest and the charge of an army respectively. Flocking programmes instruct each individual entity (originally 'boids', simulated birds in flight) to move autonomously, but only in relation to the general trajectory and proximity of neighbouring entities. Thus very simple instructions to move at random but without bumping into a neighbour result in highly complex yet patterned movement analogous to the actual flocking of birds.

Whilst these instances of ALife, once recorded and processed (hence artificially 'killed') as animated sequences, are presented as a flow of images like all cinema, new media such as digital games maintain these entities' animate existence. Disney harness complexity and emergence for the economics of spectacle, whereas games exploit them for what Aarseth calls 'unintentional sign behaviour':

> the possibility of unintentional sign behaviour makes cybernetic media creatively emergent and, therefore, not subsumable by the traditional communication theories (Aarseth 1997: 124).

Another example of the application to digital entertainment of the generation of complex systems, 'bottom up', from a simple set of rules (of particular relevance to *Advance Wars 2*) is that of cellular automata. This is most clearly illustrated in the famous *Game of Life* (John Conway 1970).
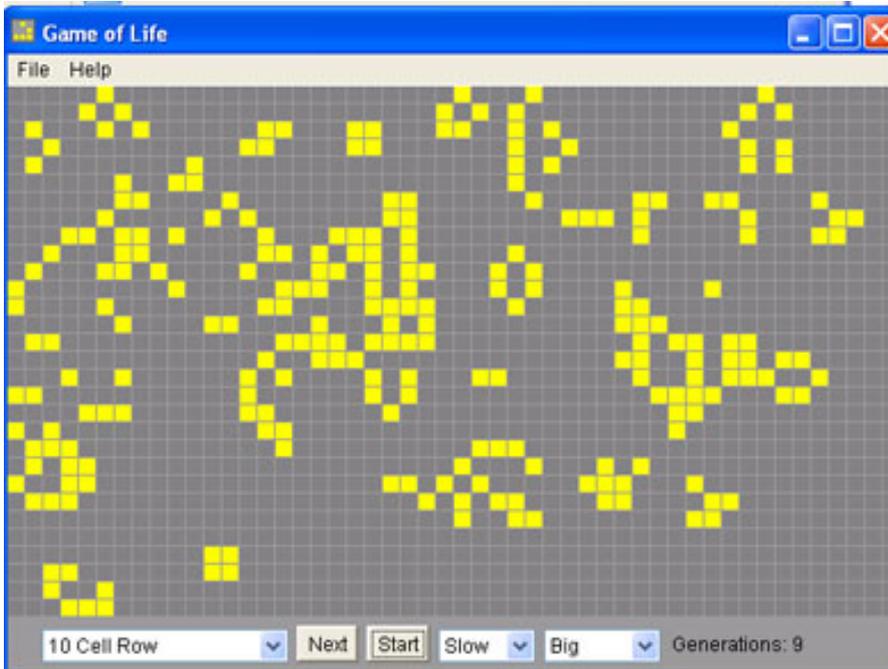
Figure 44: Conway's *Game of Life* (1970 – this web version 2004)

The simple algorithms of this mathematical game - the simulation of cellular colonies (animated clusters of 0's on a monochrome screen), through generations of life and death according to the relationships between any particular 'cell' and its neighbours - spawned entrancing patterns of emergent order and entropy. This simulation of cell colony growth obeys a very simple set of algorithms:

For a space that is 'populated':

Each cell with one or no neighbours dies, as if by loneliness.

Each cell with four or more neighbours dies, as if by overpopulation.

Each cell with two or three neighbours survives.

For a space that is 'empty' or 'unpopulated'

Each cell with three neighbours becomes populated.

From these simple rules highly complex patterns can emerge. Some of which are of interest to the science of ALife, some are sought for in a more exploratory, non-instrumental, even ludic spirit. *Advance*

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Wars 2 has a more complex set of rules, and its units are constituted by their own capabilities for movement and firepower, its grid squares are differentiated into simulations of various terrains. Its complexities emerge not only through the blind iterations of automatic cell generations but also through the actions of the human player guided, configured, by the demands of the game design as well as the simulacra. Yet as virtual worlds there are important similarities between *Advance Wars 2* and *Game of Life*. The battlefields of Wars World have the stylised flatness and iconicity of a board game, the 'units' (ambiguous hybrids of personnel and technology) are cellular in appearance and in their uniform scale. Whilst the automata of *Game of Life* are strictly binary (each square is only ever 'on' or 'off'), those of *Advance Wars 2* are constituted by a scale of aliveness (or health) depending on their initial strength and the ravages of battle. Both *Game of Life* cell and *Advance Wars 2* 'unit' however are always entirely coexistent with the square of the grid-terrain on which they rest. Neither have even the flexibility of Snakes and Ladders counters, for instance, to share a square. Through 'movement' and proximity *Game of Life* cell cultures nurture new cells into life or abandon them to die; factory units in Wars World generate new units, existing units supply friendly units and destroy enemy units. Whatever agency these simulacra exert, it is unguided by any moral or epistemological purpose. Cellular automata don't care whether they facilitate scientific research or play.
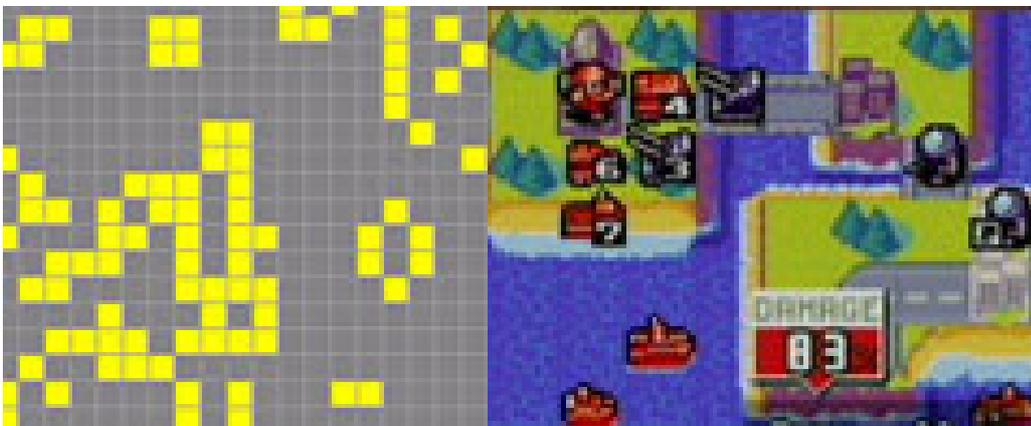
Figure 45: cellular automata in *Game of Life* and *Advance Wars 2*

Game of Life is thoroughly pragmatic about the nature of its automatic denizens, the 'cells' are the product (one of a multitude of possible representations) of an algorithmic process. If there is 'life' here it is to be found in the process and its emergent complexity, not in the blinking patterns on the screen. In *Advance Wars 2* the battle is against not armies or an opposing general but against an intentional system that mobilises itself through a variety of soft actors – units, COs and artificially intelligent tactics. ALife in

Advance Wars 2, then, can be regarded in a pragmatic manner similar to that with which Dennett regards 'consciousness' in the chess programme.

It would be a mistake to overstate the ALife credentials of *Advance Wars 2.* There are no genetic algorithms, and the generation, reproduction and interaction of the cellular automata - and the potential for emergence and complexity - is tightly controlled by the demands of strategic and puzzle-based gameplay. This line of enquiry should not ignore the real contribution that popular digital games can play in ALife research however (see Kember 2003 for a thorough enquiry into ALife as technocultural form, and the game *Creatures* in particular).

Note: intentional systems are thoroughly embedded in everyday new media use. Throughout the writing of this thesis, *Word* (the word processing software I am using) 'corrected' my spelling (especially of acronyms) and anticipated in small hovering boxes the words it thought I had started. Like *Adventure* it effects a kind of locally contingent artificial intelligence, and like *Adventure* highlights the intense irritation that can arise in humans when the cybernetic flow is interrupted by stupid AI. Yet after retyping the acronyms, Word accepted that I was deliberate in my typographic deviation and, when I typed them again in the next sentence made no attempt to change them. Intentionally, *Word* (in my head personified by that figurehead of stupid AI, the animated paperclip – even though of course he had been turned off when I first used the program) had learned what I wanted – though I had also learned a little about how it works, we had both become slightly more intelligent (see Wise 1998 for an account of intelligent agents at large).
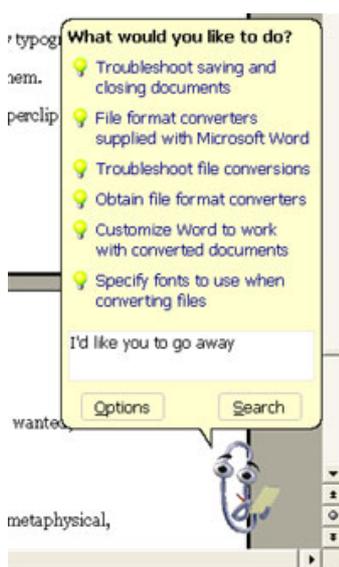
Figure 46: Microsoft Word 'assistant'.

findings

In Part 3 conceptual and methodological resources from SST, STS, ANT and game studies were drawn on to challenge and develop some key limitations in the emergent new media studies. These resources were applied to, and developed through, the analysis of the videogame as a media technology. To conclude this Part I will draw out the terms and concepts most salient to the microethnography to be developed in Part 4.

technological agency

Crucially, the assumption in recent Cultural and Media Studies that culture is solely formed through, and constituted by, textuality and meaning was demonstrated to be inadequate to the study of the materiality of technocultural entities and events. ANT's rethinking of the notion of technological determinism proved instructive in accounting for the material existence and affordances of everyday technologies and artefacts. Links were traced between ANT's concern with the 'social' as a collective of human and nonhuman actors and critical posthumanism's interrogation of the humanist underpinnings of the humanities and social sciences in general.

configuration

It was noted that STS and ANT have to date had little to say about media technoculture or popular computer-based media. However some significant concepts and approaches were identified, notably Steve Woolgar's ethnography of the configuration of the users of a new microcomputer was particularly suggestive for the analysis of the videogame's management of its relationship with its players. The videogame (and to varying degrees other software applications) not only configures its player through the technical possibilities and constraints inscribed during design and manufacture, it is designed precisely to configure its player continually during play itself. Gameworlds and temporalities, modes of presentation, puzzles and combat, engagement with computer-controlled characters, are all constantly impinging on the player's experience and responding to the player's responses.

cybertextual analysis and part(icipant)s

In Part 3.3, ANT's critique of social constructionism was brought to bear, through game studies, on the specific nature of the soft technologies of digital media, in particular cybernetic circuits and autonomous agents. Aarseth's adventure game system's components and part(icipant)s suggest a productive conceptual synthesis with ANT's agents and its critique of the object hypothesis. They also provide a rich, if inadvertent, conceptual alternative to the residual humanism of cybercultural studies' identity play and monadic cyborgs.

simulation not representation

There are profound ontological implications for the argument that simulation displaces representation as a key concept in theories of popular technoculture, and they cannot be adequately addressed in this thesis. However, in Part 3.3 it was argued that an understanding of game software as constituted or populated by AI simulacra, self-moving entities such as cellular automata and NPCs, is crucial to a cybertextual analysis. In the place of widespread assumptions of simulation (and the virtual) as illusory, masking or undermining the real, was posited the notion of simulation (in particular the videogame's virtual world) as real, indeed generative of the real. A gameworld is a copy without an original, but has its own, playful, reality.

towards microethnography

The formalism of cybertextual analysis posits only an abstract spectator and reading event. The actual dynamism of a game system is only ever realised in embodied, material event. Microethnography brings to cybertextual analysis an attention to the operations of virtual circuits and components with, and as, their relationships to human players, hardware, actual environments. A key challenge for microethnography is to describe and analyse the material event of videogame play and players as constituted by various bodies and agents—part(icipant)s both human and nonhuman, hard and soft—without reinscribing humanist a priori distinctions between subject and object.

Part 4: Videogame/play/ers

After Part 3's concerns with theorising technological agency and analysing games-as-software, this final part reintroduces the human player into the videogame system. There are of course a number of ways of doing this. Cultural and Media Studies has at times emphasised the active nature of media audiences, both conceptually as discussed in Part 3.1 and ethnographically (e.g. Ang 1996, Morley 1986 and 1992). New media studies celebrates interactivity as either a further developed and technologically augmented set of possibilities for this active audience, or as a paradigm shift in which the 'old' media are at last revealed for the elitist, centralised and uncreative channels they are, to be replaced by the radically new democratic, non-hierarchical possibilities of the Internet as a set of communication media.

As discussed earlier, each of these broad fields of enquiry are inadequate to the task of analysing the videogame player in the event of videogame play. Their underpinnings by the assumptions of exclusive human agency and the subject/object paradigm are fatally undermined by ANT's model of nonhuman actors, collectives and hybrids. Yet, as noted in the previous section, ANT does not offer readymade conceptual models for the analysis of media technoculture.

Cybercultural and cyborg studies, whilst more radical in tone and whilst offering a richer conceptual language (a poetics of technoculture even), are limited both by their non-realist tendencies (from an obsession with metaphor to an aversion to the here-and-now) and their inadvertent reinscription of the humanist subject. There are distinct resonances between these discourses of digital media and those of Film Studies. In each the technological apparatus is a central but indistinct feature, each is concerned with the relationship between the human individual as (new) media subject, but tends to assume an abstract spectator / participant—a psyche and an eye—perhaps a gender, but rarely locatable in a concrete time, place or body. Part 4.1 will critically review recent theories of cyborg subjectivities in game studies, new media studies and critical posthumanism. Salient terms and concepts will be identified but their residual humanism will be kept under scrutiny. It will draw on both the findings of Part 3.3 on software, simulation and automata and on some relevant studies in the field of STS to suggest a critique and extension of cyborgian notions. It will extend the discussion of the possibilities of cybertextual analysis to factor in the player / participant through a survey of debates within game studies that operate precisely in this overlap

between Film Studies, cybercultural studies. The key term in these discussions is 'identification', how might the game / player relationship be understood as one of identification between player and avatar in particular, and what might the limits of Film Studies' resources be.

the subject hypothesis

As the term 'identification' indicates, notions of (human) identity and subjectivity prove very resilient. Recognising and studying the player as integral to the 'cybertextual' circuit is of course essential to understanding the videogame as a technocultural form in general as well as to the study of any particular instantiation in play-events. Yet studies of videogame play and players (as opposed to videogames as 'texts') to date nearly always reproduce the a priori assumptions of the primacy of human agency and identity. I would suggest that we are seeing here a 'subject hypothesis' as significant as Woolgar's object hypothesis. Indeed it is an extension of this concept. For if his critique of the common sense assumption that entities are bounded and discrete from one another and their environment is accepted, then human subjects and their identities must become part of the real world as continuum. To repeat but amend an earlier quote:

> By taking the flux of varying viscosity as heuristic, we see the world as comprising a range of objects [*and subjects*] whose boundaries exhibit varying degrees of definition (in both senses of the word) (Woolgar 1991: 64).

Thus parallels can be drawn between the spatially and temporally remote configuration of Woolgar's microcomputer users and Aarseth's spatially and temporally coexistent components and player – the part(icipant)s. In each the object of study is not the object or the subject, but a 'new machine', the relationship between the part(icipant)s.

Part 4.2 will return to the Lego Racers microethnography and attempt to write it as an event not founded in the subject hypothesis. Synthesising and articulating the findings and approaches of the thesis so far, it will offer a model of the videogame as technocultural form, not as the interactive consumption of a new media text or the 'impact' of a new technology on a domestic environment or its players' identities, but rather as an event that comes into being as what I will call 'videogame/play/ers'.

4.1 avatars: from identification to collusion

Game studies researchers with a background in Media and Film Studies have applied and adapted theories of the film viewer's identification with key protagonists within a film narrative to the consideration of the gameplayer's identification with the avatar. The starting point is often the argument that the player may identify more strongly with the avatar because the player's control of the character's movements, decisions and (depending on skill and experience) that character's ultimate fate (always within the strict limitations and possibilities structured by the game as software). Whilst this has proved a productive theoretical approach it, of course, takes it as given that psychic 'identification' in both film-viewing and game-play is the most significant mechanism in the engagement between technological / media artefact and human viewer or player. The most productive game studies work in this area focuses on the distinctive nature of digital media (in particular the cybernetic loops between human and game) as well as the continuities between films and games as popular screen media and this will be reviewed in some depth.

identifying with avatars

In a thoughtful essay that draws on cybercultural discourses to emphasise the technological yet embodied nature of videogame play, Martti Lahti explores the relationships between the player and game as one that epitomises 'a new cyborgian relationship with entertainment technologies, linking our everyday social space and computer technologies to virtual spaces and futuristic technologies' (Lahti 2003: 158). These cyborgian relationships are libidinal: 'Games commodify our cyborg desires, our will to merge with and become technology' (Lahti 2003: 166).

Despite (or, as I argue later, in part because of) this invocation of the cyborg, a persistent subject hypothesis is evident. Lahti assumes that the player's investment in the game is primarily one of subjectivity, and is located solely in the rigidly anthropomorphic form of the avatar:

This identification and immersive experience during the game play remains compelling, even addictive, because our surrogate body on the screen mirrors our desires and bodily experiences; it represents us. It is directly controlled and affected by us, and our (real bodies') actions, even involuntary ones (like blinking!) carry dire consequences for the game world. In this sense, our pleasure is based on blurring the distinction between the player and the character... (Lahti 2003: 163).

In establishing control as a key concept Lahti acknowledges the specificity of the videogame and offers an implicit rationale for assuming the player / avatar is the locus of the videogame as subjective event. That is to say, if the player exercises control (or agency) in the gameworld primarily through the avatar then there is a mechanical 'identification' at work. Lahti however always already overlays this material, cybernetic relationship with a relationship operating as a subjective, psychic one.

This is problematic on a number of levels. Firstly there are many ways in which a videogame and a player control one another – in few games is the player's agency exercised solely through the avatar. Many games do not have an avatar at all. It has been suggested that 'identification' may be much a more diffuse and shifting process. Green, Reid and Bigum's study of two boys playing *Super Ghosts and Ghouls*, discussed earlier in Part 2.1 illustrates clearly an intense circuit of action and response, of interpretation and intervention, but there is little sense that the boys' investment in the avatar is one of 'identification' in this sense, and much less so that this is the only or even the most significant circuit. Diegetic elements, codes and cheats, the performance of hand-eye skill all indicate a multitude of symbolic and cybernetic circuits of which imaginative 'identification' is at best only one.

This model only works in games with clearly identifiable and (more or less) anthropomorphic avatars such as FPS and adventure games. The tumbling bricks of *Tetris* are 'directly controlled and affected by us' but it is hard to think of them as surrogate bodies in Lahti's terms. Videogames that remediate nondigital games such as versions of card or board games dispense with avatars altogether.

All this said however, it cannot be denied that many games do feature human or humanoid avatars and these characters and the player's relationship with them are often a key pleasure of videogameplay at certain points through any particular game-event. Lahti's emphasis on both control and corporeal pleasures is useful, but the paradigm of subjectivity and identification limits the work it can do.

I will now review other approaches that either question straightforward relationships of identification between a coherent player and coherent avatar through a concern with the operations of videogames as software media, models that factor in some of the characteristics of videogames and their

components (including their players) as forces and agencies as discussed in Part 3.3. Again the operations of simulation are central.

SimIdentity

> Playing Mario well is a wonderful experience. Playing for the first – and second or third or tenth – time can be very frustrating. But when it starts to come right there is a bodily ease combined with a mental alertness that together supports one's absorption [...] into the Mushroom Kingdom [...] It is not that one identifies with Mario (he's too minimal a figure) so much as that one begins to feel like a powerful intervening force on his behalf (in cinema this would be like identifying with the director – an extraordinary situation). (Fleming 1996: 190)

> Infiltrate without being seen by your enemies. You're Solid Snake and you've got to single-handedly infiltrate the nuclear weapons disposal facility, which is being occupied by a group of terrorists. If the enemy spots Snake, they will call in reinforcements and go after him. You can't win a firefight against superior numbers, so try to avoid unnecessary battles whenever you can. (*Metal Gear Solid instruction book*, Konami: 1999)

The *Metal Gear Solid* manual's grammatical inconsistencies are common to the experience of play as well. Players often slip between the first and third person as they account for their virtual activities. They demonstrate eloquently the shifting or intermittent nature of attention to the avatar. At times Mario is a character in the sense of a cartoon character. The player may prefer to play as Mario for reasons bound up primarily with questions of taste, preference or aesthetics. But Fleming's comment highlights that it is a relationship of impulsion rather than identification per se. Mario is only occasionally the game's protagonist as a film scholar might understand the term (a *character*), more often he is, as Fuller and Jenkins have suggested a cursor, a marker or tool with which a user intervenes in software (an *avatar*):

> In Nintendo®'s narratives [...] The character is little more than a cursor that mediates the player's relationship to the story world. Activity drains away the characters' strength, as measured by an ever shifting graph at the top of the screen, but it cannot build character, since these figures lack even the most minimal interiority. (Fuller and Jenkins 1995)

As already noted, some games do not have avatars. Other games present multiple characters and roles to the player. The virtual people of *SimCity* are a central game element (they will riot if taxed too heavily, or if inadequately policed) yet are 'invisible'. Indeed they are a salient example of the profoundly nonhuman characteristics of all game entities in that they are only the interface's presentation of the effects of the interactions between a set of variables over time, variables controlled by the computer, though allowing some intervention by the player. There are class, or perhaps species, differences in *SimCity*: there are a set of 'roles' the player must assume to appease the intangible citizens, some of which are named and explicit (e.g. mayor), others of which are unnamed and implicit, yet still central to the gameplay (e.g. urban planner, construction contractor). Ted Friedman has argued that the player, therefore, cannot 'identify' with any

individual protagonist. Rather, he argues, in a sim game such as *Civilisation II*, the player has to juggle numerous different roles at the same time, 'king, general, mayor, city planner, settler, warrior, and priest to name but a few' (Friedman 1995). Even this multiple identification is however somewhat misleading; Friedman makes the important point that 'identification' may be more with the impulsions of the videogame as dynamic software event, and suggests a particularly nonhuman 'identification':

> When a player "zones" a land area, she or he is identifying less with a role than with a process. And the reason that the decision, and the continuous series of decisions the gamer makes, can be made so quickly and intuitively, is that you have internalized the logic of the program, so that you're always able to anticipate the results of your actions. "Losing yourself" in a computer game means, in a sense, identifying with the simulation itself (Friedman 1995).

This comment both marks an attempt to account for the peculiarly immersive nature of many videogame experiences ('losing yourself') and hints at a broader technocultural diagnosis. Elsewhere this is more explicit: videogames, he asserts,

> aestheticize our cybernetic connection to technology. They turn it into a source of enjoyment and an object for contemplation [...] Through the language of play, they teach you what it feels like to be a cyborg (Friedman 1999).

Green, Reid and Bigum point out that the children they are studying have a clear sense that they are playing a game, that they see themselves separately from the game's characters (Green, Reid & Bigum 1998). In Friedman's terms then, 'identification' is with the game as program; the boys are engaging with its semiotic structure, simultaneously articulating the iconography (medieval weapons, etc.) its conventions (levels, bosses), and knowledge external to the game: codes and cheats. The inadequacy of identification as a concept becomes evident here I would argue: these children are certainly engaging with the game, their imaginations are fired by the symbolic characters, but they are also exploring the affordances of the gameworld, its spatial and interface conventions and its virtual physics. On at least one level it could be argued, if this language of identification is going to hold water, that the game is identifying with *them*: it is inviting the humans to instantiate it, to respond to its parameters, to learn and adapt to its affordances. Again, even established notions of interactivity, despite their focus on the relationship between human and nonhuman, reproduce humanist assumptions. The nonhuman (virtual world) is interacted with, or in, by the human player (via his or her avatar). Such assumptions do not stand up to an analysis of gameplay that addresses the agencies, affordances and operations of the nonhuman.

Lara Croft the vehicle

Figure 47: avatars: Lara Croft (*Tomb Raider*), Sonic the Hedgehog (*Sonic the Hedgehog 2*), Solid Snake (*Metal Gear Solid*).

Different games and game genres establish different connections between the game's processes and the possible actions of the player. Whereas Friedman's simulation games require the player to adopt various agential roles, the FPS and adventure games discussed by Lahti – initially at least – seem to be closer to non-game screen media in their articulation around a central screen character or avatar.

Diane Carr also draws on theories of identification developed in Film Studies to interrogate the player's relationship with the avatar - here Lara Croft in the game *Tomb Raider* - but notes crucial differences between films and games. Relations of agency are central as are the material acts of watching and videogame play. Consoles embody interaction, film screens offer 'surrender':

> The console involves skill and proficiency, any accumulation of which is demonstrable, on-screen. As the film screen offers the dream of symbiosis, the console offers the dream of control'. (Carr 2002: 177).

In playing *Tomb Raider* 'identification is occupation: literal and mechanised' (Carr 2002: 175). Carr's terminology is precise, the avatar is a *vehicle* (akin perhaps to Fuller and Jenkins' Mario-cursor), 'Lara remains under the viewer's control, identification is explicit: we drive, direct and occupy her' (Carr 2002: 177). In comparison with cinematic action heroines, for example Ripley in the *Alien* series, 'Lara is a peculiar mutant; her motion relies on her occupation: she requires a driver' (Carr 2002: 172).

Carr's argument is clearly illustrated (and perhaps extended) by the points in the *Tomb Raider* games at which the player might control Lara in a speedboat or on a motorbike. Here the avatar becomes a Lara-boat or Lara-bike and the player controls this new avatar as if it were a vehicle rather than controlling Lara controlling the vehicle. The player now fully occupies Lara as the driver of the vehicle, or the player is literally the driver (and hence a more abstract driver in the game's diegesis) meaning that Lara is now a passenger. Of course this latter configuration does not make sense in conventional notions of 'identification' and thus both some of the weaknesses of identification as a concept are revealed and possible alternatives hinted at.

Figure 48: Lara Croft: avatars and/as vehicles

collusion

Depending on the game being played, the stage within the game, and the dynamics of any particular moment of gameplay, 'identification' flickers between human avatars as human, human avatars as vehicles, vehicles

as vehicles, and various hybrids of them all. Lara-boat may seem a curious kind of protagonist or delegate, but other videogames offer even stranger entities. In *Super Monkey Ball* for example, though the player chooses a monkey character according to personal taste (all are extremely cute) to undertake the adventure for them, the monkeys are not avatars. The game dynamic requires the player to control the monkey's environment: it is the virtual landscape/architecture or platform that is tipped and tilted, the monkey (in its ball) that rolls forward through the level or over the edge into oblivion. The game mechanic is based in conflict between the player and the very element of the game immediately engaged with by the player. The platform, whether narrow bridge or tricky jump, would seem to be at once the avatar (the game- element under the player's control) and the enemy. Theories of identification would look to the player's subjective investment in the anthropomorphic monkey in its battles with its environment. Yet in the gameworld the player's agency is exercised through the environment: the player and platform are locked together in a feedback loop to propel the monkey (motivated only by virtual gravity) to its goal.

Figure 49: ***Super Monkey Ball*** **(2001)**

Super Monkey Ball clearly demonstrates key limitations of 'identification' in the cybertextual analysis of the game/player circuit. The term's discursive context within Cultural and Media Studies and Film Studies subsumes the nonhuman (and the materiality of the human) within putative projections of the human

psyche, and hence reinscribing and reinforcing their difference. 'Identification' may be one reason that a *Super Monkey Ball* event is initiated (the game effecting an aesthetic attraction on the player), but the event itself is motivated by a quite different, material, dynamic. The heterogeneity of the linkages, effects, pleasures and feedback that come together in, and facilitate, the event of play is not 'identification' in these terms.

In place of 'identification' I suggest *collusion*. If this word's ludic etymology (c0-lusion) is emphasised, and its connotations of the secretive and underhand are downplayed, we are left with 'to work with another', 'to act in play', 'to act in concert with': to come together in, and as, play. The word does not in itself assume anything about the nature of the colluding entities.

avatars as simulacra

Here then avatars are not virtual puppets suspended before the player in their exploration of virtual worlds, they are software entities, semi-automata (for example Sonic the Hedgehog's blistering turns of speed propel him beyond the control of the player, Lara's elegant jumps and somersaults are merely suggested by the player with the press of a button). They are parts or components of the game displayed as animate entities (with exceptions such as *Super Monkey Ball*) that allow the player-parts access to other game-parts (whether topological or in terms of levels or mini-games) through their programmed capabilities and limitations. They are augmented with other software entities, Lara's capabilities are augmented by the acquisition of other virtual objects (keys to open doors, more powerful weapons to defeat more dangerous enemies, etc.).

Advance Wars 2 is explicit about the status of its Commanding Officers (avatars of a sort) as 'potentialities and capabilities'. The CO Sami for example is at once a character with particular personality traits, the metonym of her troops – the capabilities and strengths of which are related to her 'personality', and (importantly for a player's strategy) Sami/Sami's army 'is' a particular set of mathematical augmentations to the default movements and strengths of units:

> **Sami**
>
> Her foot soldiers have superior firepower and can capture properties in reduced time. Her transport units have increased movement ranges. However, she's weak in direct combat against non-infantry units.
>
> **DOUBLE TIME:** Infantry and mech units receive a +2 movement bonus of +1 space. Firepower increases slightly.

Thus though a player may have a favoured character, to proceed in the harder maps, they must recognise the choice of COs as closer to a choice of car in a racing game (acceleration v. top speed in *Mario Kart* for example).

James Newman offers a congruent model of the avatar in play. Solid Snake, from the game *Metal Gear Solid* for instance is

> embodied by the player as a set of available techniques and capacities [...] In fact, it does not make sense to even talk about 'he' on-line, because there is no 'he' as distinct from the engaged player, like Lara Croft or Sonic the Hedgehog [...] on-line, 'Lara' is the player's ability to run, jump, shoot... while 'Sonic' is speed, looping-the-loop, collecting rings... (Newman 2002: 413)

To reiterate, whatever psychic processes might be at work in the circuit of player and avatar the connection on a material level – that of *becoming* this software-player-circuit – is key. The player is hailed by the game (in many ways but strikingly by the lights and sounds that say 'go!') not to identify with a character but to collude with it to bring it, its virtual and actual worlds of play, into life / action .
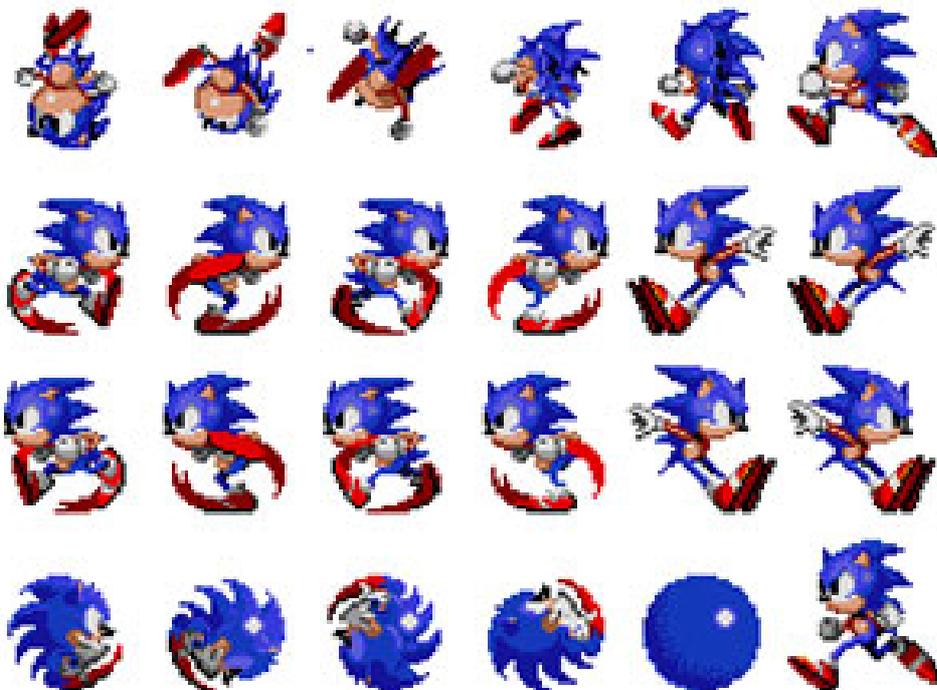
Figure 50: 'Sonic is speed'

the politics of simulation

As Fuller and Jenkins put it, 'characters play a minimal role, displaying traits that are largely capacities for action: fighting skills, modes of transportation, preestablished goals' (Fuller and Jenkins 1995). The kinds of issues of representation that might first strike a researcher from a Film or Media Studies perspective (most vividly Lara Croft's construction as hyperfeminine – her 'sex doll proportions' as Carr puts it) may not be the most critically or analytically productive starting point. Representational traits, Newman argues, may be of 'relative insignificance' 'within the process of fostering engagement and immersive connection during interactive play' (Newman 2002: 406). Espen Aarseth has taken this argument to the conclusion that the appearance of Lara Croft has no effect on either the motivations for, or the experience of, playing *Tomb Raider*:

> the dimensions of Lara Croft's body, already analyzed to death by film theorists, are irrelevant to me as a player, because a different-looking body would not make me play differently... When I play, I don't even see her body, but see through it and past it (Aarseth 2004: 48, cited in Dovey & Kennedy 2006: 92).

In response Jon Dovey and Helen W. Kennedy note that Aarseth is collapsing the game mechanic and the game experience. They argue that whilst changing the avatar's body will not change the former, it will for many players (if not Aarseth) have a marked effect on the latter (Dovey & Kennedy 2006: 92). For one thing the game experience goes beyond the immediate immersion of intense play, it cannot be separated from game culture.

> The fan sites devoted to the celebration of Lara and to the creation, development and amplification of the adventures featured in the games [...] certainly offer plenty of evidence that the representational context affords different kinds of experience which appeal to different kinds of players and provide different kinds of pleasures (Dovey & Kennedy 2006: 92-93).

This discussion is bound up with the debates over the distinctions between simulation and representation outlined in Part 3.3. Feminist game scholars have developed a more sophisticated dialogue between a recognition of the distinct forms and pleasures of the videogame play on the one hand and the dynamics of the representation (or simulation) of gender on the other. Helen W. Kennedy sustains a feminist critique of representations of virtual women in videogames but argues that 'the text itself', whether this text is the game's images as representation or the game's processes as simulation, 'is on its own inadequate to explore the range of pleasures available from playing as Lara', that we should 'be attentive to what might be

different about the relationship between representations within the game world and the experience of playing the game'. She suggests that there may be a temporal dimension or scale of 'identification' as the player's relationship with the avatar is determined as much by proficiency in controlling the character as identification with its virtual gender: 'It may be that the relationship between player and game character advances in phases as the player becomes increasingly proficient at working the controls. As this proficiency or expertise develops the game character may become an extension of the player herself and Lara's separateness as a female body is eventually obliterated' (Kennedy 2002).

Moreover, the political implications of representations in videogames may lie not so much in any immediate shaping of attitudes and discourses, but rather in the fact that these representations may dissuade women and girls from videogame culture and hence to other more instrumental practices and technicities:

> it is becoming more and more evident that the interactive and immersive modes of engagement so central to gameplay are the model driving other forms of computer mediated consumption. This means that feminist theory cannot afford to ignore the games paradigm (Kennedy 2002).

Whilst we might usefully think of any particular player controlled element within a videogame as existing on a spectrum – perhaps with the personally customised and invested in avatars of MMORPGs at one end, flowing through Lara Croft and Solid Snake, the cartoon characterisations of Sonic the Hedgehog and Mario to the relentless avalanche of *Tetris* bricks – this does not mean that this spectrum would be even and smooth. Lara Croft may well be related to the non-anthropomorphic denizens of *Tetris* yet the appeal of the *Tomb Raider* franchise and games is due as much to Lara's image, her gender, her character (in the media, commodified sense of the term) as it is to the effectiveness and novelty of the games themselves. Both Kennedy and Carr situate her appeal within a broader trope within popular screen culture: the action heroine, from Thelma and Louise to Ripley. Carr, Kennedy and others (Flanagan 1999, Giddings 2000, Rehak 2003) have tried to articulate this 'character' of Lara (as media 'representation') with her status and operations as a videogame element, a software object. Thus Kennedy, whilst situating her argument within models of gender (and transgender) identification drawn from feminist Film Studies, arrives at a notion of identification that undermines the solidly humanist assumptions of film theory:

> ... there may be something of interest in the fact that it is typically a male player who, at least for the duration of the game, is interacting with the game space as a female body. In the game it is the player who determines the actions, so the involvement is potentially that much greater than with other media forms – "the computer "functions as a projection of certain parts of the mind ... producing the uncanny effect of the computer as a second self" (Sofia 1999). Thus, interaction

with, and immersion in the game "affords users the narcissistic satisfaction of relating to a technological second self," in this case a *female* second self (Sofia 1999) (Kennedy 2002).

The preceding discussion unsettles the humanist paradigm of identification by rendering the avatar more complex; by questioning the significance and operations of representation within the videogame simulation, and by shifting analytical attention to the videogame in play and to the imbrication of the human player in its circuits. It has hinted at the conceptual possibilities of the cyborgian figures of critical posthumanism. Newman speaks of the player as 'locked into the circuit-loop of the system', the avatar an expansion of his or her abilities (Newman 2002: 418). As we have seen Aarseth, Lahti and Friedman talk of videogameplay and players in cyborgian terms.

Three key points then: firstly that identification and the theories of representation it is built on are inadequate to the task of analysing the videogame and its players, as objects and events (or their technocultural politics) . Secondly, therefore, the relationship between videogame and player can only be understood as dynamic, embodied collusion. Thirdly there is, across this literature, a persistent interest in the 'blurring' of distinctions between the human and the nonhuman, with the figure of the cyborg either implicit or explicit. Could this indicate a way beyond the subject hypothesis?

> between the medium and the consumer is a dynamic which prohibits the analysis of either the medium, the material or the consumer in isolation. The complexity of the relationship between the player and the game destabilizes any easy object / subject formation and questions the polarity between the consumer and the media (O'Riordan 2001: 237)

Kate O'Riordan's discussion of Lara echoes the critique of the object hypothesis and is inspired by Haraway's cyborg. For O'Riordan the videogame is not the cyborg as ironic figuration, rather its game / player relationship is literally cyborgian:

> The continuity between the subject position of the player and the iconic representation of Lara allows for a cyborgian model to be employed in analysing this relationship, as pixels on the screen have a continuous relationship with the effects of the self on the player. While playing, the body is directly connected to the action on the screen, entering into an affective physical relationship with the programming code. Through the physical and psychological continuum with Lara, the player enters into a symbolic hybridity which negotiates game space so that the self becomes the self-and-avatar, in a diffuse but distinct relationship between person and machine (O'Riordan 2001:236).

Significantly this model emphasises the materiality of the player-game circuit, it is both physical and affective, diffuse but distinct. This is an anxious circuit however. Echoing a paranoia about cybernetics and machine agency that runs like a seam through cybercultural and new media studies from Haraway to

Aarseth, O'Riordan is careful to reassure us that the game is 'a static artefact which is only activated by organic agency, highlighting the power that the player has in this relationship, usefully bringing us away from dystopian visions of psychic damage and technological determinism' (O'Riordan 2001: 232).

cybernetic play, passional circuits

The discussion in Part 3.3 concluded that videogame play was nothing if not cybernetic. This observation is of course not a new one. William Gibson's sketch of the intense Canadian arcade players is an ur-moment in the genesis of cyberpunk. Ted Friedman has seen the cybernetic loops between game and player as only a particularly intense example of those of computer use more generally:

> What makes interaction with computers so powerfully absorbing – for better or worse – is the way computers can transform the exchange between reader and text into a feedback loop. Every response you make provokes a reaction from the computer, which leads to a new response, and so on, as the loop from the screen to your eyes to your fingers on the keyboard to the computer to the screen becomes a single cybernetic circuit (Friedman 1995).

Whereas in terms that echo the posthumanist critiques of the object and subject hypotheses, James Newman points out that

> Importantly, the [...] relationship between player and system / gameworld is not one of clear subject and object. Rather, the interface is a continuous interactive feedback loop, where the player must be seen as both implied and implicated in the construction and composition of the experience (Newman 2002: 410).

In fact it is precisely these circuits that have been identified as the source of videogame/play pleasure, of 'gameplay'. To study them requires a shift from cybertext to circuit with player. John Banks notes the elusiveness and contradictoriness of the term gameplay, which is both ubiquitous in the discussions of gameplayers and game designers, and central to the particular pleasures and fascinations of games. Banks quotes an Australian game designer:

> ...It got to the point where I could finish the game [...] in 27 minutes – about 40 minutes if I held the controller upside down. I could literally play the first level with my eyes closed, using only muscle memory! Anyway *Mario Kart*:: sometimes, playing it, I lost all sense of everything except the game. My hands moved without conscious intervention on my part... I believe the MK 'trance state' short circuits this delay not requiring the brain to be aware of something before the hands have responded (cited in Banks 1998).

Three important areas of enquiry are encapsulated here: the particular qualities and characteristics of games and play as media / cultural forms; the apparent wiring of new circuits between body and technology

(apparently cutting the brain out of the circuit); and questions of method and vocabulary – how might this phenomena be described, identified and studied? We might think of the videogame/play/er not merely as a coming together of a human body and a technological environment, but rather as a series of circuits or feedback loops between parts of a human body (brain, thumbs, eyes) and technological parts (controllers, databases, simulacra).

It is the precise nature of the relationship between player and game and technology that caught Gibson's attention: the sense of a ' closed system', a feedback loop of subatomic particles, eyes, bodies and machines. These are physical circuits, actual cybernetic feedback loops between the gameplayers, the hardware, and the software.

> In a cybernetic circuit, there is no point of origin for any action that circuit performs. In other words, it would make little sense to talk of one component of a circuit initiating that circuit. By definition, a circuit consists in a constancy of action and reaction. In gaming, for example, not only is there the photon-neurone-electron circuit Gibson evokes, there are also macroscopically physical components of that circuit, such as the motions of finger, mouse or stick. Motions of a finger, prompted as much by changes in the display as by any 'free will' on the part of the player, also provokes series of neuroelectrical pulses resulting in hand-arm-shoulder-neck movement, even in whole-body motion, for which the individual whose body it is, is far from responsible. Through the tactile and visual interface with the machine, the entire body is determined to move by *being part of the circuit of the game*, being, as it were *in the loop* (Lister et al 2003: 370).

Lister et al emphasise this shift of the human to one element within a circuit by referring to these elements as 'body parts'. The body of the gameplayer then is no more discrete or given than the (only ever temporarily or conceptually 'blackboxed') machines and their circuits. The gameplayer is a bio-technical entity – of course in these terms no longer the gameplayer at all – the notion of the gameplayer becomes an anthropomorphic metonym for the biotechnical entity of human and nonhuman body parts. This not only challenges a fundamental tenet of Media Studies – that media messages or communication are always only socially (not physically or technologically) determined, it also suggests that gameplaying in particular (but also technocultural relationships more generally) must be conceived of in ways which fundamentally challenge existing ways of theorising the relationships between humans and (media) machines (and the physical world), 'we do not see here two complete and sealed-off entities: the player on the one hand and the game on the other. Rather, there is an interchange of information and energy, forming a new circuit' (Lister et al 2003: 370).

configuring the player

'user configuration involves boundary work' (Woolgar 1991: 89).

It also inverts one of the key tenets of new media studies (and perhaps suggests why videogames have been viewed with so much suspicion: that interactivity is an ideal, the triumph of human agency in technological and virtual environments. In gameplay Lister et al suggest, human movement is 'prompted' by the game not by 'free will', the player is not responsible for his or her own body, a body which is 'determined to move by *being part of the circuit of the game*'. The player is acted on by the game, these are passional circuits.

Different games, and different playings of games, rig up different connections, circuits and demand different states and different pleasures - visual and audio cues, spatial conventions, muscle memory, more cognitive periods of puzzle solving and interludes of calm and visual pleasure. *Adventure* and *Myst* demand little in the way of muscle memory (though this might overlook the non-cognitive circuits of the touch-typist playing the former or the naturalised conventions of mouse, GUI and the mechanical movements of point-and-click) but they and the player only exist as a circuit. And far from offering the player a virtual world within which to exercise his or her interactive agency, they invert this agential relationship: the game generates and navigates its world, the player is merely prompted to respond. It is as if the game without the player would rapidly run through all its levels and past all its characters and objects; the player then functions as a negative feedback device, a governor. The player's sense of intense agency in the gameworld is not illusory, but it is cybernetically determined: a twitch of a thumb on a tiny button is, in cybernetic terms, *amplified* by the circuit, for the player an amplification of both signal and affect.

Gibson's vision is of course an aesthetics of a cyborg here-and-now, but it is not the whole picture. Videogames exercise a media aesthetic (the ambiguous but significant role of their images and scenarios has been discussed above) and a new media aesthetic, again Aarseth's 'cyborg aesthetic' in which the salient term is 'control' (Aarseth 1997: 55). As Diane Carr explain, players are configured by the game:

> as a player, I can do, undo and redo until Lara has effectively performed the challenge presented to her by the game, but I can only proceed through the game, through the space itself, if I perform the task as the game demands [...] A player will systematically experiment, and after trial, error and accidental death, correctly perform the intended and necessary response. The conditional terms of our motion through space are thus rendered explicit. We do not write our own narrative, we uncover a pre-existing text and conform to its injunctions' (Carr 2002: 174).

There may be a range of possible injunctions afforded by the game, but the range is restricted and pre-scripted. Some games, such as *Lego Racers 2* are loose enough with their prescriptions to facilitate a degree

of emergent play within their gameworlds, but even these are bound, or channelled, by what Jon Dovey and Helen W. Kennedy have called 'preferred performances'. Specific routes, cognitive and motor capabilities, and modes of attention are built into the game by its designers, in anticipation of the game's creation (through injunction and reward) of its players. There is often a cultural politics to this configuration: the preferred player of many games is sketched out as masculine, youthful, dextrous, competitive and acquisitive (at least within the context of videogame play), with plenty of time on his hands and with a willingness to spend it uncovering and conquering the minutiae of commercial agonistic virtual worlds. Young children, in general, cannot offer preferred performances. Jo exploited the affordances of the *Lego Racers 2* game engine and gameworld design to devise his own exploratory and fort/da mini-games.

However this exploratory play stretches, but does not break, the logic of configuration. Jo was, firstly, testing the game's affordances (literally bouncing off the gameworld's limits), and secondly the game was, all the time, patiently waiting for its prodigal to return to the preferred performance of successfully racing its nonhuman automotive automata. The rewards of progression through levels, of spectacular or narrative revelation, of new capabilities and affordances are reserved by the game for such time as the player decides (or learns) to play *the* game.

In many games the rewards the game has to offer for preferred performance or acquiescence to configuration are valuable:

> It is clear what keeps the player playing – this basic desire is for mastery over the apparatus. The point of the game [...] is to keep the player between two frontier zones – on the verge of mastery, on the verge of losing control [...] The pleasure is in overcoming what was just a few minutes ago insurmountable (Weinbren 2002: 183).

Whilst the notion of 'mastery over the apparatus' should now seem deeply ironic, Weinbren's argument is suggestive: here the gameplay experience is not one of reading or of interactive agency per se, it is a carefully designed experience, one that is achieved only when the human accepts, learns, trains for, the machine's demands. It is a tightly engineered, or to borrow a term from Walt Disney's theme park design, *imagineered*, circuit. Weinbren notes Sudnow's study of the engineers who adapted home computer games for arcades. The software was constructed "not on principles of game theory or a rule book, but on testing and revision: engineers develop a version and then modify it based on observing users' interactions with it. The criterion of success is that it grips the player" (Weinbren 2002: 183). In *Mario Kart: Double Dash!!* a player can race against the console's record of his or her last race, i.e. they can race against their previous performance presented as a ghost (unsurprisingly a rather ethereal representation). This collapsing of time and overlaying

of performances is analogous to the configural processes Sudnow identifies: when a videogame is played we are playing against the ghosted (invisible now) and coded performances of real players (playtesters) and virtual ones (preferred performances).

As Steve Woolgar's microcomputers configured their users, so too do videogames configure their players. The speculative trajectories of this configuration are quite different though. In the 1980s the microcomputer's task, as hardware, was to instruct the user in ways to find a use for it from within its range of capabilities and affordances. 'The user is encouraged to find in her dealings with the machine an adequate puzzle for the solution which the machine offers' (Woolgar 1991: 68). Once the puzzle was found, a certain stasis is anticipated and its 'use' begins, it becomes perhaps the 'microcomputer/use/r', and – to adapt Woolgar – the videogame becomes its relationship to the user, and vice versa. Unlike the microcomputer, the videogame anticipates an ongoing configuration in real-time, a moment by moment, movement by movement, response by response anticipation of player's behaviour. The puzzle *is* the solution: ludic futures are built into the game, from simple forking paths of early text-based adventure games to the dialogue trees and AI of contemporary games. If the solution the videogame offers is puzzled out, the game – and the assemblage – ends. The videogame/play/er is (the relationship between) its components, its motive is the ludic ambiguity of its capacities and characters.

Figure 51: Sega coin-op machine, Dinosaurland, Pembrokeshire 2005

4.2 microethnography of a videogame/play/ers event

  At the end of Part 2.2: microethnography of virtual and actual play, questions of the children's 'identification' in videogame play were raised. Jo unselfconsciously adopted a play role that could not be mapped onto the videogame avatar (the Lego man / car), the actual toy Lego man / car, or the human player of the videogame. He was 'the one who makes the Lego Racers go'. The children's translation of the virtual game into actual space suggests a set of interesting questions: what does it mean to 'identify' with the computer? How does this 'identification' operate if, as is apparent, it is not at the level of straightforward make-believe ('I'm a computer') or the product of cybercultural musings on the status of the relationship between human and computer? At the very least the term 'identification' tends to assume a coherent, bounded subject that can become identical with a coherent, bounded object. Jo's statement that he is 'the one who makes the Lego racers go' can only be fully explained in relation to the videogame's material distribution of agencies and positioning of agents or part(icipant)s. The event under analysis was constituted by the coming together in play, the collusion, of material and imaginary elements: the operations of games (their conventions, rules and prescriptions), embodied knowledges (and pleasures, anxieties, frustrations, imagination), play practices (role play, toy play), screen media images and characters, and virtual gameworlds (and their physics, automata and affordances).

        This final part will revisit the microethnography introduced in Part 2. It will bring to bear this project's key assertions and findings and offer a model for synthesising and articulating these in the description and analysis of a videogame, the playing of that videogame and the players of the videogame. It should be immediately apparent that the tripartite object of study set out in the preceding sentence is itself challenged by this project's findings. This section will develop four main premises, and their implications, introduced in Parts 3 and 4.1:

1. that key conceptual frameworks underpinning Cultural and Media Studies, and to an extent new media studies, are inadequate to the task of accounting for the nature of videogames and videogame play in particular or technoculture in general. Notably these frameworks necessitate an inadvertent denial of the materiality of the world, technoculture and media that necessarily arises from the linguistic turn in Cultural and Media Studies in particular and anthropocentric assumptions in the humanities and social sciences more generally. Where issues of technologies and culture are addressed directly the arguments and analyses are limited by the tendency of the critique of hard technological determinism to deny any materiality or

agency to technologies. A priori assumptions of rigid ontological distinction between technology and culture, human and nonhuman, subject and object lead to models of understanding technoculture as on the one hand, developing through human 'consumption' of devices, or of the 'impact' of devices on culture; and on the other, models – such as the cyborg or virtual ethnographies – that are more sensitive to the interface between humans and new technologies but which, through their central concern with subjectivity and human identity reinscribe a humanist worldview.

2. to argue that videogames must be understood and analysed as software requires new ways of thinking of popular new media in which media/software must be thought of as agential in the networks of their 'consumption'. Moreover the videogame can also be broken down into a system or networks of agential components or parts (simulation engines, databases, kinaesthetic algorithms, screen images, etc.). When attention is shifted to the playing of the videogame, the poverty of established notions of interactivity for the task of accounting for either the sophistication of the operations of videogame system or for the intense and intimate relationship between the game system and the human player becomes clear.

3. This relationship between the game system and the player, I have argued, is more productively conceptualised as a set or system of cybernetic loops between parts of the nonhuman and human players, and as a realtime mutual configuration of these parts. These components constitute each other in the videogame/play/ers event.

4. I have asserted throughout the relevance and efficacy of ethnographic research as a crucial element in the study of videogame play and everyday, here-and-now, technoculture more generally. However the approaches and assumptions of ethnographic research in Cultural and Media Studies and new media studies are rooted in the humanist paradigm. This project's findings offer significant challenges to this paradigm through the development of microethnography as the description and analysis of the videogame/play/ers event in everyday life. As has been noted the terms anthropology and ethnography assume the primacy of the human as object of research. STS, ANT, cybercultural and cyborg studies offer rich conceptual toolkits and vocabularies but little in the way of methodological insight into the intimacies of contemporary media technoculture. In the process of developing microethnography as a method I have shifted my understanding of it from being simply very small-scale, non-scientific ethnography that facilitates the study of the relationships between human and nonhuman agents, to a model in which the 'micro-' prefix takes on

connotations from microelectronics: it has become the study of the networks and circuits that constitute the event as object of study.

This final section will address the following questions: What kind of description can this microethnography offer? Who or what are the subjects? Who or what the objects? Are rather what is being studied if subject and object cease to be the reassuringly bounded and stable entities they once appeared to be? How might media images, characters and scenarios be studied as agents within an ethnographic event? What agencies are at work? How is the event itself constituted and motivated?

What follows is an attempt to develop an approach to the writing of the Lego Racers microethnography, and will, given the humanist assumptions of the language of ethnography, be by necessity exploratory in the style and terminology. It draws on the video essay version of this research and the connections and translations I analysed through the editing and postproduction of the video footage (Giddings 2003). The illustrations are taken from this video essay.

In the first account of this microethnography in Part 2.2, the compelling similarities of play across virtual and actual space was noted and explored. In this part I will reflect on the *translations* between the virtual and actual versions of Lego Racers and the agents that constitute them (children, computers, bodies, software, toys, images, (kin)aesthetics, domestic space and so on), both in terms of the translation of a videogame/media text into improvised play with actual toys and bodies and in Latourian terms of the translations of agency between human and nonhuman agents in the game event network.

I will begin with the event and work through questions of agency, subject or object positions, the nature of cybernetic aesthetics in play, and will conclude with a model of videogame/play/ers that draws from, but goes beyond, both the cyborgian intimacy between human subject and technology and the actor-network theory model.

games and circuits

The video essay of this microethnography is titled 'Circuits', overlaying the gameworld's race circuits with the cybernetic circuits of software and player and the circuits through the virtual and the actual game spaces. Of all the circuits brought into play in this event the videogame's preferred circuit, the racetrack, is the least

significant. The racetrack as ludotopological structure is largely ignored in favour of other game apparatuses. The non-player cars are left to pursue each other in blissful endless automatic loops.

The first game (playing *Lego Racers 2* on the computer) is one of exploration: not only of the gameworld, its beaches, mountains and tunnels; but also the interplay between this virtual environment and the action, events, and possibilities structured into the game. A new game is afforded by the gameworld's topography and physics: how quickly can the avatar (*Lego* car/*Lego* driver) get from the starting line / game start into the sea and momentary death. And what are the pleasures of instantiating this little suicide again and again in spinning stars and swirling bricks? A game, then, of exploration and destruction, and the exploration of destruction. The avatar is delightfully destructible, not only via the terminal plunge into polygonal water, but also more incrementally in bumps and crashes. This shedding of bricks first to an unadorned chassis and then to the bisection of driver from car is as terrible and exhilarating (and hence as funny) as dismembering any body. This suggests another game: breaking 'myself into a man!'

gameworlds

The virtual and the actual are not opposites, both are real and each loops through the other. The circuit from virtual, coded gameworld to actual, improvised gameworld is not unique to (the playing of) this game, but its trajectories are traced out and smoothed by the cross-media marketing strategies (and wit) of *Lego*. The fourth game is to build the virtual world with actual *Lego*. Texture-mapped homogeneity is translated in brickolage and a crayon-scribbled beach – ready for the drownings to come. This building work/play constructs a terrain as kinaesthetic as that on-screen.

Figure 52: testing the boundary between driving and drowning in actual and virtual Sandy Bay

In this videogame/play/ers event the two realms are twisted into each other by the motivated coincidence of virtual and actual toys, and by motile agencies, by virtual and actual kinaesthetics. The experience of the virtual space is compelling enough for it to be translated into an actual space of bricks and a drawn beach and sea, a plastic cognitive mapping in which the key nodes, as well as the landmark mountains and beach, are the limits between life and death (the particular distance from the beach at which submersion triggers temporary obliteration) and the virtual physics of absolute velocity, forgiving gravity and cataclysmic collision (after Lynch 1960). Bricks become mountains as toys clutched in small hands trace software-learnt curves of competing momentum and gravity, re-simulating a delirious physics. A gameworld, as these videogame/play/ers demonstrate, is as active a player as its human players and its NPCs. It is an actor as well as a stage.

drivers

So after the videogame, familiar toys are played with differently. The game restarts, or rather the game starts anew. As with any form of translation, the translation of game conventions, rules and configurations of agency produce cracks where one system imperfectly maps onto the other. These fractures can tell us much about both systems.

▶ Familiar practices of building actual *Lego* vehicles are augmented by the videogame's conventions. A set-up prologue is established – cars and men are constructed according to the logic of videogame set-up 'Mine is really cool, it's got two steering wheels' and the range of designs laid out on the cushion/menu 'which one do you want?'.

▶ Race around the floor – 'Go!' screeching of tyres and blurring of bodies

▶ Familiar transitions between construction and destruction in brick toys now transposed into life death drama trauma. The catastrophic sweep of an arm into a brick tower transposed into the almost gentle hovering between life / death, driving / submersion.

▶ In the actual game I was instructed to play the player, tapping my fingers on a book in an empty performance of keyboard control as the two non-avatars (hybrids of boys and toys) slide between the cardinal points on/in their map/world. I was explicitly configured as videogame Player, having to play at pressing buttons on an imaginary keyboard, playing at controlling the careening boy-car-driver avatars

around their circuit and up and over their brick mountains. In the translation to the actual world the 'player' though apparently still important in symbolic terms, saw his agency withered to little more than that of a spectator, or a kind of computer game cheerleader glanced at occasionally by the real players to check this role is being fulfilled but with little effect on the game itself.

Agency assembles and codes these translations. I have coloured the agents green, taking a visual cue from the videogame's starting lights and its hovering arrow. The former trigger the pressing of the ↑ button and hence begin the race, whilst the latter is a device that patiently yet insistently indicates the game's preferred route and behaviour.

The sequence in the figure below indicates the kinds of operations and components in play in these agential translations. It runs as follows: the videogame is driven by the coming together, the collusion (more on this term later) of two parts of the videogame/play/ers event: the child player and the car/man avatar. If our focus is the gameworld, the virtual game, then – as discussed in the previous part – the game is driven by an agent constituted by the avatar (as software component) and the child player. Though here it might be more precise to separate out parts of the child player (notably eyes and fingers) just as the avatar is separated out as a key part of the videogame. In the actual game as plastic cars are propelled across the living room floor this fusion of child player and car/avatar is translated. Now the whole of the child's body is bundled up with a toy car/driver. This whole assemblage is the avatar not the toy car/driver. The virtual gameworld's agency has no material agency here, but is translated through the kinaesthetics learned by the boys' bodies.
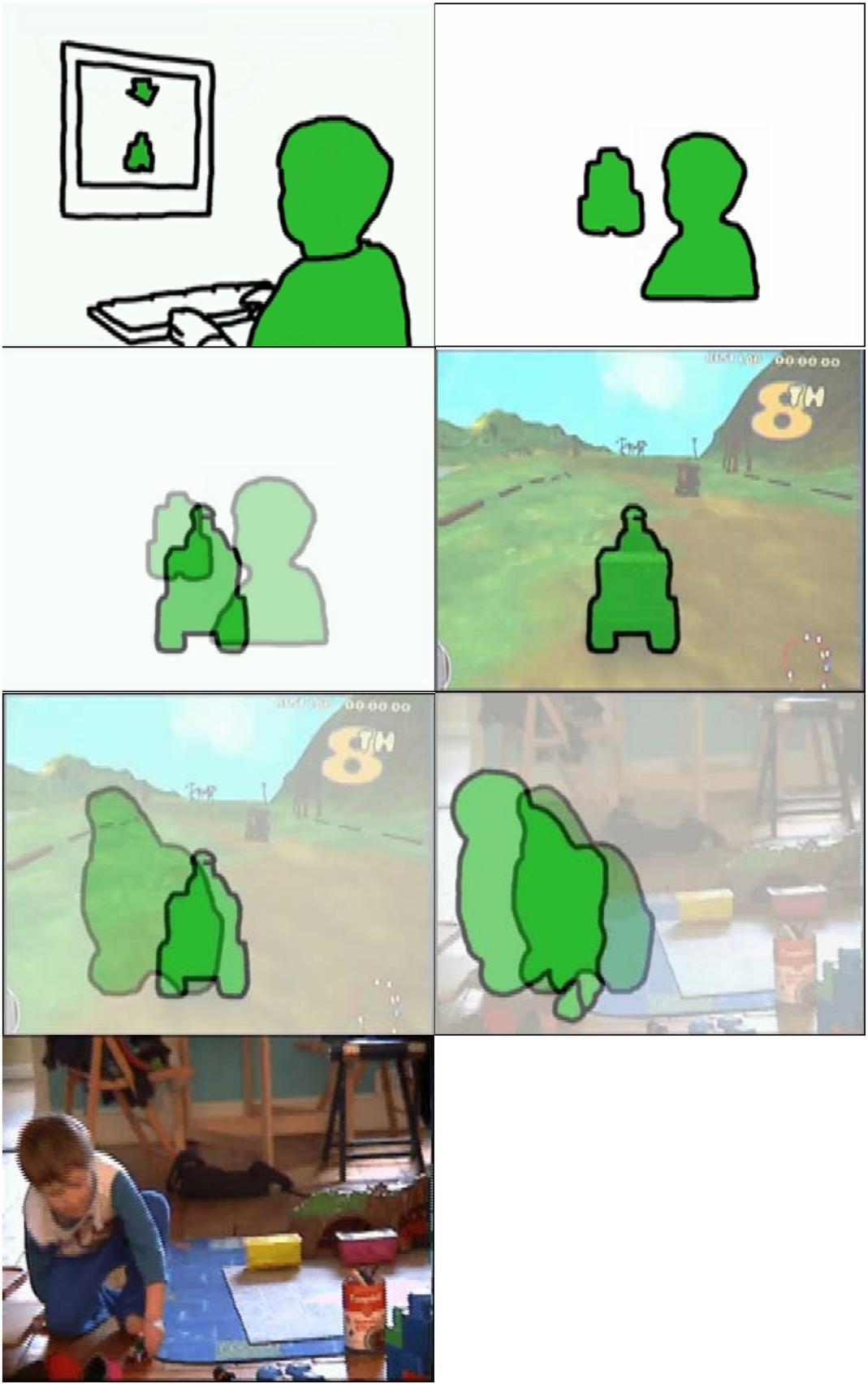
Figure 53: translations of agency, through collusion, and across the virtual and actual

Agency is translated conceptually and materially as the nature of the games and players shifts, new circuits are established, new boundaries are drawn and hence new objects (and subjects) are established. As D.A.D.D.Y. tapped the notebook/keyboard, the Player split into a spectator merely performing agency and into the Game itself, taking the car-driver-avatar (and Jo) with it. The parental non-Player fell to the edge of the game action and space, performing but not an actor. Intermittently acknowledged or admonished 'come on! Come on! Use the keyboard… Dad, you're not doing it!', at best an audience for these little monsters, or a model of interpassivity.

The videogame-as-software's central characteristic, the automatic management of various agencies, is translated into a non-cybernetic model, symbolised and performed, in the actual game. The differences between the virtual and the actual game are not immediately to do with any distinction between the agencies of creative and rule-based play (e.g. paidia of imaginative, expressive play with actual toys, versus ludus of obeying the rules and injunctions of the virtual world) , but rather to do with the cybernetic management of agency. The virtual game develops through amplification of human input (minute thumb movements amplified into spectacular virtual action) but also regulates it through negative feedback (e.g.). The actual game could be viewed as an effect of positive feedback: unregulated acceleration of physical forces ('I'm going to crash!'), and the positive feedback of imaginative play (here of course the literal operations of cybernetics in videogame play terms have ceased to have effect, or have shifted to the flow of 'information' - shrieks, ideas, instructions, laughter - between the boys).

Significantly, it was at this point that, temporarily released from close attention to the onscreen operations and the micropolitics of parent-sibling rivalry evident in my involvement in the 'choice' game, I began to reflect on what was happening. The translation of gameworld from the virtual to the actual had excited me, but a train of thought that would lead towards its full implications was triggered by my translation into the non-player Player. Here was a topsy-turvy reconfiguration that seemed to be only possible within the intersection of computer media and play, an intersection of agency. It was also the point at which I began to think of what I was involved in as possible 'research', and I was (partially) translated into a Researcher.

As noted in Part 2, a particularly entertaining characteristic of *Lego Racers 2* is the possibility of separation of driver and car. If a car suffers a particularly powerful collision then virtual bricks will fall off the car, until – and this was a source of great amusement and fascination by the boys – the car 'breaks off'

altogether and the player is left with the 'man' on his own to steer around the gameworld running delightfully on stiff little legs. This feature offers visual pleasures, the familiar form of knee-less Lego legs now hilarious in their frantic animation, but it also highlights the operations of vehicular affordance in the game. It is an unusual and perhaps unique device. As noted above games such as the *Tomb Raider* and *Grand Theft Auto* series periodically encourage or require players to guide humanoid avatars into vehicles, shifting control from the manipulation of human-shaped capabilities to motor vehicle-shaped capabilities. In these other games there are instrumental reasons for this (shape) shifting between different kinds of control / movement, as specific affordances are granted or denied as part of the imagineered gameplay.

The visual pleasures afforded by this carless driver and by Lara Croft as popular screen media characters are, in play, inseparable from their transmedial circuits (through films, toys, posters, advertisements), their playful-instrumental affordances in the gameworld and their kinaesthetic characteristics. A swift button press and Lara gracefully executes a somersault and roll to face in the opposite direction, Uzis primed. Hold ↑ and the carless driver runs ('look at him run!') as fast as his little legs will carry him. He lacks Lara's elegant knees, but each get where they/their drivers want to go.

The study of videogames as objects and events in which aesthetics and cybernetics are entwined is in its infancy (Salen and Zimmerman 2003, Giddings and Kennedy 2006), so I will for now offer one example to indicate the issues and articulations that may be needed.

'I want to break myself into a man'

Whilst non-instrumental in terms of progression through the game proper, the little game of playing with the carless driver is still motivated by cybernetic and aesthetic operations and the pleasure they offer. The delighted attempts to 'break myself into a man' demonstrate firstly the potential of the videogame to facilitate emergent play through affordances and potentials rather than 'rules' as such and the subsequent attempts to 'break myself into two legs' clearly highlight that these possibilities are not infinite (the software/designers did not anticipate or facilitate the realtime configuration of a player with a full sense of the surreal possibilities of play with Lego). Secondly it offers a micro-spectacle, a sudden change in a main character, that is (initially at least) hilarious and that is clearly linked to both the high-impact aesthetics of cartoon animation and to a familiarity with the connective / destructive nature, and rigid morphology, of actual Lego bricks. Thirdly the 'cybernetic' and 'aesthetic' are inseparable, they are articulated in the moment

at which Jo/Lego man/car is broken into a man. The pleasure in running the little man up and down mountains is at once and inseparably a visual delight ("Look at him run!") and kinaesthetic play (feel him run, feel the play between his response to ↑ and the resistance from the virtual gravity).

Figure 54: 'I want to break myself into a man!'

This little game, along with others - particularly the various games of drowning the avatar - illustrates that the videogame-as-form's pleasures and aesthetics do not arise solely from mastery of the system but from the play between the human player's agency and the software's management of that agency, not least through the latter's repeated temporary removal of agency (through game 'death', etc.).

'I'm the one who makes the Lego Racers go'

So what is left of 'identification'? Both 'subject' and 'object' collude in a Lego logic of construction and dismantling. Neither player nor avatar are always, if at all, bounded or coherent. Neither are they, together, a cyborg. They are cybernetic, but 'organism' is too monadic, too much a black box for this heterogeneous imagineering. Less figurative notions of configuration, translations/delegations, of agency, and positioning are at work in this play. We are closer here to Aarseth's components and part(icipant)s or to Woolgar's computer that becomes its relationship with its users (and, of course, vice versa), or Haraway's object/bodies that do not pre-exist but whose boundaries 'materialize in social interaction among humans and non-humans'. These 'material-semiotic actors' include 'the machines and other instruments that mediate exchanges at crucial interfaces and that function as delegates for other actors' functions and purposes' (Haraway 2004: 68).

Identity is impossible to establish when it's not even clear who or what the entities are. There are looped chains of shifting and shapeshifting entities here... the carefully constructed Lego racer character and his car are a neat virtual mirroring of the car/driver. Constructed of the same elements literally (code) and figuratively (plastic bricks) they set off together, a careening assemblage. However, the assemblage doesn't last long in its identity as a racing car/driver, its virtual motive deflated by the actual technicities of its human driver. It abandons its preferred vocation and sets off to explore its world. This shifts attention both out into the virtual world, and out of it: a human component is evident in the assemblage. The avatar component of this bigger circuit can be broken down, as the Lego car/man becomes just Lego man. He is still vehicular, though in this incarnation he is afforded even less chance of winning a race. He can of course, and does, still drown himself. This is not the free-floating identity play of the postmodernist heterotopia, these 'identities' are driven. It is *collusion.*

part(icipant)s and object positions

So, Jo's refusal to write his name in the actual version of the videogame's signing-in screen because he was the one who makes the Lego Racers go was not motivated by any mirroring identification with the computer or game-as-system. He was positioned or disposed by the game event's translations of agency. He had to be an agent, but not the Player (delegated to another human component) or the avatar (he was still driving the car/driver avatar). The game is the only agent left. An imaginative event was configured by a non-imaginary relationship between agencies and entities. In the virtual game Jo was playing *with* the whole gameworld / system, in the actual game he was playing *as* the gameworld system, not one character within a fantasy, but a delimited universe which makes the Lego Racers go. He was playing at being a system.

heterogeneous imagineering

Questioning the subject hypothesis does not mean that human desires, anxieties, identifications and investments are not in play in media technoculture, any more than questioning the object hypothesis necessitates the day to day denial of any coherent artefacts or entities around us. In this event the different games are spun into being through the tastes, personalities and abilities of the two boys as well as the material affordances of computer hardware and software simulacra. If code and information must be understood as real, material, of the world, then so too can the intangible yet real, embodied yet distributed, monstrous, operations of human factors – perception, imagination, creativity, anxiety, play – without always already reducing these to the reassuring singularity of 'identity' or 'subjectivity'.

Alex looped the actual game into his own well-established ludic universe of swimming, swimming creatures and dramas in the bathroom sink. Here the translations are not only of agency but also of the dramatic (and presumably psychic) possibilities of immersion: he has found another way to 'drown' the car-driver. Alex's orbit around and through the event-network loops so far out from the latter's gravitational pull that it establishes its own system, one that fuses his ongoing fascination with toys in water with the videogame-suggested event-horizon of life/death on the cusp and through surface tension. His little game is a reminder of the possible extents and dimensions of heterogeneity in heterogeneous networks.
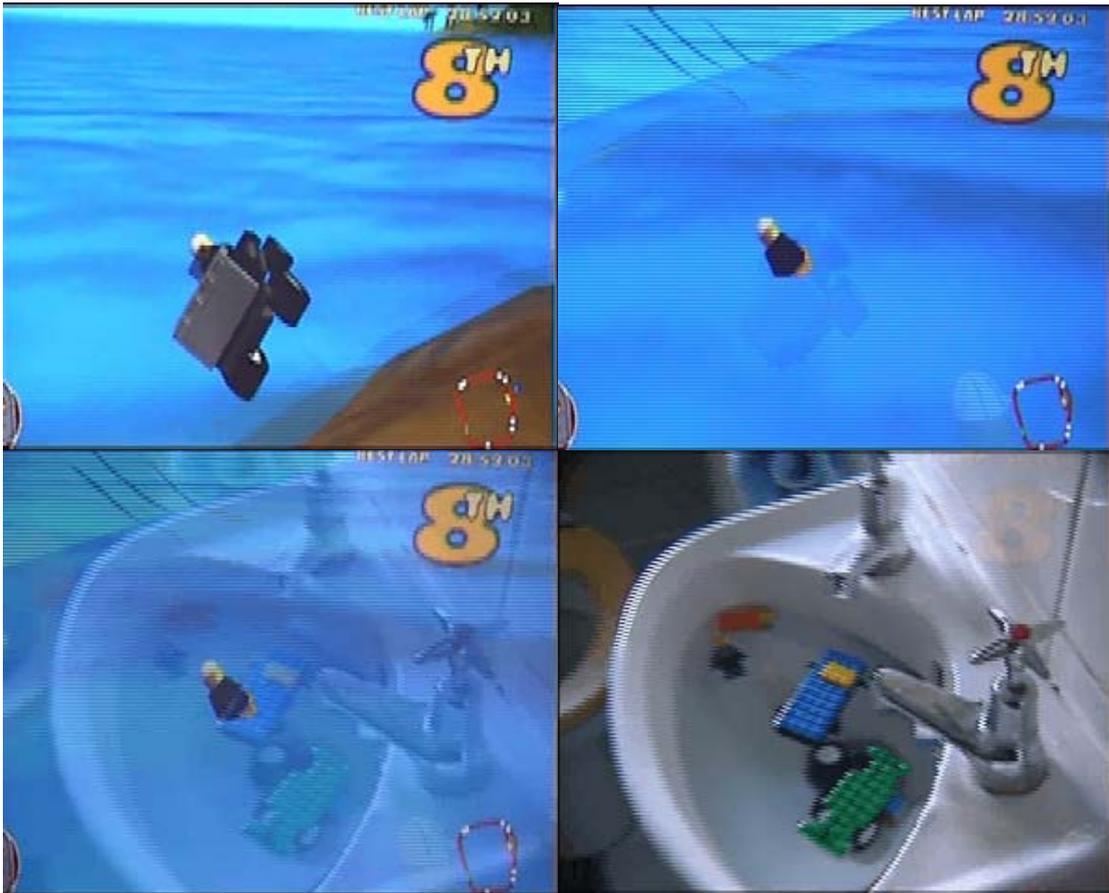
Figure 55: 'I did go into the sea'

Epilude: a programme for New Media Studies

The videogame, given its popularity, its everydayness, and the intense and intimate nature of its playing, should be central to the study of new media. The videogame as a media form and the technocultural form of the videogame/play/ers event is paradigmatic of both the material existence, and technological imaginary of, popular new media. Hence it affords a unique object through which on the one hand to study contemporary, everyday digital technoculture and on the other to study the forms, characteristics and relationships with / as users of popular digital media.

This entailed challenging some of the fundamental assumptions and concepts of new media studies, Cultural and Media Studies (and the humanities and social sciences at large). It questioned the downplaying of the newness of new media in everyday life, suggesting a more nuanced articulation of the new and the established and arguing that different modes of attention and description might reveal the new within the apparently familiar and mundane.

Both my cybertextual analysis and microethnography highlight the inadequacy of linguistic and textual models of cultural technologies, and indeed as models of (techno)culture in general. Each require an understanding of the materiality of technocultural phenomena, of the affordances of software code, of bodies, spaces and objects in circuits of feedback.

Together these two approaches suggest that new media studies should not always already begin its enquiries with the human subject, identity and human-to-human communication as their primary objects of study. The systems of software, and of software in play, entail the study of human and nonhuman components and part(icipant)s; whilst the microethnographic event draws attention to the relationships between, and translations of, these heterogeneous entities. The emphasis within parts of Cultural and Media Studies on the everyday, the lived, and the popular has proved crucial for my study of technoculture.

I will close with a brief set of suggestions for the implications for, and applications of, this project's cybertextual analysis and microethnography for an emergent new media studies.

the field of new media

Whilst videogames have their own particular dynamics and logics, and spatio-temporal characteristics, they cannot be separated from digital technoculture in general. They are Weinbren's 'shock troops' of HCI, they characterise the new kinds of intimacy of computer culture (Turkle 1985), they are inseparable from the development of virtual worlds and communities from MUDs to *Second Life*, and – as simulations – are central to new forms of knowledge production from economic modelling to military training. As the videogame/play/ers is a particularly tightly integrated circuit, an emphasis on, or reference to, it should become productive in analysing other popular new media events. Whilst my emphasis has been on the relationship between the player and the computer / game, my findings are variably applicable to computer-mediated networks, whether MMORPGs, MUDs or chatrooms.

All of these fields (Cultural and Media Studies, Film Studies, STS, new media studies) need to describe and theorise *software* as a technocultural form. Game studies offers initial suggestions and approaches. A new media studies lexicon must include simulation, kinaesthetics, algorithm, etc. as key analytical terms.

Whilst videogames have their own dynamics and logics as software, this study of their playing is suggestive for the study of technoculture at large, particularly technocultural events and assemblages characterised by intimate connections and feedback between the human and the nonhuman, from machine/workers to car/drivers. STS should prove a rich resource for the theorising and analysis of cultural forms as material artefacts and events. It must be extended to engage with images, texts, narratives, or games (or perception, imagination, play, etc.) – as actors in *media* technocultural networks.

key concepts

event

Theories of nonhuman agency from STS and ANT must be extended and developed to engage with the specific nature of computer networks, of cybernetic circuits and digital automata. The compelling resonances between the actor-network and the cybernetic feedback loops within the game/play/ers event must be articulated and interrogated. Yet the specificity of the latter as at once a computer-mediated circuit, a circuit in which human parts are constituted and brought into play in very particular ways, and a popular

media event populated by screen images, actions and environments, must be attended to. The implications of the displacement of representation by simulation in everyday media technoculture must be fully explored.

collusion

The term collusion sustains the microethnographic concern with the relationships and translations between entities in the event of media play, without reinscribing the humanist assumptions bound up in the term 'identification'.

the new

A more nuanced description of the play between continuity and rupture in digital technoculture is required. Microethnography shows that Cultural and Media Studies has to date been unimaginative in its emphasis on the continuities of mobile privatisation and everyday life, and defeatist in its assumptions that the fabrics of everyday life cannot be unpicked, described, analysed.

simulation

To suggest critiques of 'representation' and 'identity' and propose 'simulation' and 'collusion' is not to argue that the cultural political concerns central to work mobilising the longer established terms are invalid. Rather I hope that this thesis begins to suggest a critical approach to studying technoculture as material flows of agency and power – that politics in digital technoculture must tackle head on the distinctiveness and newness of computer-based media, networks and events.

The theorisation of simulation is, then, on the one hand a challenge for cybertextual analysis and the study of software as technocultural form, whilst on the other demands a different ontology from dominant Cultural and Media Studies. It requires alternative ways of thinking about the relationship between the artificial and the artefactual, between models and the real, or models *as* the real. This is essential for understanding the technopolitical implications of AI and ALife entities in both scientific research and in their everyday machinations.

New media studies must question assumptions that technological agency in the contemporary world is always politically regressive or apocalyptic. Videogame/play/ers demonstrate the playful possibilities of the mutual configuration, response to, and acting on, part(icipant)s. There are power relationships looping

through all networks of agency. It is important to assert however that the operations of power cannot be 'read off' from either the positioning of human and nonhuman agents or from the degree of 'emergent' behaviour. Rather each particular event or type of event must be studied, its contexts, its constituents and its effects.

virtual and actual

The Lego Racers event illustrates clearly the redundancy of notions of the virtual as a separate realm, whether an ideal space of emancipated identities or an ideological distraction from the 'real'. It demonstrates that the virtual and the actual interpenetrate, they extend into one another. The virtual is a reality in which computer code and actual digits together generate virtual physics and emergent play. The actual is organised by interface conventions and dramatised by the performance of virtual kinaesthetics. In their traffic between the virtual and the actual, the videogame part(icipant)s are translated, disaggregated and reassembled.

play and games

The elusive category of play itself should be integral to new media studies (and Cultural and Media Studies). Another thesis could be written to theorise the political, aesthetic and experiential relationships between the world of play and the world of non-play, relationships that seem to shift between the modelling of dominant social orders, to their symbolic inversion, in which modern games seem at once quite distinct from, and yet continuous with, zones that fall outside Cultural Studies: i.e. back before the modern, and across the divide between species. Or on the increasing significance of play and games in popular media (techno)culture, from the 'extra feature' games on DVDs to the hybrids of game and documentary in reality TV. This would have to be done before one could hope to adequately account for the ideological operations and implications of particular games and particular play-events. It is evident that play demands much more serious and sustained theoretical and empirical attention.

rules

It should be noted that the events I analyse establish, as play and games, an ambiguous relationship between their rules and social rules more generally. This relationship has been discussed as one of separateness between the space and time of play and games and the space and time of everyday life; and as perhaps motivated by 'inversions' of cultural – political orders. But then games at the ludus end of Caillois'

axis unsettle established categories and assumptions in Cultural and Media Studies. For Media Studies the aberrant is always the ideal, yet the playing of a game often requires playing by the rules.

ludus / paidia

The continuity of ludus and paidia offers a way of thinking about social rules (as productive as well as repressive) and about the configuration of users and events through the production of technoculture – i.e. just as racing the NPC cars (ludus) is as valid and in its own way as pleasurable as the 'emergent' and improvised games of exploring Sandy Bay, its physics, deaths and reanimations (paidia), so too we might rethink the prescription and description of material technocultural artefacts and their events as on a continuum between close configuration and emergent practices without assigning either the status of 'creativity' or 'constraint' at the expense of the other.

configuration

The notion of configuration challenges game studies' and new media studies' investment in interactivity as a key concept or principle. Despite interactivity's address to reciprocal relationships between human and nonhuman, it tends to assume discrete, coherent, subjects and objects and is predicated on celebration of human agency in the consumption or use of a media form.

methods

This has been an exploratory foray into ethnographic 'fieldwork', but I think it asks some significant methodological and disciplinary questions of Cultural and Media Studies, game studies and new media studies. It forges a productive overlap between STS and Cultural and Media Studies, an extension or augmentation of the virtual ethnographic research that already operate in more or less this zone. If attentive to Geertz's puzzlement, it might be productive and generative without being leadenly empirical and social-scientific. It might transcend the rather weak ambitions of established Cultural and Media Studies ethnographies of 'consumption' and conflictual continuity.

On a simple level, sometimes more *description* would be welcome, in both the continuous (through deep description we might trace the textures and weave of the fabric of everyday life, re-realize its patterns, notice its tears, patches and seams) and the new – in the political drive to debunk enthusiasm and to deny existing structures their attempts to present themselves as new, we run the risk of missing new or modified

pleasures, power structures and possibilities. The deep description of everyday life allows for the acknowledgement of the messy, the conceptually unresolved, the inverted and metamorphic operations of play, the downright puzzling.

future directions

To describe events not objects, part(icipant)s not subjects, collusion not identification demands further work, both microethnographic and conceptual. Particularly towards the end of this thesis I am working at the limits of my disciplinary resources and vocabulary. The next steps in my research will involve the exploration of new resources: anthropology and the ethnographic work in STS and ANT for models and ideas in the study of material technoculture; the well-established history and practices of ethnographic filmmaking; phenomenology for a model of embodied, sensory, tactile relationships between human and environment; cybernetics and computer science for conceptual frameworks and entities for thinking through the distinct characteristics and operations of software as cybernetic and automotive.

I have found the theorised practice of video microethnography to be productive and rewarding, allowing the demonstration and analysis of phenomena in ways different to the written word on its own. I have continued this practice alongside my work on this thesis, and will continue it in the future.

Ludography

Games referenced in this thesis are listed here. Title, publisher, and date of publication and platform of the version the game referenced are listed.

Advance Wars 2, Nintendo 2003, GameBoy Advance

Adventure, unpublished [originally *Colossal Cave Adventure*, designed by William Crowther and Don Woods, early 1970s, referenced version available online at http://www.rickadams.org/], PC

Battlezone, Atari 1980, arcade

Civilization, Microprose 1991, PC

Creatures, Mindscape 1996, PC

Doom, id Software 1993, PC

Every Extend, Omega 2004, PC [online, available from: http://nagoya.cool.ne.jp/o_mega/product.html, accessed 12/12/05]

EverQuest, Sony from 1999, MMORPG

Game of Life [original by John Conway 1970, referenced version is a Java applet online at http://www.bitstorm.org/gameoflife/, accessed 2/7/04], PC

Gran Turismo 4, Sony 2005, PlayStation 2

Grand Theft Auto III, Rockstar 2001, PC

Grand Theft Auto: Vice City, Rockstar 2002, PlayStation

Half-Life, Valve 1998, PC

Halo: Combat Evolved, Microsoft 2002, XBox

Halo 2, Microsoft 2004, XBox

The Legend of Zelda: the Wind Waker, Nintendo 2003, GameCube

Lego Racers 2, LEGO 2001, PC

Lego Star Wars, LEGO 2005, PlayStation 2

Mario Kart: Double Dash!!, Nintendo 2003, GameCube

Metal Gear Solid, Konami 1998, PlayStation

Metal Gear Solid 2: Solid Snake, Konami 2000, PlayStation

Metal Gear Solid 3: Snake Eater, Konami 2004, PlayStation 2

Myst, Brøderbund 1993, Mac

Pac-Man, Namco/Midway 1980, arcade

Populous, Bullfrog/Electronic Arts 1989, Amiga

Prince of Persia, Brøderbund 1992, Mac

Second Life, Linden Lab from 2003, MMOG

SimAnt, Maxis 1991, Mac

SimCity, Maxis/Brøderbund 1989, PC

The Sims, Maxis/Electronic Arts 2000, PC

Sonic the Hedgehog, SEGA 1991, Megadrive

Sonic the Hedgehog II, SEGA 1992, Megadrive

Spacewar!, unpublished [designed by Steve Russell et al] 1962, PDP-1

Space Invaders, Taito/Midway 1978, arcade

Supermarioland, Nintendo 1989, GameBoy

Super Monkey Ball, SEGA 2001, Gamecube

Tetris, Nintendo 1989, GameBoy

Theme Park, Bulldog/Electronic Arts 1994, PC

Tomb Raider, Eidos 1996, Playstation

Tomb Raider II: the dagger of Xian, Eidos 1997, Playstation

Wolfenstein 3D, id Software 1992, Mac

World of Warcraft, Blizzard/Vivendi from 2004 , MMORPG

Filmography

Cannon Fodder dir. Otomo, one of three films published on DVD as *Memories*, Animax: 1995

Lara Croft: Tomb Raider dir. West, Paramount: 2001

Lion King dir. Allers & Minkoff, Disney: 1994

Mulan dir. Bancroft & Cook, Disney: 1998

Tron, dir. Lisberger, Disney: 1982

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Appendix: statement of authorship of Lister et al (2003) *New Media: a Critical Introduction*, London: Routledge