
University for the Creative Arts Research Online (UCARO)



CITATION

Makryniotis, Thomas (2012) Identity through dress in virtual environments. PhD thesis, University for the Creative Arts/University of Kent.

LINK TO RECORD IN UCARO

<https://research.uca.ac.uk/1748>

This thesis has been digitised by the Library at the University for the Creative Arts (UCA), for the purposes of preservation and dissemination.

COPYRIGHT & REUSE

Theses on UCARO are made available for non-commercial research purposes only. Unless otherwise stated, content will be protected by copyright and for further use beyond research you will need to seek permission from the rightsholder (for example, author, publisher, artist).



413567



University of
Kent

Identity Through Dress in Virtual Environments

A PhD Thesis submitted by

Thomas Makryniotis

to

University for the Creative Arts / University of Kent in partial
fulfilment for the
Degree of Doctor of Philosophy in Fashion Design

Date 6/11/2012

Table of Contents DressCode – Identity through Dress in Virtual Environments

This research is an attempt to break free of all traditional cultural assumptions that come with video games, and to see the medium for what it really is. This entails going back to its first steps, as well as reaching deep into its core. In the body of this thesis, I discuss what games do best, namely simulation, and why this is the reason they do not always involve interesting or even acceptable representation, examining the relationship between the two. This is necessary in order to establish if and how self-reflection and the affect on the player's identity are established. I chose to do this in the context of dress and fashion, as my background assumes a relative expertise in this field, and this is the interdisciplinary view I can best offer to the medium. But more importantly, I chose to examine the dress of the game characters because they are the imaginary, symbolic, and pragmatic connection of the player with the game world, and as such, any affect on the player will likely occur through them. As their dress, or rather their polygonal body, is there to do two things, the first being to establish the pragmatic simulational connection and interaction of the character with the game environment, the second being to visually position the character in the imaginary and symbolic context of the game, it is there that we may find how identity is affected. The avatar's clothing is the interface between the game world and the avatar, which in turn is the interface between the player and the game. Therefore, after I enquire whether video games affect the player's identity in any way, I then question how the player's identity is affected by what the avatar is wearing.

The main question this research poses is: *How does avatarial dress affect the identity of the player while playing a video game?*

The practical outcome of this research is a study in designing and producing a game that utilises dress as its exclusive gameplay factor. I call this artefact *DressCode: The Fashion Game*. In this game, play progresses through choice of dress and dialogue, and it combines a graphical user interface, text, and three-dimensional graphics. This prototype was created in order to establish how the identity of the player is affected through dress choices for the avatar.

Table of Contents

Introduction and Methodology	p. 1
Chapter 1 – Identity in Virtual Environments	p. 33
Chapter 2 – Self-Identity Through Dress in Virtual Environments	p. 101
Chapter 3 – Social Identity Through Dress in Virtual Environments	p. 170
Chapter 4 – <i>DressCode</i> – The Fashion Game	p. 215
Conclusion	p. 286
Bibliography	p. 295
List of Illustrations	p. 318
Appendix 1 – Questionnaire 1	p. 324
Appendix 2 – Questionnaire 2	p. 329

Introduction and Methodology

Objectives

Soldiers, robots, tomb raiders, aliens, knights, princesses, plumbers, zombies. As a young fashion student, this obsession of the video games medium with fantasy themes puzzled me. I could of course understand that the appearance of the characters was contextual and that it depended on the scenario and setting of the game. But I always thought that the medium could do more than that. With its simulational, emergent and configurative qualities, I believed that video games could explore and push to their limits more realistic worlds. At first, and until I embarked on this research, I thought that visual realism was what I was looking for: beautiful fabrics, intricate fashion design, anatomically correct bodies with natural movement. After engaging in this research, however, I realised that it was not so much the lack of visual realism that was the problem, even if it did matter, as the lack of social realism. In other words, video games did not represent what happened in real life, nor did they borrow significant elements from it, but they were rather content to play with fantastical symbolisms and metaphors which of course had their basis in cultural conventions, but which however were only tangentially connected to real-life systems. Moving away from the traditional perception of superficial commodities, fashion has come to be discussed by many late modernist thinkers and critics as one of the principal signifiers for actual social relations as well as for their hypermodern simulation. Looking at the way in which video games eschewed social realism, it followed that they equally did not show any serious attempt at original or even represented fashion design in their visuals or narratives. This also had political reverberations, as lack of social realism, i.e. the use of non-sensical fantasy themes to break free of all cultural ties and therefore repercussions, brought with it the problematic representation of gender and power relations, as well as a natural and unquestionable adoption of violence and conflict. There were of course exceptions, both experimental and commercial, which were inspiring and eye-opening, many of which are mentioned and examined in this thesis. Projects like *Façade*, social worlds like *Second Life*, and games like *The Sims*, positively informed my views on the matter and helped construct my theories, as they made evident that a re-imagined "real" life can be every bit as entertaining as a re-imagined fantasy, but more importantly, more meaningful. An artistic medium, which I consider video games to be, can express the author's worldview, but it should also allow the viewer/reader/user to engage with it in order to gain some understanding of the world and of herself through self-reflection on the artifact. While I do not claim that fantasy is incapable of this, I do see sense in making a point and inviting interaction through references analogous to the real

world, and not through trivial “artistic” stereotypes derived from the commercially accepted traditional tropes of the medium.

Self-reflection for me is what video games, and I use the term loosely, are best at offering, more so than other media, or at least in deeper and more complex ways, as they very much envelop all previous media. However, self-reflection is usually downplayed or disregarded due to a confusion between what the medium can support satisfactorily (pretty much anything and everything), and what it does best. Video game theorist Michael Highland asks: can we look forward to games which are ‘designed to reward personal growth or self-realisation?’ (2006:19) While engaged in gameplay, the player sees herself, looking suspiciously unlike herself but still knowing that it is her, doing things that are for the most part dictated or imposed to her by the author. ‘Death of the author?’ – I beg to differ, as for the duration of the game session, the identity of the gamer is in the author’s hands. The author in this case does not have to be the visionary or the instigator; it may be the industry or the market of video games. The power is back to the gamer. But is this really what the gamer, or rather, *all* gamers, want to play?

This research is an attempt to break free of all traditional cultural assumptions that come with the territory, and to see the medium for what it really is. This, of course, entails going back to its first steps, as well as reaching deep into its core. In the body of this thesis, I will discuss what games do best, namely simulation, and why this is the reason they do not always involve interesting or even acceptable representation, examining the relationship between the two. This is necessary in order to establish if and how self-reflection and the affect on the player’s identity are established. I chose to do this in the context of dress and fashion, as my background assumes a relative expertise in this field, and this is the interdisciplinary view I can best offer to the medium. But more importantly, I chose to examine the dress of the game characters because they are the imaginary, symbolic, and pragmatic connection of the player with the game world, and as such, any affect on the player will likely occur through them. As their dress, or rather their polygonal body, is there to do two things, the first being to establish the pragmatic simulational connection and interaction of the character with the game environment, the second being to visually position the character in the imaginary and symbolic context of the game, it is there that we may find how identity is affected. The avatar’s clothing is the interface between the game world and the avatar, which in turn is the interface between the player and the game. Therefore, after I enquire whether video games affect the player’s identity in any way, I will then question how the player’s identity is affected by what the avatar is wearing.

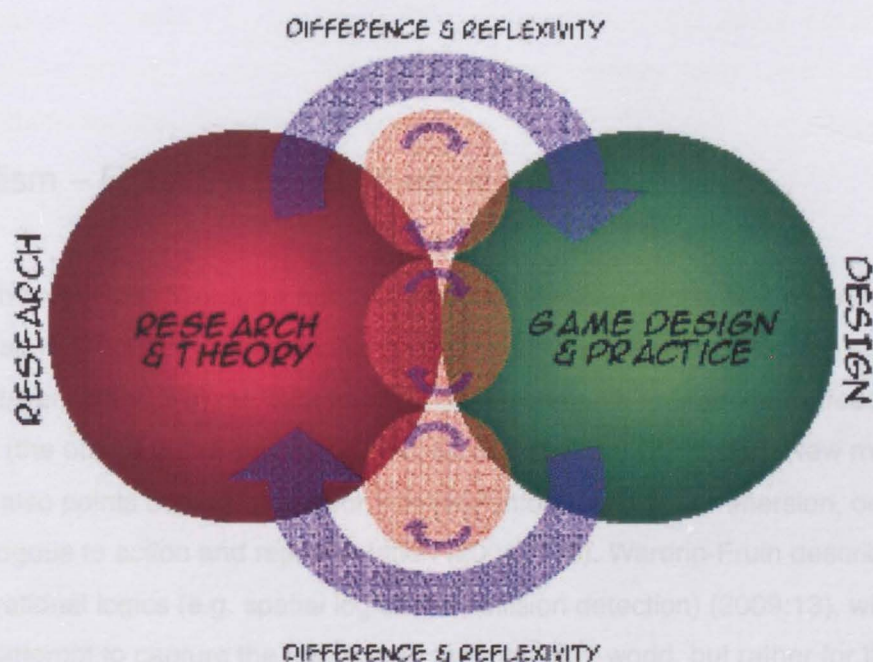
The main question this research poses is: *How does avatarial dress affect the identity of the player while playing a video game?*

What led me to write on game character dress was the realisation that it has clearly not yet received enough attention by game developers and publishers outside the domain of fantasy costume. I am embarking on this research with the hope that having a fashion theory and design background will help me to analyse the subject of this study from a different point of view to that of the typical video game scholar. The scope of this research is twofold, namely to give insight into the nature of dress and fashion through the use of digital simulation, and to advance the medium of the video game by improving both the representation and simulation of garments therein.

Anthropologist Tom Boellstorff has said that the virtual is the anthropological, meaning that virtual communities mimic those of real communities, but have their own ethics and customs (2008: 237). In observing virtual communities, we find universal truths about human nature. In this sense, virtual fashion may be seen as real, as it entails status, sexuality, and consumption, exactly as it does in the non-virtual world. Virtual fashion should therefore still be indicative of the reality of humanity, as the alteration of nature, as what we do in order to survive by means of a struggle over status, probably for reasons of natural selection. Of course, fashion in material terms has a haptic and sensory dimension, which links it directly to the human body. Yet fashion in this research has to be used essentially as a structural construct, a semantic abstraction, connected to a limited simulational model of fashion in the 'real' world.

DressCode: The Fashion Game

In his article 'Research as Design – Design as Research', Andrew J. Stapleton sets out to find an appropriate methodology for researching the game design process (2005:4-6). As a research process, design has a clear focus on action, and action research as a qualitative methodology, which combines both qualitative and quantitative approaches, is very similar to design activity and involves the concepts of change and understanding. Stapleton used an action research methodology deriving from constructivism (genetic epistemology) called *Fourth Generation Evaluation*, where researchers actively build something based on their prior knowledge, in order to gain further understanding of the object in question. The ultimate outcome of this process is a case study report which allows the reader to 'vicariously experience' the context, methodology, and success of the enquiry. Stapleton's Research as Design-Design as Research (RADDAR) methodology for video games effectively merges design and research into one inseparable entity: an 'ongoing dialectic between (constructivist) research and theory, the realm of (academic) researchers, and game design, the realm of design practitioners'. RADDAR (illustration 1) forms a hermeneutic dialectic circle, which allows various methods to be employed.



1. The RADDAR Methodology

This particular methodology will prove useful in the context of my research, as it merges theory and practice in a way that has the two interact in a cyclical manner. The one feeds the other, i.e. theoretical assumptions lead to design decisions, and practical considerations lead to analytical material. I find this system suitable for the creation of a video game prototype, which is both the offspring of my theoretical speculations, but also, and more importantly, a work of art in its own right, which can exist independently and create new practical and abstract questions and speculations. The questions derived from the design process may then drive further theoretical research, or inform existing assumptions. This is an experimental scientific method, which I find appropriate for work on digital systems.

The practical outcome of this research is a study in designing and producing a game that will utilise dress as its exclusive gameplay factor. I call this artefact *DressCode: The Fashion Game*. In this game, play will progress through choice of dress and dialogue, and it will combine a graphical user interface, text, and three-dimensional graphics. I will make this prototype in order to establish how the identity of the player is affected through dress choices for the avatar. Another derivative question, which will be explored in creation and evaluation of the fashion game prototype, is whether dress can work as a game mechanic, i.e. as one of the factors that affect gameplay. The completed prototype will subsequently be tested as part of a focus group as well as a self-reflexive process. I am hoping that my findings will justify and facilitate the inclusion of better character

design in solitary games and more choice in avatarial construction in online multiplayer environments.

Social Realism – From Syntax to Rhetorics

Digital media theorist Noah Wardrip-Fruin has invented the term *expressive processing* to refer to the abilities of simulational processes to act as the author's expression of ideals, which may not be visible to the player (2009: 3-4), as data and processes combine to produce representational signs on the surface (the output of the simulation, visuals and sounds) (2009: 10). New media theorist Lev Manovich also points out the opposition between information and immersion, or surface and depth, as analogous to action and representation (2001: 216). Wardrip-Fruin describes simulations as sets of operational logics (e.g. spatial logics like collision detection) (2009:13), which are not put together in an attempt to capture the nuances of the everyday world, but rather for their computational specificity, efficiency on the targeted platform, and ease of implementation (2009:82). Whether it is *Half-Life 2* (Valve, 2004) or *Super Mario Brothers* (Nintendo, 1985), there is always a large amount of *abstraction* in the simulation (2009: 222). Crucially, Wardrip-Fruin continues, 'the overall goal is defined by the fact that the game is attempting to reach an audience; the model must serve the experience of gameplay sought by the game's authors' (2009: 82). This is sometimes based on current positions in psychology, linguistics, and cognitive science, particularly in the design of artificial intelligence (2009: 83).

Regardless of the degree of abstraction, I believe that the syntax of the programmatic code can produce semantic content in the right circumstances, and I will gradually progress in my line of argument from syntax to meaning. Kirkpatrick believes that 'the challenge of the video game lies in extruding play and form, which are no longer located internal to the subject, but have to be performed through manipulating the controller' (2011:8). For Kirkpatrick, the combination of expressive performance and restraint in gameplay is not a meaningful aesthetic experience, but more akin to playing a musical instrument, i.e. syntactic (2011:7), as the excess of form 'overrides and negates' meaning. It is the very activity of playing a game which corrodes meaning-making within the experience, as mimesis in the video game object is undermined (2011: 9). However, Kirkpatrick eventually admits that meaning may indeed be invoked in a video game, insofar as there is sufficient behavioural complexity in the game's code (2011: 18). Video game theorist Ian Bogost (2006) has coined the term *unit operations* to define programmatic and other procedures that express meaning, which allow programmers to create discreet blocks of functionality (programming objects) that can be combined to form programmatic models such as simulations.

Importantly, Bogost regards video games as a medium of unique persuasive power, which can 'disrupt and change fundamental attitudes and beliefs about the world, leading to potentially significant long-term change', even though this power is not mainly related to the content of the games, but rather to the way they mount claims through *procedural rhetorics* (Bogost, 2007:ix):

While "ordinary" software like word processors and photo editing applications are often used to create expressive artifacts, those completed artifacts do not usually rely on the computer in order to bear meaning. Videogames are computational artifacts that have cultural meaning as computational artifacts. Moreover, they are a popular form of computational artifact; perhaps the most prevalent form of expressive computation. Videogames are thus a particularly relevant medium for computational persuasion and expression. (Bogost: 2007:ix)

Wardrip-Fruin also finds that there are usually strong ideological positions built in the data and the processes (2009:99):

...in trying to capture the structure of the world or the way reasoning works, [AI] always captures someone's idea of how things are rather than any transcendental truth (2009: 108)...A simulation of human behavior is always an encoding of the beliefs and biases of its authors; it is never objective, it is always a fiction (2009: 151).

Bogost discards system operations for unit operations (2006: 6), which he identifies in social, political, and cultural behaviours and ideologies (Bogost, 2007: 72). He presents Italian publisher's Molleindustria's *The McDonald Game* (illustration 2), a game that parodies the business practices of fast-food chain McDonald's, as an example to demonstrate the power of procedural rhetorics:

As Patrick Dugan explains, the game imposes "constraints simulating necessary evils on one hand, and on the other hand...business practices that are self-defeating and, really just stupid." The game makes a procedural argument about the inherent problems in the fast food industry, particularly the necessity of overstepping environmental and health-related boundaries. (Bogost 2007: 31)

In another example, *America's Army* (illustration 3), a game developed and published by the United States Army as a promotional initiative, Bogost finds persuasion on two fronts: as a U.S. Army recruiting tool, and as a manifestation of military ideology which propagates 'the logic of duty, honour, and singular global political truth as a desirable worldview' (Bogost, 2007: 79).



2-3. McDonald's Game and American Army

As software is composed of authored algorithms (pieces of code) that abstractly model the natural world, or an imaginary world, there is an inherent bias, which represents, rather than accurately models, the system in question. Procedurality, in this context, creates meaning through the interaction of these algorithms (Bogost, 2007:4). For Bogost, the procedural representation of the computer simulation is a different symbolic expression to written or spoken representation, in that it explains processes *with other processes* (it enacts other processes), and not with language (as it does not describe them, the way semiotics do) (Bogost, 2007: 9). All in all, Bogost regards simulation as a form of representation, within which biased perspectives are expressed through *procedural rhetorics* (Bogost, 2007: 173):

What simulation games create are *biased, nonobjective* modes of expression that cannot escape the grasp of subjectivity and ideology.
(Bogost, 2006:99)

One of the central theses in this research is phrased by video game theorist Alexander R. Galloway, who asserts that, as games compel players to perform acts, they should depict the real world in action, while 'establishing correspondences with specific activities existent in the social reality of the gamer' (Galloway, 2006: 84). Influenced by Galloway's position, in the creation of *DressCode*, I am not arguing for realism or verisimilitude, as I do not believe that they are feasible

or even appropriate in the video game, but rather for a meaningful fashion system, which will be central to the mechanics of the simulation. The purpose of *DressCode* is the production of social realism by means of multiplicity, and connection between simulation and representation. These devices are employed in order to increase the game's meaning, and as a result the player's subjectivity in the construction of the identity of the avatar through social performance.

Syndesis – Connecting Programming and Semiotics

In the body of this thesis, I will express the opinion that meaning in games can be produced by harmonising their representational with their simulational layer. This, I feel, enhances the connection with the avatar, and both elements of real-world simulated emotions and win-lose game emotions are produced, so that the player's simulational identity is constructed at the same time as the representational. Ultimately, this has a positive effect on the production of meaning and on overall subjectivity.

Video game theorist Gordon Calleja sums up the experiential phenomena of playing a video game in *incorporation*, which encompasses the notions of both presence (as used by technologists, media psychologists, and human-computer interaction researchers) and immersion (as the preferred term of humanists and social scientists) (Calleja, 2011: 33):

Although incorporation is ultimately a metaphor like presence or immersion, it avoids a number of problematic connotations that are present in the other two terms and, more importantly, provides a more robust concept for researchers to build on. (Calleja, 2011: 3)

Starting with Laura Ermi's and Frans Mayra's study (2005), which provides three modes of immersion (sensory, challenge-based, and imaginative), Calleja creates a model of player involvement (2011: 34), and identifies its following dimensions: *kinesthetic* involvement relates to controls and fluency of internalised movement; *spatial* involvement concerns players' engagement with the spatial qualities of a virtual environment (spatial control, navigation, and exploration); *shared* involvement deals with the engagement derived from players' interaction with other player or AI agents in a game environment in cohabitation, cooperation, and competition; *narrative* involvement refers to engagement with static and emergent story elements; *affective* involvement encompasses emotional engagement deriving from the aesthetics of a game; and *ludic*

involvement refers to players' engagement with choices and their repercussions during gameplay, while striving to achieve a goal (Calleja, 2011: 43-44).

While kinesthetic, spatial, and ludic involvement can be sufficiently explained in terms of mathematics, and shared involvement in the context of virtual sociology, narrative and affective involvement must also borrow from narrative and cultural semiology. This is why the programmatic code must be somehow connected to semiotics. In the second chapter, in particular, I will attempt to connect computer variables such as numbers and text strings, as well as their inclusion in functions, to semiotic entities. I will use the object-oriented scripting language JavaScript, which allows for attributes and functions to be ascribed to objects such as characters and clothes, to produce the scripts that will control my fashion game prototype. Object-oriented programming is a programming paradigm that uses collections of software segments called 'objects' to create models based on the real world. It uses techniques such as abstraction – abstract emulation of reality; modularity – small parts of code that can be reused; polymorphism – common characteristics between classes; encapsulation – distribution of duties to classes and methods; and inheritance – common characteristics between classes. In object-oriented programming, software is designed as a collection of cooperating objects rather than a collection of functions. Each object is capable of interacting with other objects and can be viewed as an independent actor with a specific role. This emphasis on modularity allows me to draw parallels between programmatic code and semiotics, which are equally discreet systems. Manovich mentions that in modern semiology, communication requires discrete units (a series of discontinuous terms), and so media used in cultural communication are expected to have discrete levels (2001: 28). Digital media feature discreet units in a fractal manner, i.e. on different scales (2001: 30): bits become bytes, megabytes and terabytes of information, as binary code combines to become increasingly complex and produce a syntax which can come close to producing meaning:

Structural computer programming which became standard in the 1970s involves writing small and self-sufficient modules (called in different computer languages subroutines, functions, procedures, scripts) which are assembled into larger programs. Many new media objects are in fact computer programs which follow structural programming style. (Manovich, 2001:31)

In OOLs, a *class* defines the characteristics of an *object*, which is an *instance* of a class. An object (or a whole class) has properties, such as colour and size, and capabilities called *methods*, all of which can be examined as semiotic signs.

As I am focusing on the aspect of simulation, I am adopting a ludological perspective. Ludology is a term for a branch of game studies, mainly coined by Scandinavian scholars, which focuses on the aspect of ludus and simulation, and directly opposes the reading of video games as narratives. Sociologist and video game theorist Graeme Kirkpatrick believes that ludology identifies what is essential to the video game as a cultural object: structured play, whose aesthetics depend on performative rhythm, rather than on representational content (2011: 48-9). As such, ludology rejects the view that games include significant textual components (2011: 50), mainly as there is a discrepancy between temporal immediate playing and interpretatively reading events, which damages the mechanics of fictional meaning (2011: 55). Ludologist Markku Eskelinen believes that 'most comparisons between narratives and games usually result from too narrow, broad or feeble definitions of the former', and that Gerald Prince's and Gerard Genette's narratologies state that there must be both a temporal sequence of events and a narrative situation to a narrative, the latter of which cannot be found in video games (Eskelinen, 2004: 37). For the ludologist who kicked off the whole argument in 1997, Espen Aarseth, what makes games playable and attractive is rather the exploration and mastery of the topography of the virtual environment (Aarseth, 2004: 51).

Ludologist Gonzalo Frasca also believes that simulations have different mechanics and offer distinct rhetorical possibilities to narrative (2003: 221). He therefore finds formal approaches for the analysis of the video game medium like semiotics limited, although still 'the easiest way to uncover the structural differences between stories and games' (2003: 222). For this reason, he uses what he calls "simitiocs" (simulation semiotics). Simulation does not simply retain the representational characteristics of an object but it also includes a model of its behaviours, which reacts to certain input stimuli, according to a set of conditions. To an external observer, the sequence of signs produced by both a film and a simulation could look exactly the same, so that their semiotic sequences might be identical (2003: 224). However, Frasca draws attention to the fact that simulation cannot be understood just through its output. What appears on the screen, therefore, may be examined within semiology, but that would be missing the point, as it is not the static image, or even indeed the moving image, that the video game produces, which is usually of interest, but rather the configuration of the game object by the player in creating these images. A framework is thus needed within which the examination of both a game's inner workings and apparent outcomes can occur. I call this concept *syndesis*, from the Greek prefix 'syn' ('together') and noun 'desis' ('binding'), literally translated as 'binding together', 'linking' or 'connecting', describing in this context the way units that can be expressed in semiotic terms, such as visuals and sounds, are placed on the interface between the computer and the gamer through the use of

metaphor and *cultural convention*, to communicate units that can only be expressed in terms of mathematics.

Simulation is indeed not of a discursive, but of a mathematic nature. Philosopher Alain Badiou (2007 [1988]) believes that all ontological processes can be described in formal mathematical terms, and his work influences my speculations in the chapters to follow. Manovich characterises new media as mathematical and programmable, subject to algorithmic manipulation (2001: 27). As such, simulation does not inherently contain meaning, but it has to be attached to meanings through metaphor:

...we need something which can be called "info-aesthetics" — a theoretical analysis of the aesthetics of information access as well as the creation of new media objects which "aestheticize" information processing. (Manovich, 2001: 217)

I am using the concept of *synthesis* to examine two subjects which have traditionally been examined within the two incompatible methodologies, namely social interaction through dress, and video games. In the structuralist tradition, the analysis of social and individual formations takes place, which can be read as texts, as the self is performed within a negotiation between the personal and the social, by identifying with sameness or difference. French philosopher Paul Ricoeur (1991a: 21), for example, devised a model of *textuality* to examine personal experiences as texts. Fashion is equally a semiological system: semiotician Roland Barthes (1992 [1967]) devised a fashion semiotics, where *dressing* is the personal way the wearer adopts *dress*, which is proposed by their social group. What is of importance here is that Barthes describes the semiology of clothing as *syntactic* rather than *lexical*, something that produces meaning through 'functions, oppositions, distinctions and congruences'. In this sense, fashion syntax may be seen as having similar qualities to programmatic syntax, where programming objects combine to produce larger formations. Barthes focused on the analysis of the representation of fashion mainly through photography, the fashion image, in an attempt to explain it within a structuralist methodology. This is already a *remediated* fashion, a fashion that is a medium (dress) within another medium (advertising: illustration, photography, typography, video, etc.). This led Jean Baudrillard to continue this analysis of fashion as symbolic code, rather than material design, in *Symbolic Exchange and Death* (1993 [1976]). I will use Bolter's & Grusin's notion of *remediation* (2000), as the image of fashion in the video game is again reinterpreted and it is often introduced as perceived within other media, most notably film and photography. Fashion, which is traditionally associated with semiology, is the perfect contender to place in the video game as both

representational and simulational content, as the syntactics of dress will still relate to significant semantics, even after remediation within what is clearly considered a syntactic medium of expression.

Of course, the movement from structuralism to post-structuralism comes with the decline of prominence of linguistic structure as the means to analyse and comprehend culture, and the adoption of a system whereby signifiers produce an endless chain of signifiers instead of signifieds. There is a similar trajectory following the subjects of this research, crystallising on Baudrillard's post-structuralist analysis, which shares the structuralist basis with Barthes, but uses a system of signs no longer based on concrete power relations, but rather on endless self-reference through a constant process of deferring. Baudrillard (1993: 462) finds that fashion abolishes the signifier/signified distinction as the signifiers lead to further signifiers infinitely (what Derrida terms *différance*; (2001 [1967])), something which can be achieved in programming through the use of *classes*. Baudrillard progressed beyond formal semiology to develop a version of structural semiology which revolves around the concept of the *simulacrum* and the state of a lack of reality, or a *hyperreality*, both central ideas in this research.

In connecting semiotics and programming, I will use a *pansemiotic* method: I find computer languages to have a linguistic quality through which written descriptions and attributes can be assigned to virtual clothing, in a similar way they were first ascribed to physical clothing by Barthes (1990 [1967]). In the field of computational linguistics, a branch of artificial intelligence, the relationship between language and computer code is formally examined. Christian Holmboe wrote a relevant essay in 2005 entitled *The linguistics of object-oriented design: implications for teaching*, which was published in the ITICSE '05 proceedings of the 10th annual SIGCSE conference on innovation and technology in computer science education. A thesis entitled *Default Inheritance in an Object-Oriented Representation of Linguistic Categories*, published in the International Journal of Human-Computer Studies in 1994 (41; 149-177), which explores an object-oriented approach to the representation of linguistic knowledge, is also of relevance. Most notably, I have been influenced by two interdisciplinary researches which led to two important publications, András Kornai's *Mathematical Linguistics* (2007), and Kumiko Tanaka-Ishii's *Semiotics of Programming* (2010). For Kornai, mathematics is but a simplified language which escapes the inefficiencies and ambiguity of natural languages (2007: 8). Kornai (2007: 8-9) acknowledges that mathematical linguistics is not new: mathematician Roman Jakobson wrote *Structure of Language and Its Mathematical Aspects* in 1961, which contains categorial grammar (Lambek, 1961), formal syntax (Chomsky, 1961; Hiz, 1961), logical semantics (Quine, 1961; Curry, 1961), phonetics and phonology (Peterson & Harary, 1961; Halle, 1961), Markov models (Mandelbrot, 1961),

handwriting (Chao, 1961; Eden, 1961), parsing (Oettinger, 1961; Yngve, 1961), glottochronology (Gleason, 1961), and philosophy of language (Putnam, 1961).

In order to mathematically replicate the real fashion system, multiplicity in *DressCode* will be implemented with the introduction of a cyclical, trend-based fashion system, which will be dynamically updated by external sources such as a database dedicated to the game. This database may accept direct input, or it may be a collection of fashion trends circulating on fashion forecasting websites. This will offer unlimited choice of colours, shapes, and styling of body and attire, and the representation of several markets related to the fashion business, such as high street and designer fashion, hair styling and cosmetics. This trend-based system will position objects and styles as 'in' or 'out of fashion', creating a dynamic system of significations. Furthermore, the fashion items included will be produced by myself, equally a fashion and video game designer, offering a new point of view to an industry dominated by artists with specific skill sets and aesthetic orientation. Relativity and ambiguity will be produced by the multiple readings of the articles and their combinations, as is the case with dressing in the real, non-virtual world. 3D models are only connected to their simulational attributes by semiotic convention, and so this connection can be used to underline the tension between personal aesthetic preferences and societal conceptions. The evaluation of the garment and/or accessory combinations will be relative, and subject to other characters, the environment, and other attributes of the avatar. The game will not be played in absolute terms, but rather as an increasingly complex accumulation of signs which will be presented and exchanged in different ways. I hope that this increasing complexity of the syntax of signs will produce meaning, even if it is still abstract.

Social Performance

DressCode's main purpose is to explore the notion of dress as a limited theatrical *performance* within a ludic simulation. The game will examine identity affect by dress and fashion as performance in a social environment. Identity performance will be explored in the game by using the appearance of the avatar as a means to present one aspect of the avatar, a mask or facet of the self, depending, of course, on the social occasion. The prime focus of the game is on visual and verbal performance, i.e. how the self is presented in social interaction by means of body movement and appearance, and through verbal communication. The attire of the avatar will largely contribute to the signs communicated in this performance, as will the application of the clothing articles on the avatar's polygonal nude body as independent models with their own physical properties and other attributes. The body will be part of the social performance representing the expression of sexuality and adoption of beauty norms by the avatar, and attractiveness, size,

proportions, expressions, gestures, posture and movement will all be factors of the programmatic equation that will define the complete appearance. Gender characteristics will further affect gameplay. This performance is not purely kinaesthetic, spatial, or even ludic, as in many, usually fast-paced games, but rather *strategic* and *expressive*: it involves the exchange of several kinds of signs between the participants. The player will have to elaborate and negotiate the avatar's appearance with the simulated in-game socio-economic system.

During playing the game, the projective identity of the player will be developed. For linguist Valentine Voloshinov, identity develops through social interaction, and as such it is *emergent*, as we make choices within society (1973 [1930]: 86-89). We identify with groups and individuals (Voloshinov, 1973 [1930]: 86-89), and so we develop a sense of self as a reflexive product (Lawler, 2008:107), an *autobiography* which produces an overarching personal narrative which we interpret in order to construct our identity (Ricœur, 1991a: 21). For sociologists Zygmunt Bauman (2000; 2007) and Anthony Giddens (1991), identity is fluid and occurs as a result of continuous process. Postmodern theorists, such as sociologist Sherry Turkle (1995), believe in multiple identities, as different facets are given primacy depending on the circumstances. The fact that we choose which image to project, which we strategically select from a gamut of images, suggests that identity can be seen as *performance*. For sociologist Stephanie Lawler, *self-impersonation* is a process by which we assume characteristics we claim as our own (2008: 103-104). Through this process, we become social persons through performing ourselves. Sociologist Erving Goffman (1990 [1959]: 30) links social interaction to theatrical performances. Similarly, American post-structuralist philosopher Judith Butler is concerned with how we 'do' identities through performance (1990; 1993; 1997; 2004).

Video games are especially able to explore such identity theories. Brenda Laurel has described interactive environments in terms of *dramatic* human-computer interaction (Laurel, 1993: 78). In this light, playing a game can be seen as a staged performance, which has a dramatic plot. An example of Laurel's theatrical metaphor is given in the form of the interactive drama *Façade* (Mateas & Stern, 2005). *Façade* was created as part of a bigger research project, entitled 'Build It to Understand It: Ludology Meets Narratology in Game Design Space', which revolved around interactive narrative. In their article, Michael Mateas and Andrew Stern argue that building games can be a key practice in game studies, along with the analysis of existing games. Mateas and Stern built *Façade* (illustration 4) with agency and narrative in mind, and analysed its creation and the way it works in order to discuss ludological concepts. *Façade* is a first-person 3D experience that offers a high level of local and global agency – the player's actions have immediate or long-term effects on the environment – by allowing the player to move in the environment, use objects, and have conversations with the characters. The progress and outcomes of the game depend

directly and indirectly on the actions of the player. *Façade* uses 'unconstrained natural language and emotional gesture as a primary mode of expression' for the player and the other characters. The structure of the game is based on an Aristotelian 'tension arc' (inciting incident, rising tension, crisis, climax, and denouement). Mateas and Stern believe that both abstract interactive game and complex simulations of physical environments can be interpreted and represented in numerical ways. The problems arise when a high level of agency is attempted on complex interactive narratives. The problem seems to be one of deconstruction, reduction, and ultimately structuralist analysis, as modelling the player's effect on the structure of a story involves, on a programming level, simple variables such as words and numbers. In *Façade*, which is an abstract social game, similar in some respects to *DressCode*, numeric scores are used to define factors such as the affinity between characters. Complexity arises from the combination of many such 'scores' produced by 'discourse acts' in natural language, which generate 'flags' such as agreement, disagreement, praise, criticism, flirtation and provocation. The score is communicated to the player via *theatrically dramatic performance*. The purpose of the game is to use theatricality, as in the dramatic performance of the characters, to communicate with the player. The main reason for creating *Façade* was to 'explore new ways to deconstruct the potential events of a dramatic narrative into small grain-sized pieces, annotated to allow the system to dynamically mix and sequence the pieces in response to player interaction'. The team finally came to the conclusion that there are indeed narrative structures that allow for satisfying gameplay through local and global agency. This is a similar concept to the one I am using in this research, albeit in a different context, that of dress and identity. However, code as the taxonomy of text and numbers is utilised in my game prototype in the same way it is used in *Façade*. Complexity in the fashion game derives from the combination of many different numerical 'scores' produced by the interaction of the avatar with the characters, and from the combinatory qualities of the garments and accessories. The notion of dramatic performance is one more thing that my prototype shares with *Façade*. As posed by Baudrillard in *Symbolic Exchange and Death*, fashion is a festival in that it aims for 'a theatrical sociality, and delights in itself'. It is contradictory to language, as it does not aim at communication, but rather plays at it. Dress and communication are two main themes in my fashion game, as an open-ended theatrical process. However, the main reason why I am employing this particular paradigm of research that produces practical results as part of my methodology, is that I will use the process of creating a game as a means to understand the relationship between dress and identity in a modelled environment, the same way Mateas and Stern tried to understand narrative in relation to video games by building *Façade*.



4. Façade – dialogue between the protagonists

Codification and Subjectivity

The player of *DressCode* will be able to create a unique identity for the avatar and live a particular lifestyle through it, as consumption will be central to the gameplay mechanics. The formation of the identity of the avatar will be a derivative of the exchange of signs between the avatars by means of virtual objects. The avatar may pay money for commodities such as clothing, accessories, and other fashion items, but also food, entertainment, furniture, etc. Consumption plays an important role here, as the player will have to “purchase” or otherwise earn items that will allow her to progress in the game, either in her own terms, or as part of a set goal-oriented scenario. Involved in this struggle for success, goods in *DressCode* will be regarded as commodities, and artificial scarcity will be used by design, in order to create a hierarchy of objects in the world, which players may see as an incentive. In this sense, *DressCode* is a simulation of the consumption of signs, an attempt to implement a system of fashion as social standing, where status may be established by belonging to exclusive groups and creating associations with particular avatars. The notion of competition is key here, and it is also related to approaching “sexual partners”. Status in the game will reflect the affordances of the player, and vice versa: the more you have, the more you can do, and the more you do, the more you earn. Status will have to be displayed explicitly on occasion as a means to secure success and thus higher status. Products will be advertised in the virtual world as associated with specific social groups and status, thereby shaping the players’ needs and conforming them to the code of the virtual society. Importantly, advertised products will directly affect gameplay, thereby demonstrating (but not promoting) the ideologies involved in consumption and the marketing of products. Bogost (2007: 230) finds this ability of the computer simulation useful in making claims about the function (or dysfunction) of products and services in order to give the player a hands-on account of how these products and services may affect their lives (Bogost, 2007: 230).

DressCode's dynamic fashion system will accommodate dress as a chaotic practical negotiation between the fashion system and social conditions and norms. The inherent tension between individual utterance and cultural imposition will be the main gameplay mechanic, and the difference between fashion as status-oriented identification in the current socio-economic system, and dress as the need to wear clothes for physical and psychological protection, will be highlighted. Fashion trends in *DressCode* will be constructed either by the virtual society, or by the design of the game, in both cases demanding the player to make choices regarding identification with social groups and individuality. The avatar will represent the player, but also the fashion system and the social system it is part of. The discourse of dressing (the player's subjectivity) will be compromised by the language of dress, the dress code (the game's subjectivity). The player of *DressCode* will have to perform an identity, which will be a negotiation between personal expression and social imposition.

Indeed, I find this imposition to be crucial in both clothes and video games, both belonging in some respect to the system of fashion – Lipovetsky (2006: 71-88) regards all social artifacts as participants in the fashion system. Video game theorist Sandra Abrams believes that, as socio-cultural structures that exist in the real world are replicated in virtual worlds by both the designers and the gamers, autonomy is inevitably compromised (Abrams, 2011: 223-236). Abrams formulated a model of online identity, which accounts for the projection of self-identity onto an avatar, as it is affected by the player's knowledge of the game's rules and limitations. I find both the simulation and the representation of video games to be dependent on, as well as restricted by, Baudrillard's socio-economic code (2005 [1968]), as video games are first and foremost a commodity. The inclusion of Baudrillard's theories in video games research is certainly nothing new. Cultural theorist Eva Kingsepp writes:

To describe the virtual worlds of digital games as hyperreal and simulacra has become almost a cliché. The perfect copy without an original, complete and even flowing over with signs adding to its real appearance but simultaneously disguising a basic loss of referentials—many of the games can be looked on as substitutes for the real world (if there is such a thing). (2007: 366)

Baudrillard's work on simulation goes beyond a representation of things to challenge the very project of theoretical endeavour, and considers a simulational culture, a culture in crisis (Crogan, 2007: 405). Video game theorists have selectively used Baudrillard's theories from time to time, however their abstract nature, which concerns the entirety of the human experience, makes them

hard to incorporate in subject-specific texts. Crogan (2007: 407-408) mentions in his article 'Remembering (Forgetting) Baudrillard' theorists such as Noah Wardrip-Fruin and Pat Harrigan (2004), who dismiss Baudrillard's simulation theory as referring to cultural phenomena, and this presumably excludes computational phenomena. Espen Aarseth and Gonzalo Frasca have never discussed Baudrillard, even though their work is fundamentally based on the concept of simulation. Geoff King and Tanya Krzywinska (2006) reject Baudrillard's theories as they believe that even the military-entertainment complex should be analysed in terms of discourse. Barry Atkins (2003) argues that there are evident differences between computer game simulations or representations and reality. Crogan considers Baudrillard's notion of the deterrence machine (as applied to Disneyland) as the most productive engagement with Baudrillard's work in games studies, and he states:

Computer games are, in this light, the imaginary, ideological spaces that prove the deterrent functioning of simulation by their significant exception to the regime of the collapse of significance. (Crogan, 2007: 411)

However, it is the notion of code, as the socio-economic system that encompasses all aspects of modern life, which I will focus on. Video games are a commodity, as they are part of a symbolic exchange with the consumer that rests upon a sign system. Fashion is also a commodity in its own right, and by extension in games, as a remediated virtual construct. Starting with a critique of Marxism, Baudrillard rejects social categories in favour of a theory of consumption, which does not operate on need, but on 'non-objective meanings of consumerist prestige' (Worsfold, 2012). He claims that the economy follows the shifting symbolic system and argues that objects work in concert to create a system of signs that dominates the subject, who never consumes an object in isolation, but rather the entirety of a universal code of recognition. The subject is then classified according to the signs that make it different to other subjects. Consumption, in this sense, is the '*systematic act of the manipulation of signs*' (Baudrillard, 2005 [1968]: 218). Freedom is consequently confined by technological development and the system of commodification. Everything is changing but at the same time nothing changes, as the individual becomes the consumer: we consume the system of consumption itself, the *code*. In this process, agency is limited to consumer choice, and subjectivity becomes objectivity. Choice is circumscribed (Orr, 2006: 41), and the formation of identity is thereby reduced to the differences between products.

Video games are both products and a medium. As the former they are consumed, as the latter they propagate the socio-economic code. In both cases, they affect the identity of the player/consumer, and conform it to the code with every chance. The whole system is based on repetition, and media

creates meaning through their form, and not their content: the commodity, the medium, and the medium's message, are all equated. It is the video game as a medium in its totality which is of importance here. In the video game, the reality is the simulation, and not the representation. In a game, all representation is simulated on two levels: As a simulacrum of an object or concept by conception and design, the author being part of the system of the code; and as a simulation of the (already simulated) representation of an object, as the game's programming code, the programmatic simulation, interprets it, again having been created by an author who belongs in the code, and so it inherits the code's ideology. The object now is neither fictional (imaginary) nor real, it is in the first instance symbolic, and ultimately hyperreal: it pretends that it carries a societal message, that it is full of cultural meaning, but in the end, it is exposed as pure pretence, pure simulation. What is real instead is political economy, whose signs become imaginary again, in the structural law of value (the code). Fashion is a virtual construct, but at the same time, it resides within the capitalist exchange system, and it is subject to the capitalist code. As such, it still complies, to a certain extent, with power structures in denoting class and imposing appropriate dress codes. This is one of the main tensions within the system of fashion that I will explore in *DressCode*.

I propose *social realism* as a solution to the issue of objectification: I explore the fashion system and its effects on identity, as it encompasses all aspects of life. Subjectivity through dress within the fashion system is only possible within the objectification imposed to the consumer. As Barthes has pointed out, dress is a practical negotiation between the fashion system, social conditions, and norms (Barthes, 1990 [1967]). However, the fashion system still offers an extent of personalisation and an opportunity for the creation of a personal image (Lipovetsky, 2006) that is not possible in simulations. It is this tension between subjectivity and objectifying that I am attempting to explore, and to this effect, I propose a move away from "agency" as Janet Murray (1999), Michael Mateas et al (2009), and other video game scholars define it, to true subjectivity, at least with regards to avatarial dress: the player of *DressCode* will not so much master the manipulation of the avatar in terms of 'physical' movement in the Cartesian space, as the expression of meaning through the combination and manipulation of signs. The player will have the freedom to alter the avatar's appearance at will, and there will be sufficient opportunities to do so during gameplay. The player's choices will only be *relatively* appropriate or inappropriate for specific events and settings, and personal expression will be accomplished through *subjective* performance of body and dress. The player will not struggle for power over the game environment, but rather for the power to interact with society, offsetting the kind of ludic conflict from environmental to internal and interpersonal.

Autobiography / Identity

In the notions of subjectivity and its restriction, there is the assumption that gameplay transforms the player's identity. Video game theorist Zachary Waggoner (2010) believes that interactivity, i.e. performing actions in a video game, makes the game able to impact identity formation, as it results in internal self-reflection and assessment, which are essential to identity construction. Researcher James Paul Gee coins the notion of 'projective identity', as situated on the interface and the interactions between the player and the avatar, the identity that is developed by projecting one's identity onto the imagined identity of the avatar (2004: 54-56). Identification between the player and the avatar is aided by the player's choices over the constant development of the avatar (Waggoner, 2010). Separating simulation from representation in their original examination, I believe that the player has two spheres of identity: the simulational and the representational, the first deriving from the interaction with the game's code, and the second being a result of the art included in the game, which is also simulated by the game's simulation. The first mostly revolves around emotions of 'doing', while the second, turns on 'being'. This is why I believe that meaningful identity affect can be facilitated by the introduction of *synthesis*, as the appropriate interface between the simulational 'to do' and the representational 'to be'.

French psychoanalyst/philosopher Jacques Lacan perceived the ego as a construction of linguistic metaphoricity, which largely develops during the *mirror stage* (2007 [1947]). The image of the infant's body reflected in a mirror or the identified parent's body becomes a catalyst for the creation of the *I*, which is the mental representation of the infant's identification with its image. Lacan's theory deriving from the analysis of the mirror stage is that as the *I* is not the infant's physical weak body, but an ideal version of herself, the person strives towards the *I* permanently after its formation. The ego depends on an *other*, which is elaborated through social linguistic frameworks in mature life, in order to form a specific identity. In video gameplay, the avatar can be argued to be the other ("a") as a reflection or projection of the player's ego, and it is inscribed in the imaginary order as the ideal image of the self and of the object of desire. And this is why games affect identity: the game offers the player agency in the simulation as *binary performance*, where she is immersed within a spectacular world, which is however controlled by the compulsive repetition of a limited set of commands. In a Lacanian logic, the simulation divides the person into two entities: the avatar, which belongs in the programmatic code (which in turn belongs in the socio-economic code), and the player, who is also independently and always already affected by the socio-economic code. Gameplay is *predictive performance based on the game's affordances*, and although gameplay performance can become expressive and meaningful, it is always subject to the codification of socio-economic structures, which brings with it the limitation of subjectivity by objectifying the player/wearer.

Structure

When the representational layer is added to the text, things are only complicated, as meaning also derives from the connection of the remediated visuals and sounds to the syntax of the simulation. Avatarial dress becomes a limited simulational *and* representational performance, as the body schema of the player is altered via an exchange of visual signs – geometry, animation, etc. – (Biocca, 1997: 22-24), thereby further affecting the identity of the player. However, games more often than not rely on stereotypes, so there is a remediation of hyperbolic depictions of femininity and masculinity involved in exaggerated scenarios inherited from other hyperbolic media, such as comics and animation, or deriving from the medium's own history. And such clichés are often not consumed willingly. For instance, Judith Butler coins the term *performativity* for the performance females carry out in an attempt to meet social expectations (1990: 33), which, transferred to the virtual domain, means that females perform femininity as restricted by the avatarial appearance that they are given, diminishing their subjectivity and objectifying them. Furthermore, the body (whether male or female) is almost always used as a matrix of signs of remediated sexuality (the symbolic and the imaginary), and never as the representation of nature (the real). It is always fetishised, and this is evident in the models of the characters, which are created as flat surfaces and not as multi-layered geometries, something which I am planning to amend with the creation of *DressCode*. The emergent identity of the avatar will be produced by identification with social groups and characters, and it will gradually become the *autobiography* of the avatar, as the sum of the interactive experience (agency, action, feedback, reflection).

Structure

Video game theorists Salen and Zimmerman (2004: 454) have described the gameplay experience as a 'three-fold framing of player consciousness': as (1) a character in a simulated world; (2) as a player in a game; and (3) as a person in a larger social setting. I will examine these three dimensions of gameplay in the body of this thesis.

Chapter 1 – Identity in Virtual Environments (Simulation)

The first chapter identifies the main issue with respect to meaning in video games, namely the lack of *syndesis*, i.e. the lack of sufficient connection between the layers of simulation and representation, which poses a problem as it disregards the semiology of social interaction. I pose social realism as a possible solution to this discrepancy, which seems to stem from the fact that representation and simulation are ontologically different, the first semiotic, and the second mathematical. I therefore draw a parallel between Baudrillard's socio-economic code (2005 [1968]), which I find to define the lack of meaningful content in the medium, and the programmatic code, which on the other hand defines how game models work, in order to connect the two ontologies through the notion of genre-oriented *abstraction*.

The first part of the chapter examines the most prominent accounts of identity theory. Identity is regarded as emergent and socially constructed by theorists such as Voloshinov (1973 [1930]), Ricœur (1981; 1984; 1985; 1988; 1991), Bauman (1988; 2000a; 2000b; 2007), Giddens (1991), Lawler (2008), and Misztal (2003), as a result of identification and its consequences on autobiography. Ricœur (1991a) in particular draws on Aristotle's notion of *mimesis*, also echoed in Caillouis' *mimicry* (2001 [1958]), which puts weight on 'pretending' and 'acting'. More recent theorists such as Turkle (1995), Fuss (1995), Stone (1995), Haraway (1991), and Waggoner (1999), regard identities as fragmented, complex, strategic, and always in flux. The main point that I am adopting here from Goffman (1990 [1959]) and his dramaturgic metaphor and discussion of masks, as well as Butler (1990; 1993; 1997; 2004), Lawler (2008), and Lement (1997), is that identity is *performed*. Video game theorist Waggoner (1999) finds identity performance especially relevant in the gameplay of the RPG (role-playing game) genre, from which *DressCode* borrows many elements. Gee (2004) devises a complete methodology for identity examination in RPGs, naming three discreet identities: the *virtual* (the avatar), the *real-world* (the player), and the *projective* (common to the player and the avatar). He claims that predictive, performative avatarial actions or choices (defined as agency) help define the virtual self. However, Abrams (2011), based

on Gee & Goffman, claims that the projection of self-identity onto an avatar is based on a game's *affordances*, which are again mediated by the notion of *abstraction*, as each simulation is designed to do specific things. What is included in the model and what is abstracted is therefore up to the author. Noah Wardrip-Fruin (2009), drawing on Ian Bogost's work (2007), coins the term *expressive processing* to explain the discourse of the author within a system prescribed by technology and the socio-economic code. There is a parallel to be drawn here between this system and the system of fashion, both balancing between society and discourse. So games, like fashion, have a *langue* and a *parole* (Barthes, 1992 [1967]).

However, semiotics is not entirely applicable to games. For Espen Aarseth (1997), semiosis in video games exists only on the interface between man and machine, and there is no message apart from the play. This problem arises as representational and simulational game elements are ontologically different (Aarseth, 2007), and as games are not interpretive, but configurative (Eskelinen, 2004). But for Bogost (2006), configurative play is biased: expression in the game code is the expression of the author in terms of both simulation and representation, and *unit operations* in the programmatic code mean that the code contains rhetorics and an ideology, which the player may negotiate, but which ultimately works as persuasion through action. Bogost finds meaning in the expression of the player within the constraints of the game (2006), which renders the subjectivity of the player *minimal but crucial*. I thereby separate the simulation from the representation, the mathematical from the semiotic, the computation from the data, and the configuration from the interpretation, in order to explore how rhetorics are presented within both. On the simulational front, identity in games is constructed within the 'cause and effect' loop formed by the player and the game code, as games, whether emergent or progressive, are controlled by loops and conditional statements, on which (usually banal) visual metaphors are placed. This setup seems to echo Baudrillard's socio-economic code, where simulation is devoid of meaning, and representation is interchangeable and hyperreal (1998 [1981]). The concept of *syndesis* is invented at this point to deal with such discrepancies between simulation and representation, as well as between free will and a limited prescribed set of actions, by connecting the cosmetic characteristics of an object with its attributes and functions, thereby affecting the player's outlook and identity in the long term, as it ties together 'being' and 'doing'. Both Bogost (2006, 2007) and Kirkpatrick (2011) admit that even though the representational simulation keeps advancing, the mechanics of games stay the same, mainly due to socio-economic factors which positions them in genres, which also restricts them in terms of emotional content. The need is therefore identified to use the numerical affordances that video games offer in other ways that character ability sheets and spatial exploration, moving towards *unlimited subjectivity* that will be able to support the state of 'being'.

Calleja (2011) has devised an involvement model that echoes Lacan's (and then Turkle's) view of the formation of the ego as an illusion. He connects assimilation & embodiment in the notion of *incorporation*, and his model consists of six kinds of involvement. Kirkpatrick (2011) finds the first of them, kinaesthetic involvement, to be characteristic of the video game as a commodity of informational capitalism, empty and repetitious, where there is no message apart from the play (2011), and claims that despite appearances, gameplay is not tied to specific optics and it is not primarily visual (2011). On the contrary, performance within a game is binary, and even by use of many interconnecting variables, it remains limited, impacting on subjectivity. As I have already mentioned, *DressCode* is an attempt to move away from this kind of performance. In Calleja's second kind of involvement, the spatial, the ego is constructed in a similar fashion to the way Lacan (1988 [1954,1955]) describes ego formation through the notion of illusion, as the abstractive assimilation of spatial elements. In the third, ludic involvement, Holopainen and Meyers (2000) identify predictive closure (striving to complete mental models), and dramatic closure (striving to form self-sufficient story structures) as the main motivators for play. Here, I coin the term *performative involvement* to encompass Calleja's kinaesthetic, spatial, and ludic dimensions of involvement, as dress in video games can be regarded as *theatrical social performance* (the same way it is presented in the works of Baudrillard (1976) and Goffman (1959)). However, the wearer of virtual dress is always objectified, and there is not enough subjectivity within the prescribed agency offered, as according to Gee (2004), the affordances of the game dictate the development of the projective identity of the player, and according to Bogost (2006), who is influenced by Kittler (1986), the hardware the games are run on, and the legal and commercial forces of intellectual property, define the agency offered. This, claims Bogost, brings about a gap between the simulation's agency and the user's subjectivity (Bogost, 2006), which is relevant to Saussure's semiotics, Derrida's *différance*, and Lacan's *objet a*, all of which define signs by their differences. This gap, for Bogost, is the basis for meaning making in the medium (Bogost, 2006): 'games seek to create a correlation between the player's mental model of the game rules and his understanding of the real world' (Bogost, 2006). This gap extends to the avatar, as Gee and Klevjer (2006) find the avatar to be reflexive to a game's ecology, and so if what the environment supports is limited, than what the avatar can do will also be limited. Agency is then commodified in a symbolic exchange (Poole, 1999; Sutton-Smith, 1997; Baudrillard, 1968; Lacan, 1977; Wright, 2009; D'aloia, 2009), as the player strives to expand her subjectivity over the simulation. The notion of narcissism is central to video gameplay (as Lacan asserts, we seek the ideal Self in external sources), and avatars dress can be used as a narcissistic effort to improve oneself and come closer to the ideal Self by increasing variables that gradually expand the gameplay mechanics.

Chapter 2 – Self-Identity through Dress in Virtual Environments (Representation)

The second chapter starts with an examination of metaphor and its relation to genre, as I move from canonical to simulational representation. I discuss the last two of the Calleja's involvement dimensions, the narrative and the affective (Calleja, 2011), as invoked mainly by the representation within games, which employs *metaphor* and makes use of *remediation*, i.e. elements from the representational traditions of previous media (Bolter and Grusin, 2000). In this metaphoric remediation, the gamer essentially role-plays specific lifestyles through the change of the avatars schema (Klevjer, 2006) and her own mental body schema (Biocca, 1997) (geometry, kinematics, social context, etc.), which amount to increased self-presence, and of which clothes are part of, as the avatar is always dressed. The historical trajectory of the medium from 2D illustrative art, which is regarded as mainly representational, to 3D cinematic art (primarily simulational) is presented here to explain the current banality of content. Through the virtual camera, somatic displacement (Holopainen and Meyers, 2000) is achieved, through choices that affect the appearance of the avatar. But dress in games is linked to genre, and people buy games mainly by genre of simulation, not of representation. Aarseth (2004) confirms that visuals do not matter much, something which Moulthrop (2004) categorically opposes, and the fact that representation is forced on top of the simulation without bearing any simulational meaning is alarming in cultural terms: the player *passively absorbs the game's products on the screen* while engaged in the simulation, unconsciously (or even consciously sometimes) aligning herself with the author's world view and ideologies. By this point, I have identified the schism between simulation and representation (lack of *syndesis*), the reliance of visual content on meaningless fantasy stereotypes, and the lack of social realism in both simulation and representation, as shortcomings of the medium. Avatarial dress does *not* currently affect gameplay, except in handful of titles.

The chapter continues with an examination of the most common themes of the medium, the 'tropes' that define the content of the games, such as technological futurism and the conflict between good and evil, both of which have their origins in militarist ideology. In these, the body of the avatar is objectified and gender-stereotyped so that menswear denotes status, rank, success, virility, maturity, masculinity, and in general, *power* (Edwards, 1997), while womenswear denotes power but also self-adoration for the excitement of the male gaze (Mulvey, 1986). The designs of game characters are usually deliberate idealisations of femininity and masculinity due to the objectifying socio-economic code imposed on the medium, and avatarial dress, being part of that idealisation, may express the player's modified sexuality (Dworkin, 1974: 112; Baudrillard, 1993 [1976]), which is performed within Judith Butler's notion of *performativity* (1990), as gender behaviour attempts to meet social expectations (1990). Tellingly, the character models have their clothes permanently attached to them, or rather the character models *consist* of the clothing

models, rendering the virtual body an explicit signification of sexuality. The same is true in games with historic and mythological themes, as the attempted verisimilitude becomes biased, popularised, and codified, within what Tanya Krzywinska (2008) calls blueprint formulation, such as the work of Joseph Campbell (1949) and its influence on the medium of the video game. Further stereotyping occurring in character dress includes the influences of 1980s action film in the action game genre, and hyperreal hero stereotypes in fighting games. In *DressCode*, I try to move away from stereotypical costume and towards fashion specificity and multiplicity mainly by use of a dynamic fashion system. The avatar's body will also be existent and separate to the clothes.

I resort to social realism as a way to introduce the fashion system in a video game: giving clothing articles numerical and other simulational attributes will establish syndesis between simulation and representation by connecting the semiological system of fashion to the programmatic code. For Galloway (2006), gaming is an expressionistic medium, going beyond realistic visual representation and capable of approximating the basic phenomenological qualities of the real world. As games are an active medium, they must involve realism in action. Kirkpatrick (2011) also believes that the video game must play with the attributes of the society that produced it, including brands, consumerism and money power. For the effect of connection with the avatar to be optimum, simulation and representation of avatarial dress must corresponding to the changes of each other in order for the player to feel real-world simulated emotions and win-lose game emotions, and therefore build a simulational identity at the same time as a representational identity. Syndesis does just this, mixing *procedurality* with Lacan's *metaphoricity* (1951). It is the perfect connection between simulation and representation, achieved by the placement of an appropriate visual metaphor on a simulational object, or the placement of a set of simulational values, attributes, and functions, under a visual object, something which is rarely the case currently with clothing objects. When connected, these two levels ultimately construct the projective identity of the player, and therefore subjectivity must lie in the interface between the player's input and the program's output. The appearance of the avatar must evolve at the same time with the character's and player's simulational progress. Complex *expressive processing* (Wardrip-Fruin, 2011) must be employed to produce *procedural multiplicity* on the outcomes of agency, deepening the meaning of gameplay. For Kirkpatrick (2011), meaning in games is found outside the range of prescribed actions typically offered. For Bogost (2007), meaning is found in the tight symbolic coupling between user actions and procedural representations, diminishing the gap between rule-based representation and player subjectivity (the simulation gap). Metaphoricity can be used to produce meaning from the increasingly complex syntax of the code, as signs of 'be' and 'do' are associated by the designer and the player with signifiers, as influenced by cultural convention.

Syndesis is needed in order to implement the semiology of the fashion system in the programmatic model of a game, both being syntactic affairs involving discreet unit operations (Bogost, 2006). For example, dress in everyday life is a practical negotiation between the fashion system, social conditions, and norms (Barthes, 1990 [1967]), and the vestment as a common anthropological need is separated from dress as cultural expression, the two forming the individual dressing as the expression of the wearer. However, Aarseth's (1997) connection of code and semiology is not wide enough to accommodate for this, as it is more dependent on literary conventions than mathematics. I propose the use of Tanaka-Ishii's semiology instead, as it applies to the binary core of the code, and so accounts for different levels of semantics for the interpretation of identifiers: addresses and values in bits at the hardware level; symbols or words such as integers, Boolean values, decimals, and characters, at the programming level; and addresses as the representation of values (Tanaka-Ishii, 2010). Meaning is therefore produced insofar as there is some content in a memory address. Object-oriented programming has some characteristics which make it very similar to the way language works (*data abstraction, encapsulation, messaging, modularity, polymorphism, and inheritance*), and I use these to connect semiology to computation, thereby allowing for increasingly complex meanings. Fashion often accomplishes this complexity and ambiguity even when starting with a very simple syntax. The vestimentary code is syntactic, implying that the way the articles are combined and worn is what essentially produces meaning (Barthes, 1967). These signs produce the whole text, i.e. the totality of the style and what it attempts to express. In postmodernity, vestimentary signs become increasingly confusing and cross-referential to the point where they finally end up having endless permutations and references and thus being non-sensical unless examined in relation to other, previous signs. To borrow Baudrillard's reductionist example, a short skirt does not signify sexual liberation, but rather, newness over an older, longer skirt (Baudrillard, 1981 [1972]). This is why I propose the use of the syntax of dress in order to establish syndesis between sartorial simulation and representation, where dressing as the avatar's personal expression of appearance is a different set of variables to dress as the social parameters that constrict dress. Identification and differentiation are key, and the signs of the body are also incorporated in this formula.

Chapter 3 – Social Identity through Dress in Virtual Environments (Social Interaction)

In this chapter, I look into social identity through dress in virtual environments. Online social environments are ideal for experimentation with the avatar's appearance, as they are built for communication. For French philosopher Gilles Lipovetski (1987), fashion is not driven by ideological codes, but by the structure of the fashion industry, which is of course driven by economic factors. Everything today belongs in the world of fashion. Everything is hypermodern, in

the sense that modernism has evolved into some form of extreme modernism, where consumption is the main driving force, and where the system of fashion makes sure that consumption will stay constant. Demand stays high by re-fashioning the same product and seductively aestheticising it. The hyper-consumer consumes every variation of the product that is presented to her as necessary for being current and modern, for being "in fashion". Of course, all of this is built around the individual, who must belong to identifiable categories. The system of fashion is the system of self-identity, and it does not only revolve around clothing; nearly every kind of product or service is part of it, including video games. This is why the explicit inclusion or simulation of the fashion system in the medium of video games is important, and why I have chosen to build a game based on fashion. Baudrillard, however, sees the consumer not as the subject, but the object of consumption (2005 [1968]), as her system of needs is driven by the system of products as signs: '*Consumption...is a systematic act of the manipulation of signs*' (Baudrillard, 2005 [1968]). The object is serialised and defined by its difference to other objects, offering to the objectified consumer only the illusion of choice. I find the merits attributed to fashion by Lipovetsky to belong to the status-oriented system of signification signalled by Baudrillard, the total and universal socio-economic code of objects. Thereby, the person loses her subjectivity, and there is a substitution of representation with simulation, a hyperreality, making in this instance the form of the video game more important than its content, and diminishing ideologies and hegemonies. Video games are systematically categorised and marginally differentiated within *genres*, compromising the subjectivity of the gamer, and this is echoed in the dress of the characters.

Calleja's *shared involvement* is used here to show how Sutton-Smith's rhetoric of play as cultural identity is relevant to how dress in online worlds works in order to incorporate the person in the community, but also to give her individuality, something which is also apparent in Baudrillard's notion of fashion as a festival of exchange of status-oriented signs (1993 [1976]). However, as human relations are consumed in and through objects (Baudrillard, 2005 [1968]), consumption becomes a constant social activity defined by status (Baudrillard, 1998 [1970]), and in virtual worlds, fashion consumption is explicitly symbolic. Online worlds can be seen as the market of identities, and Lehdonvirta et al (2009) argue that digital representations of goods in virtual worlds are not perceived as media surfaces, but as commodities (2009), intensified by *artificial scarcity* (Castronova, 2006). There is an inherent status-oriented socio-economic system in virtual worlds, which mimics and symbolises that of the real world. This extends to strategies of seduction for concealing and enhancing characteristics, as the user decides which facets of her personality and appearance to pass on to a particular avatar, something that encourages self-exploration and even self-reconfiguration (Taylor, 1999). Affirming this, Jason Rutter asserts that in online worlds the boundary between real and artificial collapses in the performance of different identities (2007), Celia Pearce finds that play communities and individual identities are emergent through a system

of social feedback (2006: 2), and Chee, Smith and Vieta believe that the phenomenological online and offline realities of the gamers are not clearly distinguishable (2006). As a result of the affect on the projective identity during gameplay, the player's real identity is affected: *gameplay transforms the identity of the player*. The fact that subjectivity in online worlds is affected by design considerations and the socio-economic structure, however, means that the virtual society and the software mediate the participants' discourse.

The player's identity is produced by the assimilation of the onscreen representation of the code. The code in online multiplayer settings is formed by the society's input in addition to the world's programmatic rules. But the code, instead of being symbolic as mediated by other people's beliefs, and affected by society, ends up being hyperreal again: the players interpret (internally simulate), and act based on, a representational interface which is partly independently placed on, and partly generated by, a simulation, both of which are biased by socio-economic factors. Their actions are once further mediated by the code. Such rules and limitations are crucial in the formation of virtual identity. Cultural theorist Stephen Orr (2007) claims that the impact of the socio-economic code on virtual worlds nullifies the meaning of its content, discards reality for hyperreality, and sacrifices subjectivity in the name of the serialisation and typification. Remember that for Abrams (2011), the most important factor in the formation of virtual identity is the game's rules and limitations. The limitations on subjectivity, however, extend to the representation of the avatar: there is stereotyping and rough categorisation. More options should clearly be offered, possibly by third parties, but also more flexibility in the creation and customisation of avatars by the users. Currently, the tools available in virtual worlds produce a very specific look, and as a result, users are challenged when attempting to construct their virtual appearance, and ultimately compromise, accepting the design of the avatar as affected by the limitations of the software.

The final section of this chapter revolves around the construction of social identity through dress choices. I have identified a number of psychological factors which affect the identity of the wearer, and these are the wearer's narcissism, gender and sexuality, consumption habits and patterns, and need to gaze or to be gazed at. All of these are interconnected and affected by social discourse: our psychology is deeply rooted in our sociology, and the two overlap. The work of psychologists Carl Flügel and Edmund Bergler on modesty and immodesty and the reshaping of woman by society in order to satisfy his gaze and to avoid unconscious psychological fears related to the female physique will be discussed at this point. These traditional sources, which date back as far as 1930 and 1953 respectively, arose from an established gender structure, which fashion has attempted to explore and exploit in the past. As such, they represent in my opinion a strong basis of fashion theory, which may be progressively substituted by post-modernist views. Such notions dissolve in high capitalism under the code, which objectifies everyone and everything. It is

important however to consider the historic trajectory of fashion in the industrial and post-industrial world. As the industry of the video game belongs in the fashion system today, along with every other industry, these phenomena, which are based on voyeurism and fetishism, are reproduced on the screen. I argue that the system of fashion is status-oriented, although the theory of synchronous collective selection, otherwise known as the fashion *Zeitgeist*, claims that buying patterns are produced from an array of factors (Blumer, 1969). Status is important in social belonging and a fundamental axiom of self-identity. It is based on the idea of social power, meaning that we want to have more control over our life, over our society's well-being and direction, and hopefully over illness and death. Status also has an innate element of competition, namely that we strive to be better than others, partly by performing more efficiently. Video games model this very attitude towards life. Identity is a progressive formation, which is gradually built through *agon* (Caillois, 1958), i.e. struggling to be more successful at the goals set by the self and by the social groups one belongs in. Fashion is the display of this status.

Chapter 4 - Mode Code: The Fashion Game

In order to test these speculations, and also to explore identity in virtual environments by means of constructing the experience, i.e. being the designer as well as the player, in Part 1 I will describe the design and production of a game prototype which will make use of a fashion system.

Importantly, this fashion system will explicitly dictate the gameplay and how the game unfolds.

Mode Code: The Fashion Game is a study in designing and producing a game that will utilise dress and narrative as its exclusive gameplay factors. Play will progress through multiple choices of dress and dialogue in a system that will combine a graphical user interface, text, and three-dimensional graphics. This will help me respond to the research question: *Can avatarial dress alone as a signifier sustain gameplay and become the main source of simulational and representational signs in a game?* The game attempts to represent a fashion system within a simulation that belongs both in the programmatic code and the socio-economic code to which fashion abides. The results of the avatarial dress-up will transpire through the interaction of the avatar with other characters. The avatar will be seen both as a physical body and as a social entity which has status and sexuality. The player will have to negotiate with all practical factors, the fashion system, social conditions, and social norms.

In the second part of the chapter, I describe the development of the game, and justify my choices regarding the design of the game as well as the tools and technologies used. At first, an experiment is presented, whereby a series of fashion catwalk animations are produced, in order to demonstrate how software for the fashion sector can be used in place of software for the special

effects or animation sector, for the design of character dress. The Catwalk Experiment, a case study in creating a virtual fashion catwalk show with the use of commercial technologies, will be presented. This case study utilises various fashion-specific mainstream software packages, in order to examine whether the current methodologies for the production of character costume creation and animation are sufficient. My findings indicate many problems with the software currently used in the production of games, such as the unavailability of appropriate features and interface issues. I then move on to use fashion software to produce the content of my prototype. The following section chronicles the creation of the simulation, the computational model of the game, and explains how and why the featured logics were deployed. The construction of gameplay in the four main levels/environments of the game is described, and the actual programming code is broken down and analysed, establishing the connection between the discussed theories in the thesis and their practical implementation.

The third part is the evaluation of the prototype and consequently of this research, and a discussion of its achievements. A focus group carried out toward the end of this research is presented and its findings discussed in relation to the stated components and objectives of the game. This self-reflexive part of the chapter evaluates the success of *DressCode* and identifies possible future adjustments and improvements.

Conventions

In the body of this thesis, the term 'video game' will encompass both video and computer games, i.e. games which are played on a gaming console, on a personal computer, or on a coin-operated arcade machine. The term 'game' may be used instead of 'video game' to avoid repetition. In cases when I will refer to traditional, non-digital games, or to the concept of games in general, as encompassing all kinds of games, I will specify so accordingly. The term 'character' will denote a player or non-player character in a video game both in terms of visuals and as part of a story, to emphasise its involvement in a story; whereas 'avatar' will be used more specifically to denote the player's agent mainly as a gameplay agent and disregarding any involvement in story. The term 'narrative' will be used to denote the plot of a video game, as the pre-existing overarching background story as created by the designers of the game, but it will also mean the emergent story as produced by the interaction of the player with the game. Once more, the two different meanings will be specified when employed. Programming code and pseudo-code (the logic of a program in plain English for planning and visualisation) will be presented in the Courier typeface. An ellipsis (...) will denote missing code for reasons of simplification and avoidance of repetition.

As I am progressing from the analysis of the video game to the semiology of fashion in order to establish fashion as a potential advantageous addition to the medium, I will start the first chapter of the thesis with a search for the right methodological model for the inclusion of appropriate fashion representation in the medium.

It is imperative to first look into the construction of identity in such environments in general terms. I will focus on the notion of the simulation as the central aspect of the video game, while keeping the representational services distinct. This is in order to produce a methodology which will allow for the examination of identity construction by means of an internalised interpretation (re-simulation) of game characters and entities by the game's player(s), representation functioning more as an auxiliary vehicle rather than the primary interpretive mode. I believe that visual representation in a video game is only superficial and secondary, and that it is the simulational aspects which play the central role in the construction of virtual identity. This extends to the representation of clothing, which, as will be shown through case studies within the following chapters, usually does not affect gameplay, remaining instead a purely cosmetic inclusion. This disconnection between simulation and representation, or lack of synergy, may cause contradictions between these two layers of functionality and aesthetics, and confuse the player, no less as it disregards all semiological visual communication that normally permeates social interaction. In turn, this devalues the medium as an expressive form which may communicate meaning, particularly in the guise of social realism.

Consequently, fashion in virtual environments may be examined both as simulation and as representation. At the representational level, it is a visual interpretation on the screen, by the graphics engine of the game, of the visual representations of clothing that the designer has conceived and created; at the simulational level, it directly affects gameplay. The former are considered semiotic signs, while the latter mathematical signs, even though, as I argue in the following text, the distinction between the two kinds of sign is not clear. Ian Bogost uses the term 'ludic operations' to explain video game events as purposeful actions, akin to mathematical operations – for example functions as outlined by mathematician Leonhard Euler (Bogost, 2006).

Both kinds of signs coexist in the program of the game, albeit at different levels: the simulation belongs in the computational code, whereas the representation belongs in the data, as sets of Cartesian positions in space which form the shape of the garment (vertices comprising of x, y, and z coordinates), and 2D maps that define the colour, reflectivity, translucency, and other such surface attributes. Simulated clothing articles can have attributes, both numerical and textual. These can be used in a functional way in order to use clothing as part of gameplay mechanics. They can also be used to communicate signs or descriptions of clothing without using visuals, or in addition to visuals. As I will explore in detail in the next chapter, role-playing games (RPGs) usually employ numerical descriptions of items, including items of clothing. Many virtual worlds also employ textual

Chapter 1 – Identity in Virtual Environments

As this research explores the construction of identity by means of dress in digital environments, it is imperative to first look into the construction of identity in such environments in general terms. I will focus on the notion of the simulation as the central aspect of the video game, while keeping the representational semiosis distinct. This is in order to produce a methodology which will allow for the examination of identity construction by means of an internalised interpretation (re-simulation) of game characters and entities by the game's player(s), representation functioning more as an interface vehicle rather than the primary interpretive mode. I believe that visual representation in a video game is only superficial and secondary, and that it is the simulational aspects which play the central role in the construction of virtual identity. This extends to the representation of clothing, which, as will be shown through case studies within the following chapters, usually does not affect gameplay, remaining instead a purely cosmetic inclusion. This disconnection between simulation and representation, or lack of *syndesis*, may cause contradictions between these two layers of functionality and aesthetics, and confuse the player, no less as it disregards all semiological visual communication that normally permeates social interaction. In turn, this devalues the medium as an expressive form which may communicate meaning, particularly in the guise of social realism.

Consequently, fashion in virtual environments may be examined both as simulation and as representation. At the representational level, it is a visual interpretation on the screen, by the graphics engine of the game, of the visual representations of clothing that the designer has conceived and created; at the simulational level, it directly affects gameplay. The former are considered semiotic signs, while the latter mathematical signs, even though, as I argue in the following text, the distinction between the two kinds of signs is not clear. Ian Bogost uses the term 'unit operations' to explain video game events as purposeful actions, akin to mathematical operations – for example functions as outlined by mathematician Leonhard Euler (Bogost, 2006: 7). Both kinds of signs coexist in the program of the game, albeit at different levels: the simulation belongs in the computational code, whereas the representation belongs in the data, as sets of Cartesian positions in space which form the shape of the garment (vertices comprising of x, y, and z attributes), and 2D maps that define the colour, reflectivity, translucency, and other such surface attributes. Simulated clothing articles can have attributes, both numerical and textual. These can be used in a functional way in order to use clothing as part of gameplay mechanics. They can also be used to communicate signs or descriptions of clothing without using visuals, or in addition to visuals. As I will explore in detail in the next chapter, role-playing games (RPGs) usually employ numerical descriptions of items, including items of clothing. Many virtual worlds also employ textual

and numeric descriptions of items in the communication between players, even when they primarily rely on visuals.

In order to connect the two kinds of signs for increased syndesis and meaning, I draw a parallel between the mathematical simulation of clothes in games, and Baudrillard's semiology of the code, the system of objects of consumption (2005 [1968]). For video game theorist Ian Bogost, even though the procedural representations (this is Bogost's term for 'simulations') of a game are formulated in computer code, the term 'code' is ambiguous enough to take multiple meanings, as in Lawrence Lessig's (2000) parallel between legal code and programmatic code (Bogost, 2007: 14). I am using a similar logic in likening the socio-economic code defined by Baudrillard and defining the laws of fashion, to the programmatic code of the video game in the form of a socially realistic simulation.

In this chapter, I will examine the construction of identity during gameplay in simulational terms. Critical to this analysis is the idea of *abstraction*. Fashion in the virtual world is a limited subset of fashion in the real world – in the same way that identity and character in the virtual world can be seen as a subset of identity and character in the real world. This abstraction derives from the fact that a game simulation must be a limited and reductionist model, only efficient in calculating and producing a specific kind of gameplay: there is no game simulation that can do everything. In this sense, dress in games is dependant on *genre*. This is another parallelism to Baudrillard's socio-economic code, as genre is linked to kinds of consumers, categories of persons which are defined by their overlapping consumption of specific products.

Identity as Performance

Identity is seen as a continuous construct by many theorists, among which are Russian linguist Valentin Voloshinov and post-structuralist French philosopher Paul Ricœur. Voloshinov found that identity is emergent and continually reinvented through social interaction (1973 [1930]: 86-89). For these theorists, identity is profoundly social, and continually reinterpreted: it is *emergent*. Our knowledge of our self comes through interpretation, as we constantly redefine the self by what we know and the memories we can gather about it. This notion still stands today in the work of sociologists Zygmunt Bauman (1988; 2000a; 2000b; 2007) and Anthony Giddens (1991). Bauman (1988: 62) asserts that identity is forged in the social sphere and located within temporal relations; a sense of the past ('Who am I?'), present ('How should I live?') and future ('Who do I want to become?') define identity practices. However, as memory is reconstructive (Misztal, 2003: 82), what we make of an 'experience' depends on our wider social circumstances. The self is therefore largely a social construct.

Identity is formed in society by making choices. We know what we like and what we *are* like. But both equally depend on society and our psychological make-up, which is gradually formed through social interaction. For Voloshinov (1973: 151) and philosopher Kenneth Burke (1969: 20-55), identity is constructed through *identification*, that is the combination of merger and division, of sameness and difference. People share common identities but are also unique. They identify the stimuli they encounter as similar or dissimilar to themselves, as what they are in relation to what they are not.

In her book *Identification Papers*, psychologist Diana Fuss (1995: 2, 86) distinguishes identities as our public personas (what we present as a collection of identifications) from identifications as private (our knowledge of our list of identifications). We identify with groups and categories continuously, and this is how we progressively construct our identity. Identity is a *progressive* formation (Voloshinov, 1973: 86-89). In the contemporary West, the self is seen as a project to be worked on, as evident in television shows and self-help books (Lawler, 2008: 54). All of this is presented as freeing from society's repression, and done in the name of autonomy (Lawler, 2008: 103-104). We choose who we want to become. In this sense, identity is *reflexive* (Lawler, 2008: 13). Self-identity has to be routinely created and sustained in the reflexive activities of the individual. It is the self as reflexively understood by the person in terms of her biography, presuming continuity across time and space. This *autobiography* produces an overarching personal narrative from all the narratives we produce in our every day life, which we interpret in order to construct our identity (Lawler, 2008: 13). It is this narrative, rather than a person's behaviour or the reactions of others as isolated events, which produces the person's identity. Identities are made through assembling various memories, understandings, experiences and

interpretations within a narrative which has characters, action and plot (Ricœur, 1991a: 4-10; 131-138). In this sense, identities are constructed. *Emplotment* (Ricœur, 1991a: 3,8) presents the self as the outcome of the episodes which constitute a life.

Ricœur explains narrative plot as 'a synthesis of the heterogeneous' (Ricœur, 1990: 97, 156), within which all elements of a story, i.e. events and existents, unite. All of these elements have a special meaning in the whole, and they give the story closure. All life in this sense is seen in terms of the Aristotelian plot, which has a beginning, a middle, and an end (Aristotle, 1997 [c. 335 BCE]: 23). First, we set out to do something. Then there is the progress of the action, including any obstacles and their negotiation. Finally, there is the conclusion of the action, making the narrative a comedy if it is fortunate, or a tragedy, if it is unfortunate. This is an effect of what Ricœur (1990: 31-42) calls plot *concordance*, which is continuously jeopardised by *discordances* that temporarily threaten the meaningful closure of the narrative. Such discordances are perceived as problems or obstacles we face while trying to accomplish tasks, however trivial or important, in our lives. The ultimate conclusion in the accomplishment of the tasks is seen as concordance, that is the expected good ending of the narrative, as we had it set up originally in our mind. This is why goal-oriented games can be seen as symbolic models of life. As identity can be seen as a negotiation between the personal and the social (Voloshinov, 1973: 60,89), it can also be seen as the formation of the self through choice, which can be social in the form of verbal or visual interaction (part of which is performed by dress). This identification, this *mimesis*¹ of the self as we project it as an image internally, according to the narrative of the self up to the point that a choice has to be made, dictates the choice. As American post-structuralist philosopher Judith Butler states, when we are being our self we are in character; we *perform* our self (1990; 1993; 1997; 2004). The performance of the self extends in traditional games, and by extension in video games, particularly online, by means of identifying with groups through action and existence, by 'doing' and 'being'. This concept was first formulated under the term 'mimicry' by French sociologist Roger Caillois, which he defines as a 'simulation' wherein one can 'escape himself and become another' (2001 [1958]: 19).

Postmodern theorists have adopted the idea of multiple identities, according to which the person does not have one concrete identity but many dynamic identities, which may even contradict each other. Fuss points out that identity has multiple and sometimes contradictory meanings (1995: 31-34). Fuss believes that both internal (psychical) and external (social) stimuli contribute to the multiplicity of identities within individuals: identity is contingent. Sociologist Sherry Turkle uses the

¹ Aristotle used the term *mimesis* to denote dramatic imitation or representation, in other words, acting, or role-playing. Mimesis was defined in the *Poetics* besides the six elements of drama, namely *mythos* (plot), *ethos* (character), *opsis* (spectacle), *lexis* (diction), *melos* (melody), and *dianoia* (thought). In *Poetics* (2001[c. 335 BCE]:17), mimesis is an important technique in drama, which works on the principle of applying a character's narrative configuration on one's self, resulting in identification with the character.

metaphor of computer windows to examine the self as a multiple, distributed system (1995: 13-14). A computer user might have several different programs running at one time. Turkle believes that using several programs at the same time is similar to having different aspects of self-identity, as different facets are given primacy depending on the circumstances. Researcher Sandy Stone describes identity as a process in continual flux (1995: 92, 440). Computer technologies make visible the essential fact that human identity is unquestionably multiple, and the identities that emerge from human-machine interactions are fragmented and complex (Waggoner, 1999). Feminist cybernetics pioneer Donna Haraway argues that the notion of a coherent inner self is an unnecessary regulatory fiction, as identities are often contradictory, partial, and strategic (1991: 73).

The fact that we choose which image to project, which we strategically select from a gamut of images, further suggests that identity can be seen as *performance*. For sociologist Stephanie Lawler, *self-impersonation* is a process by which we assume characteristics we claim as our own (2008: 101). In this process, we become social persons through performing ourselves. Sociologist Erving Goffman uses a dramaturgic metaphor to describe social interaction and identity. He likens social interaction to theatrical performances (1990 [1959]: 30). Similarly, Butler (1990; 1993; 1997; 2004) is concerned with how we 'do' identities through performance. Goffman asserts that we wear 'masks' in order to present different aspects of ourselves that fit our idea of our self in a particular social situation (1990 [1959]: 30). These masks represent the conception we have formed of ourselves and the roles we strive to fulfil. In this sense, the mask is our truer self, who we would like to be. As our conception of our role is performed repeatedly, it becomes second nature and an integral part of our personality: 'We come into the world as individuals, achieve character, and become persons' (Park, 1950: 250). Goffman (1990 [1959]: 30) also argues that roles, or performances, do not mask the 'true person', but on the contrary, they are what *make us persons*. We copy an imagined original (Lemert, 1997: 162), as we know the repertoire of behaviours associated with our roles, and we perform those expected behaviours constantly. Playing these parts is what makes us *ourselves*. Goffman calls this 'dramatic realisation'. The person is not *behind* the mask, it *is* the mask (Lawler, 2008: 106).

But how can multiple identities be performed in video games? Video game theorist Zachary Waggoner (2010) believes that it is the reflective, interactive aspect of the games that gives them the ability to impact identity formation: the need for interaction with external stimuli results in internal self-reflection and assessment, which are essential to identity construction. In particular, the RPG genre, mostly due to the customisation of the avatars, provides the space for the creation of an Other through which users can explore and experiment with their own identity (Waggoner, 2010). In *What Video Games Have to Teach Us About Learning and Literacy*, researcher James

Paul Gee (2004: 54-56) argues that in RPG interactions, three distinct identities are involved: *virtual identity* (the avatar), *real-world identity* (the player), and *projective identity* (common to the player and the avatar). This projective identity is situated on the interface and the interactions between the player and the avatar (2004: 54-56). Waggoner (2010) finds that the identification that takes place between the user and their avatar is aided by the constant development of the avatar by the player and the choices involved in this. Such diegetic decisions impact on identity the more the player identifies with the avatar and the more agency the player has in the virtual world by means of the avatar.

Interactive narrative pioneer Janet Murray defines agency simply as the 'satisfying power to take meaningful action and see the results of our decisions and choices' (1997: 126). Results can be positive or negative. The construction of identity in gaming occurs mainly by means of simulational action, and to a lesser extent by means of representational choice. The identity of the player, constructed by means of action or choice during playing a video game, is emergent, through the interaction with the software and the other agents. It is also autobiographical, in the sense that the actions and choices of the player have to be in accordance with the player's identity and the fictional character's identity. Identity is performed in a process of self-impersonation, which in the context of the video game refers to adhering to certain behavioural traits that we think of as characteristic of the avatar, as well as those of the player. Choice in the simulational sense is made based on the logic of cause and effect, so every action has a beginning, middle, and end, in the order of assumption, prediction, calculation, action, anticipation, complications, progress, reflection. Such predictive, performative avatarial actions or choices (agency) help define the virtual self.

Such subjectivity in *DressCode: The Fashion Game* may be offered through dress and dialogue choice. The player will be able to choose how to dress the avatar, and she will have to internalise the event parameters given to her by the game, predicting how social events will play out, and considering the involved characters and the environment. Calculating how to present the avatar in order to evoke specific reactions will be followed by the process of dressing the avatar. The avatar will then socialise with other player avatars or AI-controlled characters, and this will bring about a negotiation of the image of the avatar between the player's choice and the societal pressure to conform, and complications caused by the player's actions in terms of dress and dialogue choice. This would facilitate one kind of progress and hinder another kind: the game would take a unique path, which would create a specific set of future parameters and possibilities. In essence, the identity of the avatar will be produced by identification with specific social groups and/or other characters. This mimetic social performance of the imagined identity of the avatar will become part of the autobiography of the avatar, therefore forming an emergent identity. This process is

reflective of T. L. Taylor's research on online worlds, which considers avatar embodiment as a vehicle for presence, communication, affiliation, and socialisation:

...much as in offline life with its corporeal bodies, digital bodies are used in a variety of ways – to greet, to play, to signal group affiliation, to convey opinions or feelings, and to create closeness. (Taylor, 2002: 41)

This logic is also influenced by Sherry Turkle's notion of construction of multiple fragmented and emergent identities in online environments, or as an extension of one's 'real' self, what she calls 'self re-creation' (1997: 177-209).

However, for video game theorist Sandra Abrams, socio-cultural structures that exist in the real world are replicated in virtual worlds by both the designers and the gamers, so autonomy is inevitably compromised (Abrams, 2011: 223-236). Abrams combined the projective identity of Gee (2007a, 2007b) and the performed identity of Goffman (1990 [1959]), in order to formulate a model of online identity which accounts for the projection of self-identity onto an avatar, as it is affected by the player's knowledge of the game's rules and limitations. And it is the aspect of limitation as derived from the abstraction in the simulation, which will be central to this chapter, as it is the prime factor of identity affect in gameplay. In order to examine the effects of the limitations of a simulation on the identity of the player, in the next section I will attempt to explore identity in programmatic terms.

Identity as Expressive Processing

As identity can be seen as performance that entails action in a social setting, in a video game it must be examined in the programmatic terms of the simulation, i.e. as a set of syntactic signs. I am therefore moving here from an experiential discussion of performance devoid of a particular methodology, to performance as *expressive processing*, to borrow video game theorist Noah Wardrip-Fruin's term (2009). This is a view influenced by game theorist Ian Bogost's view of video games as an expressive medium, as opposed to scientific, political, military, or other kinds of "serious" simulations, which strive to be predictive (Bogost, 2007: 143). Bogost's view is not restricted to the analysis of video games, but extends to the analysis of different kinds of procedures, including social:

Not all procedures are expressive in the way that literature and art are expressive. But processes that might appear unexpressive, devoid of symbol manipulation, may actually found expression of a higher order. For example, bureaucracy constrains behaviour in a way that invokes political, social, and cultural values...We tend to ask the question *how does this work?* in relation to such processes. This sentiment probably conjures images of mechanical devices like wristwatches, where procedural understanding implies taking a set of gears apart to see how they mesh. But procedurality can also entail the operation of cultural, social, and historical systems. In these cases, asking *how does this work?* requires taking a set of cultural systems apart to see what logics motivate their human actions. (Bogost, 2007: 5-8)

Like bureaucracy and other cultural, social, and historical systems, video games are sets of operative units (programmatic and artistic representational objects) that may have prior motivation regarding their affect on the framework in which they belong, and contain expression. This fundamental difference between a code of communication and the individual choice of expression is clearly outlined in structuralism. The father of semiotics, Ferdinand de Saussure (1995 [1916]), made the distinction between *langue* (the language system) and *parole* (the individual utterance). Structuralist methodology developed based on Saussure's linguistics, and as such, in structuralism each narrative has two parts: a *story* (*histoire*) – the content or chain of events (actions, happenings) and the existents (characters, items of setting); and a *discourse* (*discours*), the means by which the content is communicated (Chatman, 1989 [1978]). A semiotic narrative structure therefore contains a form and substance of expression, and a form and substance of content

(Chatman, 1989 [1978]: 22). Paul Ricoeur (1981; 1984; 1985; 1988; 1991) devised a 'hermeneutic of the self' based on such narrative theory. He employed a model of *textuality* to analyse meaning and human understanding and he believed that human subjectivity is a *linguistic structure* based on symbols, as he thought that the key to existence can be found in language and discourse. Language and discourse are therefore key to identity, as the person constructs her autobiography through social performance. The term *textuality* denotes that every personal experience can be seen as a text that is dependent on *langue* and *parole* (universal social code and subjective interpretation). In semiological terms, dress is considered *langage*, i.e. the universal anthropological dimension of dressing; costume can be seen as *langue*, that is the manifestation of dressing within specific geographical and cultural contexts, or as a representation of the aforementioned in the media; and fashion is *parole*, the individual aspect of dressing, which is nevertheless influenced by the code of dressing, *langage* (Barthes, 1992 [1967]). Dress, in this sense, may be seen as a textual description of identity, both in order to distinguish us as part of a specific cultural context (time, location, and so on), and as personal expression.

Seen in this light, a video game operates on two levels of performance combining in the gameplay experience, as the player co-produces an emergent text with the game's code, while at the same time using independent visual, aural, and textual signs to communicate with other players or observers. This emergent simulational performance, which is the main and most important aspect of the game, and which is produced by the agency of the player in the game world as prescribed by the mechanics and affordances of the game, layers with other events and existents produced by the player or the game. Such events and existents can be dynamic, for example produced by other players in an online setting, or an overarching background story which will attempt to bind together all of the components of the game, and it will help make sense of them as a whole. It therefore appears that playing a game is very much a case of expressing individual discourse in a prescribed set system, which is quintessentially regarded as (post-)structuralist territory. However, traditional semiotics do not apply in video games: video game theorist Espen Aarseth was the first to write on this incompatibility in 1997, asking:

The fundamental question, however, is whether a system capable of producing emergent behaviour is based on an initial state and a set of generative rules should be considered semiotic at all. Since it can exist without any semiotic output, as a closed process running inside a computer, the semiotic aspect is clearly arbitrary and secondary to the process itself.

To the researcher, the semiotic aspect is indispensable as a front end, a practical means to observe and gain knowledge of the evolutionary process going on inside, but this does not imply that the process is basically a

semiotic one or that the studied object should be classified as a sign, only that the activity of observation by necessity has to involve a semiotic system of some sort. (Aarseth, 1997: 31)

And so, Aarseth devised his theory of *cybertexts*. Cybertexts are the kinds of texts that involve calculation in order to produce what Aarseth calls *scriptons* (1997: 62). Instead of defining 'text' as a chain of signifiers, as linguists and semioticians do, Aarseth uses the term 'cybertext' for a whole range of phenomena, from short poems to complex computer programs and databases. As the prefix *cyber* indicates, the cybertext is seen as a machine – not metaphorically but as a mechanical device for the production and consumption of verbal signs: just as a film is useless without a projector and a screen, so a text must consist of a material medium as well as a collection of words (1997: 21). The machine, of course, is not complete without a third party, the (human) operator, and it is within this triad that the text takes place (1997: 21). The functional possibilities of each element combine with those of the other two to produce a large number of actual text types. Cybertext is the wide range 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 (1997: 22). Each type of text can be positioned in this multi-dimensional field according to its functional capabilities (1997: 22). Aarseth argues that according to traditional semiology, texts are linear by definition, as chains of events, and they therefore fail to describe texts of new kinds that have a different type of iconic construction (1997: 26). The main difference lies in that, in these new kinds of texts, there are interactive dynamic elements, whereas traditional semiotic models and terminology are constructed around static objects (1997: 26). Essentially, what Aarseth's theory means, is that the player participates in a performative mathematical loop with the computer, of which all semiosis takes place on the interface between the two:

...just as the game becomes a text for the user at the time of playing, so, it can be argued, does the user become a text for the game, since they exchange and react to each other's messages according to a set of codes. The game plays the user just as the user plays the game, and there is no message apart from the play. (Aarseth, 1997: 162)

Nevertheless, the individual expression in the system has repercussions on the construction of identity, as the narrative of the self is not produced by the undisputed choice of the player, or by empathising with a character in a set story, but by dynamically interacting with an abstract model,

the game's code. And as the video game is a commodified medium, the game's code is a product of the socio-economic code. The simulation of status-oriented values is therefore existent in the game as a product, but also in the products of the programmatic code of the game. Bogost believes that as *procedural expressions*, video games can be used to propagate ideologies and communicate political ideas. 'Unit operations', which in the case of the computer game are collections of programming objects, can be used as rhetorics, i.e. as arguments with which to persuade the player. Bogost quotes twentieth-century rhetorician Kenneth Burke in saying that rhetoric entailing persuasion is characteristic of human thought in general (Bogost, 2007: 20), and that rhetoric manifests in visual media equally to verbal arguments, albeit in a different mode, giving as an example David S. Birdsell's and Leo Groarke's work as opposed to what Jacques Derrida termed *logocentrism* – the fact that speech is considered the closest to thought (Bogost, 2007: 23). The analysis of digital rhetoric, however, must take into account the role of procedurality, which is to Bogost the 'unique representational property of the computer' (Bogost, 2007: 28-9). One of the paradoxes of procedural rhetoric is that it does not always exclude opposing positions, oftentimes allowing for their consideration through configuration of the system, evoking in some cases dialectics and engagement with an argument (Bogost, 2007: 37). *Grand Theft Auto* games (Rockstar), for example, derive their representational power from linking the player's possible unit operations together: 'Fire a gun, steal a truck, explore a hidden building, bludgeon a cop, explode a car: although important to the games' appeal, the specificity of these actions is subordinate to the ease of transition between them, and the conscious player decision associated with that gap' (Bogost, 2006: 155):

Such is one possible response to the freedom the game allows; a recognition of the inner demons that regulate our behavior as much as our reason. For this player, *GTA* brings those forces together into an unstable harmony, nor for the purpose of rejecting the baseness the game depicts, but for allowing that corruption to intermingle with its rejection. (Bogost, 2006: 156)

The game's mechanics are in Bogost's opinion secondary to the game's overall rhetoric, in *GTA*'s case, the requirement to critically engage and negotiate with the concept of corruption. However, Bogost argues that persuasion is particularly easy in games, as the player must complete such arguments with the computer, thereby aligning herself with the beliefs of the author by participating in the work (Bogost, 2007: 3). The subjectivity of the player is thus objectified and limited. This is similar to how scripts work in theatre: the play script dictates the affordances of the performance, while the actor takes advantage of these affordances to produce her own discourse through the

performance. However, as there are strict guidelines that define the performance, the subjectivity of the actor is *minimal but crucial*. Bogost identifies meaning in the expression of the player within the constraints of the game (2006: 151).

Subjectivity in *DressCode* would in this sense manifest mainly through the exchange of signs by means of social performance in the form of visual and verbal interaction between the player avatar and the other characters. The player's choices would be relatively appropriate or inappropriate for specific events and settings. For example, if the avatar dresses with a view to dining at a restaurant with a group of acquaintances, the articles of clothing and accessories that the player chooses will affect the progress of the game, by carrying significations which may or may not agree with the other characters/players. This will in turn affect the dialogue between the characters. The dress would also have to abide with the requirements of the environment, which will have its own significations. Dress depends on the context, and there are appropriate and inappropriate choices, which are imposed by society. The discourse of dressing (the player's subjectivity) would be compromised by the language of dress, the dress code (the game's subjectivity). The avatar's autobiography would be subsequently produced by the sum of the interactive experience (agency, action, feedback, reflection).

In his more recent work 'Doors and Perception' (2007), Aarseth revisits the issue of the limits of semiotics when used for the analysis of the video game medium, albeit this time more succinctly: he claims that fictional elements can be presented in games similarly to other media, but that there are also elements in games which are *ontologically* different, due to their interactive nature. He offers the example of doors in game worlds: some of them are functional, actual doors, through which the avatar or the camera can walk, while others are plainly decorative, painted on the textures that surround the game geometries (2007: 3). Aarseth very rightly points out that the painted doors are fictional, while the actual doors are virtual; he points out the difference between the representation of a door and the simulation of a door (2007: 3). However, in the game's code there are no painted doors. Granted, they belong in the resources of the game as bitmap textures, as two-dimensional images, and the game's graphics engine wraps those 2D images around 3D topologies. But the computer does not see them when calculating the simulation, as they do not exist at the same level of the code.

The main problems with the analysis of video games is their aspect of agency: to use ludologist Markku Eskelinen's term (2004: 38), they are not interpretative, but configurative:

...in art we might have to configure in order to be able to interpret, whereas
in games we have to interpret in order to be able to configure, and proceed

from the beginning to the winning or some other situation. Consequently, gaming is seen here as configurative practice, and the gaming situation as a combination of ends, means, rules, equipment, and manipulative action.

(Eskelinen, 2004: 38)

Bogost likens this kind of configuration to philosopher Alain Badiou's definition of the event (2010 [1988]), as 'the rupture of stability in a situation and the reconfiguration of its multiplicities' (Bogost, 2006: 109). This is why the simulation is more important than the representation, and the two are intrinsically different. A simultaneous analysis of the two may give us confusing, contradictory, or even irrelevant outcomes. Let us then disentangle these two layers of the video game object. The analysis of the video game has to first be carried out at the most fundamental level, the level without which the game would not be a game. A video game can still be a video game without any visuals. Video game theorist Graeme Kirkpatrick believes that the medium is not at all tied to specific optics (2011: 104). A game may use procedural graphics, texts, and sounds produced by the game code in real-time, and not a library of resources, such as 3D objects, 2D textures, and animations. The same is true for sounds and text. If we consider the typeface (text font) and the sound that the computer may use to present us the backstory of the game as resources – i.e. objects produced outside the game's actual code – then the program cannot see or calculate those either. A video game cannot under any circumstances operate, however, without its programmatic code, which selectively accesses parts of its entirety to produce results in accordance with the player's actions. The analysis of the video game should therefore be carried out primarily at the core of the game, namely its computational code, and only secondarily and separately, at its representational layer.

Aarseth identifies three ontological layers to game content: the real, the virtual, and the fictional (2007: 3). He recalls how the fictive layer dominated in text adventure games, and he mentions how graphics and physics engines have developed to transform the medium from fiction to simulation (2007: 3). However, even in adventure games, simulation, and not fiction, is what drives the games. A text adventure may give the player a description of a place or a situation – a textual representation – and then the ability to type commands using a cursor, much like a text editor. The player can construct a sentence using a limited set of verbs, subjects, and objects. She can interact with other characters, and she may have an inventory from which to select and use items. This interface is textual, but it is simulational, and not representational: what the game produces is not a text that makes sense as a narrative, but what is directly produced by the program of the game, including any unsuccessful attempts by the player. For example, the walkthrough of the adventure could read:

Take the sword. Kill the dragon. Save the princess. Escape from the castle.

But what would be produced during a normal session would read more like this:

Kill the dragon (the player receives a message that the command was unsuccessful, as the commands have to be executed in the right order)

Use magic on the dragon (unsuccessful)

Take the sword ("The hero took the sword")

Throw the sword at the dragon (unsuccessful)

Kill the dragon ("The hero killed the dragon!")

Escape (unsuccessful)

Escape from the castle ("The hero cannot escape as he has not yet saved the princess")

Save the princess ("The hero saved the princess!")

Escape from the castle ("Congratulations, the hero escaped from the castle")

...

This is an oversimplification, of course, but this is how many text adventures work. The program of the game does not 'understand' the meanings of the words. The words are interchangeable. What the program wants to know is whether the player has typed the correct command for each situation, so that it offers the player the right feedback and it progresses the game. This parser (the subprogram that interprets the player's commands) is of the form: *command a + b + c + d = reply* e, where a, b, c and d are the words the player uses to make up sentences. The words are interchangeable in the parser. The computer does not understand meanings, it merely checks the player's word combinations against a database of commands and their appropriate replies. In other words, this is not semantic semiosis, but syntactic procedure. The identity of the player is therefore primarily constructed outside the meaning of the words, which are interchangeable.

Most adventure games are largely processes of trial and error, as are most video games. Players have to make effort in order to progress along a path and make sense of the game text (hence Espen Aarseth's 1997 term *ergodic*, deriving from the Greek *ergon* and *hodos*, i.e. work and path). Granted, the words carry (representational) meaning so that the player is directed to take a valid action. But the player ultimately thinks in terms of the parser (*a + b + c + d*) in order to progress. The player suspects and gradually confirms the game's inner workings, trying to mirror the logic of the simulation: she starts to understand the 'algorithm', as defined by new media theorist Lev Manovich in his book *The Language of New Media* (2001):

In programming, there is clear separation between algorithms and data... [Games] demand that a player executes an algorithm in order to win. An algorithm is the key to the game experience in a different sense as well. As the player proceeds through the game, she gradually discovers the rules which operate in the universe constructed by this game. She learns its hidden logic, in short its algorithm. Therefore, in games where the game play departs from following an algorithm, the player is still engaged with an algorithm, albeit in another way: she is discovering the algorithm of the game itself. (Manovich, 2001: 41, 222)

Video game theorist Noah Wardrip-Fruin also separates video game code into two distinct categories. He uses the term 'expressive processing' to denote a means of expression for the author in which the data and the computational processes (operational logics such as spatial collision detection) unite and the result of this unison is shown on the representational surface (2009: 10-3). Importantly, expressive processing almost invariably has an agenda (2009: 3-4), and the purpose of the simulation is not fidelity, but specificity and practical ease of implementation: 'the overall goal is defined by the fact that the game is attempting to reach an audience; the model must serve the experience of gameplay sought by the game's authors' (2009: 82). It is an abstract model that the player tries to decode and beat, not an undefined and limitless network of meanings. Identity through agency in this way is developed by the use of commands, but these commands are used as signals, as pieces of a puzzle, and not in the same way they are used in verbal communication between people. In this sense, identity construction in games is predictive: it is based on the simple logic of cause and effect, as defined by the game's model, figuratively argued within the offered affordances by the player's discourse.

In order to put this analysis in the context of an actual historic programmatic example, I will now examine a landmark text adventure game, *Colossal Cave Adventure*, or simply *Adventure*, as it is widely known. *Adventure* was programmed by William Crowther in 1977 in the FORTRAN language. The game's code is separated into two main files, roughly categorised as the data, i.e. the game's representational text, and the computational code comprising all of the loops and conditional statements. The following is part of the original FORTRAN data code:

```
1      YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
1      BUILDING . AROUND YOU IS A FOREST. A SMALL
1      STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.
2      YOU HAVE WALKED UP A HILL, STILL IN THE FOREST
2      THE ROAD NOW SLOPES BACK DOWN THE OTHER SIDE OF THE HILL.
```



```

2   THERE IS A BUILDING IN THE DISTANCE.
3   YOU ARE INSIDE A BUILDING, A WELL HOUSE FOR A LARGE SPRING.
4   YOU ARE IN A VALLEY IN THE FOREST BESIDE A STREAM TUMBLING
4   ALONG A ROCKY BED.
5   YOU ARE IN OPEN FOREST, WITH A DEEP VALLEY TO ONE SIDE.
6   YOU ARE IN OPEN FOREST NEAR BOTH A VALLEY AND A ROAD.

```

This part contains some of the descriptions given to the player before she takes an action. Another part contains keywords, which the player can input in order to take action and progress in the game:

```

2   ROAD
3   ENTER
3   DOOR
3   GATE
4   UPSTR
5   DOWNS
6   FORES
7   FORWA
7   CONTI
7   ONWAR
8   BACK
8   RETUR
8   RETRE
9   VALLE

```

A final part contains text which will be given to the player as feedback on his actions:

```

2   A LITTLE DWARF WITH A BIG KNIFE BLOCKS YOUR WAY.
3   A LITTLE DWARF JUST WALKED AROUND A CORNER, SAW YOU, THREW
3   A LITTLE AXE AT YOU WHICH MISSED, CURSED, AND RAN AWAY.
4   THERE IS A THREATENING LITTLE DWARF IN THE ROOM WITH YOU!
5   ONE SHARP NASTY KNIFE IS THROWN AT YOU!
6   HE GETS YOU!
7   NONE OF THEM HIT YOU!

```

The computational code of the game, on the other hand, is different. The following is part of the original FORTRAN code of the game:

```

2000  LTRUBL=0
      LOC=J
      ABB(J)=MOD((ABB(J)+1),5)
      IDARK=0
      IF(MOD(COND(J),2).EQ.1) GOTO 2003
      IF((IPLACE(2).NE.J).AND.(IPLACE(2).NE.-1)) GOTO 2001

```



```

IF (PROP(2).EQ.1) GOTO 2003
2001 CALL SPEAK(16)

```

This is part of the routine that controls the player's input. After the declaration of variables in the first four lines, there are two conditional statements that deal with whether the player's input makes sense in the context of the current state of the story. If it does, the `CALL` command calls the `SPEAK` subroutine, which gets the right reply from the data document. Another part of the computational code tests whether the player has chosen to use a verb with an object that is not available in the current state of the game and gives feedback:

```

502 IF (B.NE.' ') GOTO 5316
    TYPE 5005,A
5005 FORMAT(' I SEE NO ',A5,' HERE.',/)
    GOTO 2011
5316 TYPE 5317,A,B
5317 FORMAT(' I SEE NO ',2A5,' HERE.',/)
    GOTO 2011
...
5097 K=50
    GOTO 5014
5004 JOBJ=K
    IF (JVERB.NE.0) GOTO 2027

```

If an object is unavailable, the game replies 'I SEE NO ',A5,' HERE.' where 'A5' is a placeholder, a variable which can be used for any object that is declared in the data document. Elsewhere in the code, there is a routine that deals with the opposite case, i.e. when the game recognises an object, but not a verb.

```

5064 IF (B.NE.' ') GOTO 5314
    TYPE 5001,A
5001 FORMAT(' WHAT DO YOU WANT TO DO WITH THE ',A5,'?',/)
    GOTO 2020

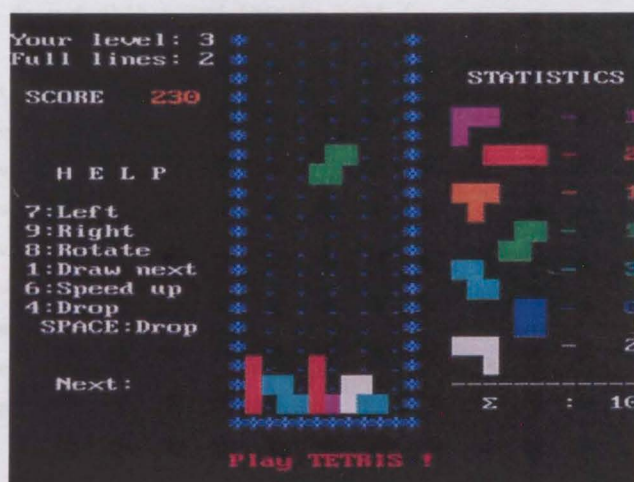
```

In such a case, the game asks the player: 'WHAT DO YOU WANT TO DO WITH THE ',A5,'?', where 'A5' is a variable that may represent any of the verbs declared in the data document.


The two files, i.e. the data, which contains the representational content of the game, and the computational code, which contains the simulational model of the game, combine in the following way: The game will give the player a description, for example YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK BUILDING. The player will then type an action, for example ENTER THE BUILDING. The game will then test whether ENTER, THE, and BUILDING make sense in

the same sentence, and also if they make sense in the particular situation. If they do, the game will then reply THERE IS A THREATENING LITTLE DWARF IN THE ROOM WITH YOU!, or anything else that is appropriate in the given situation.

Adventure is a very useful example, as it explicitly separates code into two distinct parts, the simulation and the representation. Ultimately, the player deals with the former (the simulation). The latter is merely the language the designer uses to communicate to the player the inner workings of the game model. In text adventures, the representation happens to be combinations of words. But the same logic exists even when graphics are included, in other genres. Video game theorist Gabriele Ferri points out that *Tetris* (Illustration 5; Spectrum Holobyte, 1986) would not make sense if analysed using Russian formalist narratology, but *The Secret of Monkey Island* (1990, LucasArts) would, except for the anomaly of repetitiveness as the player moves back and forth looking for clues (Ferri, 2007: 467). Ferri claims that a unified semiological model for video games should be able to describe perfectly both of these games (2007: 468). If we accept that gaming is completely different from reading a book or watching a film, then the narrative structure of *Monkey Island* is just added as an extra layer on top of another, more fundamental structure (2007: 468).



5. Tetris (original PC version)

Let us explore this claim. *Tetris* is essentially a grid where “tetrominoes” (shapes consisting of four squares in seven different configurations) move down one grid line at a time, the rate depending on the difficulty of the level. The purpose is to build complete lines of squares out of the tetrominoes, by rotating and aligning them accordingly. As the shapes descend, the player has four commands at his or her disposal, namely moving the shape to the left, to the right, down (to save time if the right position and angle for the shape has been identified), or rotating the shape by 45 degrees at a time. Let us say that this particular shape is given: . The pseudo-code of the game, i.e. the code as it would roughly translate in plain English, would look similar to this:

If the player presses the <right> button, then move the four squares to the right by one grid square.

If the player presses the <left> button, then move the four squares to the left by one grid square.


If the player presses the <down> button, then move the four squares down by one grid square.

If the player presses the <rotate> button, then rotate the four squares clockwise.

The actual code for rotation in JavaScript (available at <http://javascript.internet.com/games/jstetris.html>) is the following:

```
* Rotate the puzzle to the left.
* @return void
* @access public
*/
this.rotate = function() {
    var puzzle = this.createEmptyPuzzle(this.board.length, this.board[0].length);
    for (var y = 0; y < this.board.length; y++) {
        for (var x = 0; x < this.board[y].length; x++) {
            if (this.board[y][x]) {
                var newY = puzzle.length - 1 - x;
                var newX = y;
                var el = this.board[y][x];
                var moveY = newY - y;
                var moveX = newX - x;
                el.style.left = el.offsetLeft + (moveX * this.area.unit) + "px";
                el.style.top = el.offsetTop + (moveY * this.area.unit) + "px";
                puzzle[newY][newX] = el;
            }
        }
    }
    this.board = puzzle;
}
```



Now we have: . This, to the player, looks like a rotation, but in fact the computer has simply rearranged the squares from three in the first row and one in the second row, to one in the first and second rows, and two in a new third row. The program will also check for the shape's collision with the other shapes, which are already at the bottom of the grid. If the shape does not collide, then it will be pushed down by one grid square:

* Puzzle fall from the top to the bottom.

* After placing a puzzle, this event will be called as long as the puzzle is running.


```

    * @see place() stop()
    * @return void
    * @access event
    */
    this.fallDown = function() {
        if (self.isRunning()) {
            if (self.mayMoveDown()) {
                self.moveDown();
                self.fallDownID = setTimeout(self.fallDown, self.speed);
            } else {
                // move blocks into area board
                for (var i = 0; i < self.elements.length; i++) {
                    self.area.addElement(self.elements[i]);
                }
                // stats
                var lines = self.area.removeFullLines();
                if (lines) {
                    self.tetris.stats.setLines(self.tetris.stats.getLines() + lines);
                    self.tetris.stats.setScore(self.tetris.stats.getScore() + (1000 *
self.tetris.stats.getLevel() * lines));
                }
                // reset puzzle
                self.reset();
                if (self.mayPlace()) {
                    self.place();
                } else {
                    self.tetris.gameOver();
                }
            }
        }
    }
}

```

Which translates to:

If the squares hit the ground or the top of another shape, then freeze the squares (remove the player's agency), and give the player a new set of squares at the top of the grid. Otherwise, move the squares down by one grid square.

At the same time, the program will be checking for completed lines:

```

    * Searching for full lines.
    * Must go from the bottom of area to the top.
    * Returns the number of lines removed - needed for Stats.score.
    * @see isLineFull() removeLine()
    * @return void
    * @access public
    */

```



```

this.removeFullLines = function() {
    var lines = 0;
    for (var y = this.y - 1; y > 0; y--) {
        if (this.isLineFull(y)) {
            this.removeLine(y);
            lines++;
            y++;
        }
    }
    return lines;
}

/* Remove given line
 * Remove html objects
 * All lines that are above given line move down by 1 unit
 * @param int y
 * @return void
 * @access public
 */
this.removeLine = function(y) {
    for (var x = 0; x < this.x; x++) {
        this.el.removeChild(this.board[y][x]);
        this.board[y][x] = 0;
    }
    y--;
    for (; y > 0; y--) {
        for (var x = 0; x < this.x; x++) {
            if (this.board[y][x]) {
                var el = this.board[y][x];
                el.style.top = el.offsetTop + this.unit + "px";
                this.board[y+1][x] = el;
                this.board[y][x] = 0;
            }
        }
    }
}

```

Which means:

If all the grid squares in the line(s) are occupied by shape squares, then remove them, and give the player some points.

And this, put in simple terms, is the code that makes up *Tetris*. Of course, there will be other routines and variables, such as code that controls bitmap graphics, sounds, and game speed. These could again be explained relatively easily, but would be beyond the point I am trying to make. These few lines of code, including the player's agency and the game's inherent agency, will

be repeated in a programming loop, until something happens that will stop the game. This can be the player pausing the game, exiting the level, or exiting the game. Altogether, the loop may look like this:

Until the player presses the pause (or exit) button, repeat the following:

If the player presses the <right> button, then move the four squares to the right by one grid square.

If the player presses the <left> button, then move the four squares to the left by one grid square.

If the player presses the <down> button, then move the four squares down by one grid square.

If the player presses the <rotate> button, then rotate the four squares clockwise.

If the squares hit the ground or the top of another shape, then freeze the squares (remove the player's agency), and give the player a new set of squares at the top of the grid. Otherwise, move the squares down by one grid square.

If all the grid squares in the line(s) are occupied by shape squares, then take them away, and give the player some points.

Go back to the beginning of the loop.

And this is why game texts are different. They are governed by *if-then-else*, *until-then*, *case*, and other conditional statements, as well as by loops within loops. The game code itself is a loop, a text that the computer has to read and interpret once, before returning for another reading. This happens many times a second. This is, however, just an abstraction of the game as a text. The full text, taking conditional and repeating functions into account, would look more like this:

Create a shape

Move shape down by one grid square

Move shape down by one grid square

Move shape down by one grid square

Move shape down by one grid square

Move shape right by one grid square

Move shape down by one grid square

Move shape left by one grid square

Move shape left by one grid square

Move shape down by one grid square

Move shape down by one grid square

...

(The shape collides)

Freeze the shape

Take the agency of the player away from this shape

Create a new shape

Give the player agency over the new shape

Or in terms of the narrative of the game,

There is a new shape at the top of the screen

The shape moves down by one grid square

The shape moves down by one grid square

The shape moves down by one grid square

The shape moves down by one grid square

The shape moves right by one grid square

The shape moves down by one grid square

The shape moves left by one grid square

The shape moves left by one grid square

The shape moves down by one grid square

The shape moves down by one grid square

...

The shape collides

The shape stays at the bottom of the grid

There is a new shape at the top of the screen

...

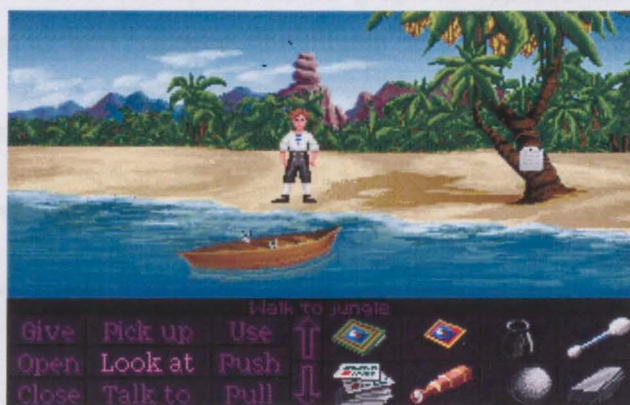
This could be confused with the phenomenological interpretation of what happens onscreen, or what the player interprets by means of visual semiology, but in fact it is quite different. Manovich comments:

Often the narrative shell of a game ("you are the specially trained commando who has just landed on a Lunar base; your task is to make your way to the headquarters occupied by the mutant base personnel...") masks a simple algorithm well-familiar to the player: kill all the enemies on the current level, while collecting all treasures it contains; go to the next level and so on until you reach the last level. Other games have different algorithms. Here is an algorithm of the legendary "Tetris": when a new block appears, rotate it in such a way so it will complete the top layer of blocks on the bottom of the screen making this layer disappear. (Manovich, 2001: 222)

This is a syntactic procedural process, and this is what produces any potential meaning in games. The visuals, such as 3D models and 2D textures may or may not be in accordance with this logic: they are arbitrary. The graphics in *Tetris* are abstract representations of the game code, and as

such, it is easy to prove (elementary) meaning making by the code of the game. Kirkpatrick calls this sort of abstract setting a 'primordial structure of emergence', which he opposes to adventure games, as they involve narrative *progression* (2011: 59). Most video games, he writes, involve some hybridity of the two, but progression is altogether what distinguishes video games in the history of games:

They may contain a puzzle element, but their central dynamic is one of exploration and the kinds of patterns unlocked through this process are enjoyed consecutively. (Kirkpatrick, 2011: 59)



6. The Secret of Monkey Island

Bearing this in mind, I will now question whether adventure *Monkey Island* (illustration 6) can be read as a text in the same way as *Tetris* can. *Monkey Island* is a 'point-and-click' graphical adventure game, where the player controls Guybrush Threepwood, an aspiring pirate. The player uses the mouse cursor to combine verbs with objects. These are the commands given to the character to interact with the game world. If the player clicks on a viable space, the character walks to that spot, accounting for the 'walk to' command. The rest of the commands are listed at the bottom of the screen, along with the items the character has gathered in the game. So, the player can choose 'Look at' and then click on a piece of paper, for example, for the character to examine the document, or 'Talk to' and then click on another character, to talk to him or her, or 'Use' and then click on one of the items in the inventory, to use that item.

One reading of *Monkey Island* could be thus:

You pick up the banana from the tree. You read the note on the tree. You go into the jungle. You pick up the oars. You go back to the beach. You use the oars with the rowboat.

'You', of course, is interchangeable with 'Guybrush'. However, a deconstruction of the structure of the game's code would be more similar to the following:

```
// end switch  
Display scenery bitmap  
Display interface (commands and inventory)  
Set up navigable area and hotspots
```

The navigable area is the area the character can walk to or through. 'Hotspots' are the places on the screen that the player can click on with the mouse cursor in order to interact with the game. The piece of paper on the tree in the above screenshot would be one hotspot. As the levels of the game are static screens, there is an underlying grid, much like the one in *Tetris*. The grid is separated in areas the character (the sprite, the 2D graphical representation of the character) can go to, areas he cannot go to, and areas he (the mouse cursor) can interact with:

```
If the player clicks on the scenery, establish which part of the grid has been clicked  
If the area is walkable, then walk to the area  
If the area is near the edge of the scenery, then go back to the 'change of level' routine at the start  
If the area is interactive, then:  
    Check whether all preconditions have been satisfied in order to interact successfully with the area. If yes, then:  
        Display a message to the player  
        Play any appropriate animations  
        Flag area as interacted with  
        Change of inventory (in case of acquiring or losing an item)  
Go back to the top
```

In the C programming language, this could be expressed with the following switch command, which checks many different cases of player input and gives different results for each case:

```
switch (player_input) {  
    case 1:  
    {  
        printf("You can't go there\n");  
        break;  
    }  
    case 2:  
    {  
        printf("You are in the jungle\n");  
        break;  
    }  
    case 3:  
    {  
        printf("You took the banana\n");  
    }  
}
```



```

        break;
    }
...
} // end switch

```

This is the logic behind point-and-click adventures, and it is not different to the logic of *Tetris*, or any other puzzle game (or in fact most games). Let us apply this logic to the aforementioned scenario at the beach within the game:

The player clicks next to the tree

The area is walkable

The character walks next to the tree

Back to the top. Next loop:

The player clicks on the banana

The area is clickable

There are no preconditions for this area

The character interacts with (takes) the banana

A message is displayed ("You grabbed a banana!")

The "grab" animation is played

The area has been interacted with (the banana is taken, it cannot be taken again)

The inventory changes to include the banana

Back to the top. Next loop:

The player clicks on the banana

The area is clickable

There are no preconditions for this area

The character interacts with (reads) the letter

A message is displayed ("You must go into the jungle...")

There is no animation to be played

The area is not flagged as the letter can be read again

There are no inventory changes

Back to the top. Next loop:

The player clicks near the edge of the scenery, toward the jungle

Back to the 'change of level' routine - new scenery, navigable area and hotspots

Back to the top. Next loop:

The player clicks next to the oars

The area is walkable

The character walks next to the oars

Back to the top. Next loop:

The player clicks on the oars

The area is clickable

There are no preconditions for this area

The character interacts with (takes) the oars

A message is displayed ("You found some oars.")

The "grab" animation is played

The area has been interacted with (the oars are taken, they cannot be taken again)

The inventory changes to include the oars

Back to the top. Next loop:

The player clicks near the edge of the scenery, toward the beach

Back to the 'change of level' routine - new scenery, navigable area and hotspots

Back to the top. Next loop:

The player clicks next to the boat

The area is walkable

The character walks next to the boat

Back to the top. Next loop:

The player clicks on the boat

The area is clickable

The precondition (having the oars) is satisfied

The character interacts with (uses) the boat

A message is displayed ("You used the oars with the boat!")

The "row" animation is played

The area has been interacted with (the boat is used)

The inventory changes to lose the oars

Back to the top. Next loop:

And so on. This, of course, is the case when the player knows the sequence to win the game, and does not make any unsuccessful attempts. In this latter, and more likely, case, the sequence would look more like this:

The player clicks at 205,305 (x,y coordinates onscreen)

The area is not walkable

Back to the top. Next loop:

The player clicks on 276,123

The area is not clickable

Back to the top. Next loop:

The player clicks next to the tree

The area is walkable

The character walks next to the tree

Back to the top. Next loop:

The player clicks on the banana

The area is clickable

There are no preconditions for this area

The character interacts with (takes) the banana

A message is displayed ("You grabbed a banana!")

The "grab" animation is played

The area has been interacted with (the banana is taken, it cannot be taken again)

The inventory changes to include the banana

Back to the top. Next loop:

Therefore, the narrative produced by this sequence is not:

The character walks next to the tree

The character takes the banana

Rather, the whole text produced as the player experiences the program is the following:

205,305 is not walkable

The area next to the tree is walkable

The character walks next to the tree

276,123 is not clickable

The banana is clickable

There are no preconditions to take the banana

The character takes the banana

I get the message "You grabbed a banana!"

The "grab" animation was played

The banana is taken, it cannot be taken again (it is not there anymore)

The banana is in my inventory

This is more of a trial and error process. What the scenery looks like, however, is irrelevant. The game is about clicking on the right areas in the screen. The areas themselves are important, but what the visual content of the areas is, does not make much difference. Of course, the player finds out what she must do because of the text of the game so far, and the messages she gets from the game. Both of these derive from the syntactic nature of the code, and not from the visual, aural, or experiential text that the game produces: they derive from the simulational, not the representational layer of the game, as ludologist Gonzalo Frasca (2003) states. Frasca distinguishes four ideological levels in the simulation: the first deals with representation and events; the second is the rules of manipulation of the game by the player (as in Caillois' 1958 notion of *paidia*: 2001 [1958]: 18-22); the third is the rules of goals, or Caillois' *ludus* (2001 [1958]: 18-22), i.e. what the player has to do to win (or lose)²; and the fourth is the meta-rules, elements that the author allows the player to change on the three aforementioned levels to customise the simulation, such as 'moddings' or level building (Frasca, 2003: 231). In this light, the text of *Monkey Island* is governed by the third ideological level of goal rules and only assisted by the first level of representation. One could argue that the game even contains free play, if we accept that spending time without progressing or by experimenting is 'paidia', or 'misadventure', as game theorist Stuart Moulthrop calls it (1999), in which case, Frasca's second ideological level of the simulation is also involved. At any rate, the prime layer of the game is the simulational goal-oriented layer. Granted, modern programming code combines graphics as 'objects' and identifies when they are acted upon by the player, in other words, the graphical objects may be the main orientation for the (object-oriented) interaction. However, the objects themselves contain both simulational and representational content, i.e. both behaviours (including interaction with the player, such as collisions), and graphics/sounds. It is therefore important to distinguish between the two kinds of signs.

² For video game theorists Salen and Zimmerman (2003), free play becomes game when the structured frame of the 'magic circle' is imposed upon it. Juul (2005) argues that the magic circle is imposed to digital games by their hardware and it is set and predefined.

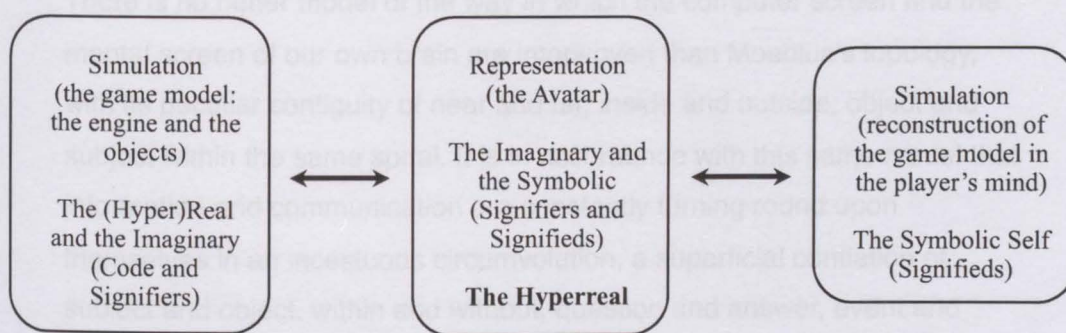
To conclude, Ferri prefers to take a completely different root to the one described above. He proposes that there is semiotic common ground between gameplay and narration, such as interpretation and meaning-making. To formulate his model, he employs the concept of the 'interactive matrix', which produces single, small textual fragments (Ferri, 2007: 468). Ferri's matrix contains all the semantic, narrative, figurative and strategic resources, which will be activated during gameplay. The production of a game-text fragment, in this sense, is the consequence of the interpretative trajectory that comes out of temporary semantic values. The 'sign' is wide enough to encompass linguistic signs, thoughts, objects and situations. Every element in the matrix has content, semantic value (a sememe which is broken down in semes, such as figurative qualities, e.g. 'Pac Man is yellow', and procedural rules-based properties like 'Mario can kill monsters by jumping on them') (Ferri, 2007: 471).

And herein lies the problem: Ferri's semiotic model mixes ontologically different signs. Such a model that would account for the examination of any kind of sign would be chaotic, as the simulation is configurative but the representation is mostly interpretative. For instance, there is no point in mixing the colour of Pac-Man with the direction it has taken because of the player's input: the former is a representational sign, important but not necessary for the game to work, while the latter is simulational, crucial in how the game plays. This is what Lev Manovich calls the 'cultural layer' and the 'computer layer', which influence each other, and are composited together, but which belong to different ontologies (2001: 46). Understandably, the colour of Pac-Man or the ghosts may be cue for some change in the simulation, e.g. that Pac-Man has eaten a big pill and can now hunt the ghosts, or that a new lifeline just began so Pac-Man is invincible for a short while until the player gets her bearings. However, this is only needed so that the player can understand the simulation, and it does not cause a change in the simulation in itself. There is a confusion, in other words, of different kinds of signs in Ferri's, but also in Aarseth's model to a certain extent, where sometimes the three functions of simulation, representation, and synthesis (final presentation) are described as a single component (Aarseth, 1997: 104). Aarseth, however, recognises that the interface consists of an input component which 'analyzes the user's commands and translates them into a semantic code that can be digested by the simulation engine', and an output component, which 'transforms the semantic information it gets from the representation engine into the type of expression specified by the channel' (Aarseth, 1997: 105).

Noah Wardrip-Fruin, on the other hand, completely separates the data from the computational processes before they are shown on the representational surface in his theoretical arguments (2009: 10-3). It is important to determine to what extent the player's performance in a game is intentional in action and in appearance. The player's identity is affected in the game world by

taking actions and making choices which are largely predetermined by someone else. For Bogost, games are procedural arguments which are concerned with subjective expression and interpretation (2007: 259). More to the point, Bogost insists that video games persuade people, rather than being discursive in the Foucauldian sense (2007: 259). He uses the term 'simulation fever' to denote the problematic nature of games as representative simulations where players strive to close the simulation gap, as they play with the problematic nature of meaning-making itself (Bogost, 2007: 214). Kirkpatrick also finds that players supplement the procedural argument in a way that makes it rhetorical (2011: 203), as procedural representation combines configurative performative action structures with symbols (2011: 205). This intensity of the combination of action and symbolism (representative simulation as assisted by the layer of representation) is for Kirkpatrick what makes games carriers of ideological content (2011: 207-8).

Therefore, I propose that the analysis of the video game should not be focused on the audio-visual outcome of the game's code, which is what the player immediately perceives, but on the code itself, as well as to the relationship of the code with its outcome. In other words, I propose a simulational analysis in the first instance, and a representational analysis only in relation to the former. The two kinds of signs should be kept separate in their original examination, and then compared for any discrepancies. In this context, the apparent outcome of the game is not at all the object in question, except for the fact that the player has only this to go by in taking actions in the game world.



This, in a sense, is an inverse semiosis. The player does not see the signifiers in order to interpret them to signifieds. The player sees the signifieds, which still signify on another level, and whose representation may differ from, or even contradict, their original signification as part of the simulation. Contrary to a textual interpretation of a visual composition, where the viewer connects the visual signifiers to verbal, visual, or abstract signifieds, the interpretation in a game moves the

other way: the player sees the visual signifieds and connects them to the signifiers in the code, inferring the rules and affordances of the game. But the objects-signifieds are interchangeable and the representation is independent. All objects of the code are presented onscreen simultaneously in terms of graphics, but the player sees (or "reads") the code. As Baudrillard puts it, 'the pleasure is in reading and in the rules of the game' (1993 [1976]: 75). And this code, as a simulation of limited models of 'reality' is part of Baudrillard's code as the all-encompassing code of consumption, as a simulation of all 'reality'. The simulation does not have to be rational, as it has no ideal or negative equivalent: it is *operational*. And as representation (the imaginary) diminishes, the simulation becomes hyperreal. The screen works like a mirror, and it is the main concern of the simulation, which 'transforms the process of relating into a process of commutation between One and the Same' (Baudrillard, 1990: 54):

The secret of the interface is that the Other here is virtually the Same:

otherness is surreptitiously conjured away by the machine. (Baudrillard, 1990: 54)

In other words representation is sacrificed for the circuit, for the form of the medium, which is of course the simulation itself. This is not a subject-object or observer-artefact dialectic, it is an avoidance of interactivity, an instant mechanical exploration of the limited form of the simulation:

Reading a screenful of information is quite a different thing from *looking*...

There is no better model of the way in which the computer screen and the mental screen of our own brain are interwoven than Moebius's topology, with its peculiar contiguity of near and far, inside and outside, object and subject within the same spiral. It is in accordance with this same model that information and communication are constantly turning round upon themselves in an incestuous circumvolution, a superficial conflation of subject and object, within and without, question and answer, event and image, and so on. The form is inevitably that of a twisted ring reminiscent of the mathematical symbol for infinity. (Baudrillard, 1990: 56)

Games are produced, like everything else, according to popularity, and so the simulation is the object of a social demand, subject to the law of supply and demand, rather than to violence and death (Baudrillard, 1994: 19). Mass consumption defines politics, but with them, it also defines play and the suppression of human nature, which is active, physical, and violent. To allow these human

urges to transpire would threaten the societal order. For philosopher Alain Badiou, representation is an operation of the power of the state to order and count a presented situation (2010 [1988]: 91-120). 'Only the fiction of a political universe', and with it, only the fiction of man as the hunter, the barbarian, the hero, survives (Baudrillard, 1994: 26). On the screen, we have simulation as the ecstasy of the real, as a pure and empty form without meaning.

In the simulation of consumption, objects are interchangeable, as 'the object takes on the value of a sign' (Baudrillard, 1983: 47). In the simulation of the video game, objects are again interchangeable. They stand as signs, as placeholders, as simulacra of objects, as hyperreal objects. As representation is secondary, the objects' functions should be defined by the simulation. However, dress items in particular very rarely have simulational qualities, such as attributes and behaviours, attached to themselves. In other words, they only have cosmetic value, bearing no meaning in the game's model. In this sense, virtual representation, including fashion items, responds to a (social) logic of desire, and not to a defined need. The binary code means the death of representation and the birth of simulation:

...the coded signal, which is in a sense unreadable, without possible interpretation, like a programmatic matrix buried for light-years at the foundation of the "biological" body: little black boxes where all the commands are fomented with all the responses. Surely this must mean the end of the theatre of representation – the space of signs, their conflict and their silence. All this is replaced by the black box of the code, the molecular signal emitter with which we are irradiated. Our bodies are crisscrossed by question/answer formulas and tests, like programs inscribed in our cells. Bodily cells, electronic cells, party cells, microbiological cells: we are always on the lookout for the tiniest, indivisible element, whose organic synthesis arises from the givens of the code. But the code itself is only a genetic, generative cell where myriad intersections produce all the questions and all the possible solutions...From the tiniest disjunctive unities (the question/answer particle) to the macroscopic level of systems of alternation that preside over the economy, politics, and global coexistence, the matrix does not vary: it is always 0/1, the binary scansion that affirms itself as the metastable or homeostatic form of contemporary systems. It is the processual node of the simulations that dominate us. They can be organised as an unstable play of variation, or in polyvalent or tautological modes, without endangering this central principle of bipolarity: digitality is, indeed, the divine form of simulation... (Baudrillard, 1983: 143)

The game code is cyclical and selective. In object-oriented languages, the game code is even distributed and parallel. It is the outcome of many codes running selectively and simultaneously. It is distributed in programming *objects*, which interact. The avatar in this sense, is but another object. This is why, in the programmatic code of the video game, the avatar is both subject and object: it is the manifestation of the binary agency of the player within the game's code. However, the programmatic code is mediated by the socio-economic code. As a result of this, but also because of the included art, which is itself mediated by the socio-economic code, the representational layer is also hyperreal: a simulated 'representation' on both programmatic and socio-economic levels. The player, in this sense, is a virtual construction already before entering the virtual world. In the game world, the player becomes hyperreal in forming the avatar in association with the code, which is already part of the hyperreality of the game engine. The player's subjectivity is mediated by the simulation.

To conclude, I have identified two kinds of discrepancies in the medium of the video game: those between simulation and representation (lack of *syndesis*), and those between the player's free will and compromise, or a prescribed minimal agency and true subjectivity.

DressCode will be based on visuals for its communication with the player, and the game will still be clearly separated into computation and data, simulation and representation, to facilitate both its creation and its analysis. The game will consist of programming objects, which will interact with each other, the character controller object being one of them. This will control the movement of the avatar, so that it can explore the environment, i.e. look at things, walk to areas, and talk to people. The game will first display the scenery and the user interface. The former will be a cue for the player as to what to interact with, and the latter will offer further information regarding characters, settings, and events. The two will suggest possible actions for the player implicitly or explicitly, depending on whether play is goal-oriented or free. If the player stands in front of another character, for example, the dialogue interface will open to offer the player textual (and possibly aural) feedback on the thoughts and intentions of the character. If the avatar walks against other objects, there may be a visual, aural, or textual cue to prevent it from walking through those objects, such as, for example, a clumsy animation accompanied by an 'oops'. If the avatar walks through a door, then another stage will be loaded and the avatar will find itself in a different environment. Characters, environments and events could be flagged as interacted with, to progress the text of the game; stages could be flagged as completed.

There may be changes in the avatar's inventory in terms of currency and/or items. The avatar may pay money for commodities such as clothing, accessories, and other fashion items, but also food, entertainment, furniture, etc. She may also exchange items with other avatars, or even sell items. In this sense, *DressCode* is a simulation of the consumption of signs, a limited model of what takes place in the fashion-oriented commodity-driven non-virtual world. It is subject to the programmatic code and the socio-economic code of consumption and social standing. As part of the first, the visuals are important in directing the player, but ultimately interchangeable. The syntax of the code will be of greater importance, as it calculates the textual and numeric signs of the game and the input of the player, to produce the resulting text. Representation and simulation will of course have to work hand in hand, otherwise the signs the player receives may conflict, and thus subsequent gameplay may be trivialised and compromised. Therefore, the signs of the representational simulation, i.e. the colour, fabric, material and other attributes, will have to coincide with the visual signs presented to the player onscreen. For example, comfort as a value will have to reflect the comfort of the avatar as the player sees it, and "red" will have to look red. This is the concept of *syndesis*, on which I will expand in the second chapter. However, it is worth mentioning here that syndesis will affect the performance of the player by connecting the cosmetic characteristics of an object with its functions. This will have an effect on the player's identity, as her actions will be linked to particular visual and/or aural signs, and vice versa. This, in turn, will make the player's actions have social impact on the virtual world, while at the same time constricting them within the virtual society's rules and norms.

Gameplay as Performance

In order to examine identity formation during the playing of a game, I will start this part of the chapter with the analysis of the role of play in identity formation. In the last section I established that the code is more important than the art in the form of the video game. Play, as the player's subjective performance within the limitations set by the simulation, is therefore the central aspect of the video game.

Play is intrinsically linked to the formation of identity, and it remains present throughout a person's life, mainly in the form of social play and interaction. Play has evolved as an innate mechanism in the human species. According to Catherine Garvey (1977: 4), professor of psychology at the University of Maine, play is pleasurable, enjoyable, and it has no extrinsic goals – it is unproductive. Play is spontaneous and voluntary, it involves active engagement, and it has 'systematic relations to what is not play': work, for example, is not play. Play has been linked with creativity, language learning, the development of social roles, and other cognitive and social phenomena (Garvey, 1977: 5). Dutch historian Johan Huizinga links play to subjectivity and opposes it to ordinary life (1992 [1955]: 12-13). For Huizinga, play is performed outside material motivations and is important for the formation of culture (1992 [1955]: 46-48). However, it is the value of play as problem-solving and testing through modelling and simulation that I will exploit in this chapter. American poet, naturalist and essayist Diane Ackerman (1999), believes that play invites problem-solving and allows the development of thinking strategies and self-assessment. Play, in this sense, is not a casual activity, but fundamental to evolution (Ackerman, 1999: 4).

In his book *Man, Play and Games*, Caillois identifies four categories of play: *Agon* (competition, victory), *Alea* (chance), *Mimicry* (role-playing, simulation), and *Ilinx* (vertigo) (2001 [1958]: 18-22). Games such as backgammon and table-top role-playing games contain *alea* due to the necessity of dice for the progress of the player. Changing avatarial dress in a video game may be seen as *mimicry*, as it implies role-playing and simulation. All four categories (*alea* depending on the game) are equally involved in video gameplay, and when this is accomplished successfully, it may amount to what Mihaly Csikszentmihalyi defines as *flow*: the emotion experienced when 'the task at hand draws people in with its complexity to such an extent that they become completely involved in it' (2003: 40). During flow, thought and action, as well as Self and environment, become one, as a sense of control and a loss of the sense of time are experienced (1997: 77).

Flow describes a state of 'intense emotional involvement' (Csikszentmihalyi, 1993: 178-9). However, the difference between *being* and *doing* is very distinct in video games: on the one hand passive emotions of 'being', on the other active emotions of 'doing'. Video game theorist Aki

Järvinen, influenced by the work of emotion theorists Keith Oatley (1992), and Andrew Ortony, Gerald L. Clore, and Allan Collins (1990), has identified the following kinds of emotions in games: *prospect-based* emotions, such as hope, fear, satisfaction, fears-confirmed, relief, shock, surprise, and suspense, which are related to gameplay and genre (2008: 85-108); *attribution* emotions, which are related to fairness in game rules and difficulty; and *well-being* emotions, which are related to events that affect the well-being of the avatar. These emotions are associated with the simulation of the games. In addition to these, Järvinen has also identified *fortunes-of-others* emotions, which are based on empathy, and *attraction* emotions, caused by the game object's aesthetics. These are linked to representation. The intensity of these emotions is relative to immersion, psychological proximity, surprise, and the gradual arousal of the player as the game builds up tension (2008: 85-108). Game emotions, writes Järvinen, are generated when goals are imposed upon the players, which are condensations of features of everyday routine (2008: 86). This creates emotions through valenced reactions towards events, agents, and objects in the game. Emotions depend on the evaluation of relative success or failure towards achieving these goals, on the player's beliefs, and on how much the player cares for game events and characters (Järvinen, 2008: 86). Game designer Doris Rusch also separates emotions experienced in video gameplay into the same two categories: represented world emotions due to the fictional components, and medium-specific 'game emotions', which are emotions of competition, generated due to winning, losing, accomplishment and frustration (Rusch, 2009: 2). The range of game emotions is smaller than that of the represented world emotions, but their reality status is higher, as they are based on real-world activities and events, i.e. playing the game, winning, losing.

In video games, there is tension between embodiment and empathy. Film studies professor Torben Grodal argues that the characters of video games are only cursors, equipment for play, a 'vehicle through which the player gains access to the gameworld' (Grodal, 2004: 129-56). Such characters are 'flat' during gameplay. They can become 'round' in cut-scenes³ (Grodal, 2004: 129-56). We identify with characters and we embody avatars, but in most games, we control a mixture of the two, a hybrid. However, difficulties arise when intricate plots that should convey high emotional impact are put to test in video games. Codes central to narrative, which produce depth and richness, are usually not as viable in games as they are in film and literature. For example, classic Hollywood conventions, such as enigma resolutions and narrative closures, are not as easily reproduced during gameplay (Darley, 2000: 138-151). Another problem is the lack of human actors, who can expressively and skilfully portray emotions. It is easy to identify such discrepancies between movies and their video game adaptations, as in the case of *The Godfather*, seen in illustrations 9 and 10 (Paramount, 1972; EA, 2006), or film adaptations of games, as in the case of

³ Pre-rendered or real-time engine sequences which advance the story of the game, during which the player has no control of her character, usually including motion capture, voice acting, and in general techniques associated with high production values.

Tomb Raider, seen in illustrations 7 and 8 (Core/Eidos, 1996; Paramount, 2001). In the former title, the game revolves around the main scenes of the film that can be translated to action sequences. Whenever the story deals with processes such as dialogue, personal emotions, internal conflicts, and drama, all of which are dealt with constantly throughout the film, the game chooses to show a cut-scene and take the control off the hands of the player, in essence temporarily becoming a film. In the film *Tomb Raider* (Paramount, 2001), the basic back-story of the game is developed and shown in more detail along with extensive character development. However, the film arguably fails, as the main attraction of the game comes from the simulational aspect – i.e. Lara jumping on platforms, climbing walls, and discovering hidden paths – and not the representational.





7-10. Tomb Raider Underworld, Lara Croft: Tomb Raider
The Godfather and The Godfather: The Game

And this is why games miss the point on both grounds. They cannot do cinema as well as cinema, but they also do not try to be anything else but increasingly spectacular (realistic or abstract) representations on the facade of limited simulations. What we call gameplay has not changed much since the beginning. What changes mostly is impressive particle simulation technologies and hyperrealistic shaders⁴: smoke and mirrors. Most of the change occurs on what Frasca (2003: 9) calls the first ideological level of the simulation, which includes all of the representational content of the game, but most games are about 'doing'. This is due to the historical trajectory of the medium and how it has been formed because of industrial and marketing factors. The main problem is genre stereotyping driven by the commercial capacity of specific kinds of simulations. Granted, the architecture of the hardware limits the development of the software, and Bogost mentions how early arcade console games were uniformly influenced by their common game engines (2007: 63). However, there is no inherent reason why a game simulation should revolve around the expression of hostility, for example, something that is very succinctly put by Bogost in the following passage:

These collections of procedural tropes form the basis for a variety of subsequent expressive artifacts. On its own, the sonnet is no more useful

⁴ A computer program used to calculate rendering effects on graphics hardware, such as surface qualities.

than the physics engine, but both can be deployed in a range of expressive practices. A classical Newtonian mechanics simulation can easily facilitate both war (projectile fire) and naturalism (ballooning), just as a sonnet can facilitate both religious (John Donne) and amorous (Shakespeare) expression. (Bogost, 2007: 14)

Perhaps these simple simulations are popular because they offer survival play. For Easterly, Carnegie and Harper, the emergence of digital gaming may be seen as an appendage for our species, which has come out of the culture of beings with innate behaviours: 'What they really are is exercises in judgement under uncertainty.' (Easterly, Carnegie & Harper, 2009: 3) Perhaps it is because we find ourselves threatened in a corporeal and a social sense mostly, that we make action games that deal with physical prowess and violence, or social worlds that deal with emotions through communication, but as testing ground, by means of the avatar, and without revealing the 'real' self.

Kirkpatrick finds that video games are 'prone to the same logic of nihilism and apathy as the rest of political culture...activity stripped of its ostensible meaning' (2011: 224), which he partly attributes to engine re-skinning, i.e. the placement of various representational "themes" on the same game model (2011: 43). The latter is similar to movie remakes: low-risk, but also devoid of meaning. And this is where the difficulty lies in advancing the emotional content of the medium: because emotion in representation comes from already established cinematic or literary techniques. We need emotion in the configurative part of the simulation, that is, we need new kinds of simulation that will support true subjectivity in a rich world model instead of minimal prescribed agency.

The player sees a two-dimensional representation (the screen) of a two or three-dimensional representation (the visuals) of a simulation (the graphics as binary code – for 3D models, mainly x, y and z coordinates of vertices) as simulated by the game and affected by the player's agency. Subjectivity, in this case, only transpires through affordances of the numerical and geometrical kind, the simulation being what it is, a mathematical model. So, we are talking about *emotions by the numbers*. The simulational emotions we feel are therefore only what we imagine we *should* feel, given the parameters of the game and the position of the avatar within the game. Simulational game emotions are only dependent on the given affordances and our relative success or failure as subjects. For configurative emotions to become complex, we would need unlimited affordances, and extraordinarily complex simulations. In other words, we would need *unlimited subjectivity*. Real emotions derive from the interpretation of media, whereas game emotions derive from configurative experiences. However, meaning may transpire within a mathematical framework.

Badiou applied mathematics to philosophy, and used Lacan's 'matheme', extending its use for connecting the symbolic and the real to a universal way of creating relationships in general: situations can be seen as structured multiplicities (sets) and reconfigured. Badiou uses the empty set (0) to denote the void (related to Lacan's *real*), which can however be mediated and changed by an 'event' (2010 [1988]). Bogost argues that games may be seen as reconfigured mathematical structures wherein events occur (Bogost, 2006: 35). This means that advanced, complex simulations may be able to support the state of 'being' in games.

The involvement experienced when playing video games has been defined variously, but a recent and complete study is the one by video game theorist Gordon Calleja, who identifies six kinds of video game involvement: kinaesthetic, spatial, ludic, affective, narrative, and shared, all combined creating the full immersive experience of the game (2011: 38). As affective and narrative involvement are related to the aesthetic content, and shared involvement revolves around communication with other users/players, the kinds of involvement linked to the simulation are the first three, namely the *kinaesthetic*, the *spatial*, and the *ludic*. These are strongly interlinked, and they amount to the formation of the ego during gameplay. Jacques Lacan perceived the ego as an illusion (2004 [1951]: 7), a prominent postmodern idea, which portrays the self as a result of discourse rather than a permanent structure in the mind, and which, as Sherry Turkle writes, has been influenced by computer science in its 'bottom-up, distributed, parallel, and emergent' ways (Turkle, 1997: 166). The structure of the game's program is important, as it facilitates the distribution of the ego in many virtual identities. The game code gives the player agency in the simulation. The identity of the player is of course affected by the secondary, representational layer of the game, but it is more directly affected by the primary, simulational one. Calleja proposes the metaphor of incorporation to account for the sense of virtual environment habitation on two simultaneous levels, namely the assimilation of the game's model by the player, and the notion of embodiment:

On the first level, the virtual environment is incorporated into the player's mind as part of her immediate surroundings, within which she can navigate and interact. Second, the player is incorporated (in the sense of embodiment) in a single, systemically upheld location in the virtual environment at any single point in time. Incorporation thus operates on a double axis: the player incorporates (in the sense of internalising or assimilating) the game environment into consciousness while *simultaneously* being incorporated through the avatar into that environment. The simultaneous occurrence of these two processes is a necessary condition for the experience of incorporation. Put in another way,

incorporation occurs when the game world is present to the player while the player is simultaneously present, via her avatar, to the virtual environment...We can thus conceive of incorporation as the absorption of a virtual environment into consciousness, yielding a sense of habitation, which is supported by the systemically upheld embodiment of the player in a single location, as represented by the avatar. This conception retains the two traditional interpretations of the term incorporation: incorporation as a sense of assimilation to mind, and as embodiment. (Calleja, 2011: 169)

Kinaesthetic Involvement

As the prime interface device the player possesses in order to make herself present and incorporated into the game environment is a syntax of motor and tactile actions, I will start with the kinaesthetic involvement. The player repeats the same motor actions over and over in quick succession, in order to perform prescribed actions within the game world. Kirkpatrick believes that play and form in video games are implicated in a specific kind of cultural politics which does produce meaning that protects from the threats of a manipulative 'culture industry', but at the same time, the act of playing the game renders this meaning futile (2011: 16), as a lot of time is spent on mechanical, empty, repetitive tasks (2011: 27):

The experiences we have with playing games are only marginally concerned with meanings and interpretation is mostly limited to working out the rules. (Kirkpatrick, 2011: 17)

Kirkpatrick asserts that when creating new algorithms, designers already have some visual direction in mind, however, many, or even most new games are effectively re-skinning of old game engines (2011: 20). Play and form in video games are more important than meaning and culture (2011: 30), leaving the medium to seek meaning in its very form, outside of emotional affect, and inclusive of a 'more constitutive order that [is] associated with form and its structuring of our experience of time and space' (Kirkpatrick, 2011: 33). Kirkpatrick concludes:

Here we find a positive sense for the notion that video games are the ideal commodity of informational capitalism. At the same time this play is predominantly empty and repetitious...The game plays the user just as the

user plays the game, and there is no message apart from the play. dance (2011: 78).
(Kirkpatrick, 2011: 44-8)

The player's agency in the game world depends on the avatars programming object, and it is therefore modular. Every game offers at least one agent. Identity is constructed through agency within the software model of the avatar offered by the game. In fighting games, for example, the available characters may have many representational differences, such as different stories, clothing, hair, and body, but the simulational difference is only one: the way they move (illustration 11). Their differences in speed and array of moves is what makes them subject to the player's gaming preferences and style. The identity constructed during controlling any of those characters will be slightly different, primarily for simulational reasons, and secondarily for representational reasons.

Professor of Japanese studies Rachael Hutchinson maintains that the player interacts with the stereotypical construction through two different processes: identification with a constructed self, or opposition against a constructed enemy, as the binary structure of the combat game mirrors the most basic structure of identity formation by distinguishing between Self and Other (2011: 285). The choice available to the player within the different numerical attributes of the characters and the syntactic binary structure of producing combat combinations allow for a dialectical structure that affects the player's relationship with their character in terms of identification, role-play, and performance of the self (2011: 292). Hutchinson finds this activity similar to dance – a view that Kirkpatrick adopts in his latest work (2011) – which is subject to choice of character before gameplay as well as choice of commands during gameplay (2011: 293-4). These two combined factors allow, for Hutchinson, the performance of multiple selves (2011: 294), as complexity and excitement derives from the combination of the various choices (2011: 295).



11. Street Fighter 4

Kirkpatrick likens video gameplay to playing a musical instrument (2011: 77) or dance (2011: 78), as it is repetitious but the sequences to be mastered vary between games as well as within the same game (2011: 100), and as the difficulty of the game increases, the sequences of actions have to be performed faster as they get more complex:

Video gameplay...is the play of time within space. (Kirkpatrick, 2011: 78)

In this sense, gameplay is not exclusively or even primarily visual (he mentions *Sound Voyager*, Nintendo, 2006), but based on the structuring of time by means of the interface, i.e. the input and output, the controller and the visual and aural output (2011: 81, 93). In this sense, Kirkpatrick claims, 'it is a form without a corresponding meaning' (2011: 88):

The form here is not of a simulated action, but is a pattern present in the relation between the kineme and the other elements of the game apparatus. Just as painting is not contained in principle by a tyrannical optic, so form in the video game is not straightforwardly articulated to the semiotic field established by its visual signs. Indeed, the function of those signs reduces to a series of 'yeses' and 'nos' in the course of gameplay. Our operation of the game as a machine, through the controller, grows in complexity while the realm of communicated meanings actually diminishes, approximating binary efficiency. Form here reaches a kind of blunting of its capacities, it is out of proportion to its meaning, which of course vitiates and ultimately cancels its character as aesthetic form. It is in this sense that form is essential to understanding video games, yet it only ever appears in them long enough to vanish. (Kirkpatrick, 2011: 104)

Yet, we talk about what we do with games through metaphors, as if we were 'in' them and not as holding and using the controller (2011: 111), which is more defining of gameplay than the visuals, which are always promoted as 'new' and 'cutting edge' (2011: 113). However, Kirkpatrick points out that real improvements in game quality should not be based on graphical improvements, but on 'a new structure of feeling or real innovation related to form' (2011: 113). He believes that the form of the video game is akin to the action that takes place outside the screen, as the player uses the controller, which he finds akin to dance (2011: 127). I find that dance may be used as a metaphor for such a setting, but dance, on the other hand, requires expression; it is not mechanical. I find the use of the controller to be more linked to syntax, and in this sense, video games are the opposite

of dance (not expressive, but mechanical). New control technologies like the Wii remote and camera-based Microsoft *Kinect* and Sony *Move* may be a step in the right direction in this respect as they offer three axes of movement (depth as well as length and width) and additional capabilities such as the calculation of rotation and acceleration. However, even such advanced control technologies are ridden with inaccuracy and latency problems, and regardless of the device, control is essentially abstract and based on a simulated three-dimensional space. So metaphorically, video games may be interpreted as? fiction, games, dance, and other things, but literally and programmatically they are but simulations. They are mathematical. Performance within them is binary, and it can only be called (a limited) performance due to the large amount of variables involved in the code, which allow for relative variety and freedom of choice.

Baudrillard comments on the binary nature of the simulation:

...we have the metaphysics of indeterminacy and the code. Cybernetic control, generation by models, differential modulation, feedback, questionnaires (*question/réponse?*): such is the new *operational* configuration (industrial simulacra were only operative)...everything is resolved in inscription and decoding...it is the discontinuous indeterminism of the genetic code that regulates life... (1993 [1976]: 57)

This binary logic has great impact on subjectivity. Computer code is underdeveloped. It has developed over very little time, compared to the time natural languages had to evolve from simple sign systems to the complex structures they are today. Communication with the computer therefore occurs on the level of the computer. It is the most advanced being which tries to lower its level of expression and its expectations, in order to establish communication. The computer is an infant and all it can say is 'yes' and 'no'. It cannot say 'maybe' or anything else of an ambiguous philosophical nature. If it is not a clear affirmation or negation, there is no reply. The main problem arises when the industry places increasingly believable representations on top of such an elementary structure. The ecstatic player, taken by the spectacular representation, is thereby drawn in this loop of 'yes's' and 'no's', forgetting that the other end of the semiotic exchange is not a form which communicates rich meaning, but a machine which cannot produce any valuable artistic or cultural semantics apart from the fact that the player affects the syntax of the code. This is the only message and meaning of the computer game. Quite literally, this works similarly to the characters of *The Matrix* (Andy and Larry Wachowski, 1999) reading and instantaneously decoding the code on their screens. But in this case, this also works the other way around: by selecting

which parts of the code to see, through limited agency. And there is narcissistic satisfaction in observing oneself mastering the (binary) environment.

In *DressCode*, the player's ego will formulate through the incorporation, i.e. the assimilation of the simulation in the first instance, and representation in the second, as well as the sense of embodiment. The visuals of the game will only serve as a means to increase *syndesis*: different clothing, character, and environment objects will have different variables and functions associated with them, and as such, they will shift the interpreted simulation in the player's mind. Representation will then confirm (or maybe in some cases even contradict) the model. As the avatar's programming object will be formulated by the player's choices, ego will be modular.

I am hoping to make the binary logic of the computer say more than 'yes' or 'no' to the player, who may also reply in more elaborate ways than 'yes' or 'no'. If the computer at least appears to say 'maybe' in the sense that it may give relative, rather than absolute, feedback, which furthermore may be ambiguous, then the player may interact with a meaningful situation. I am attempting to create a discursive machine in the simplest possible way. Bogost mentions how physicist Stephen Wolfram's cellular automata (1983), which are considered simple input-output machines, create complex systems out of simple generative rules based on simple mathematical idealisations of natural systems (Bogost, 2006: 94). Emergent systems made of such simple agents, like the *Game of Life* (Conway, 1970) and *Sim City* (Maxis, 1989), allow for the understanding of a complex model in terms of a much simpler system (Bogost, 2006: 95). Ambiguity and relativity may indeed hinder "agency" in the classical game design sense, but they may offer a subjectivity similar to the one we have in 'real' life, which is based on relativity and uncertainty. The main subjectivity in *DressCode* comes from the combination of programming objects with textual and numeric attributes of the kind: "jacket", "leather", "black", *comfort=6*, *casual/formal=4*, and so on. This way, we do not have spectacular kinaesthetic performance based on monotonous repetition, but rather expressive mathematical and semiotic performance (connected through the *syndesis* of simulation and representation) based on choice. In essence, the player constructs a formula, an equation which will affect the game's environment. This is expressive programming performed by means of visual and textual cues.

Spatial Involvement

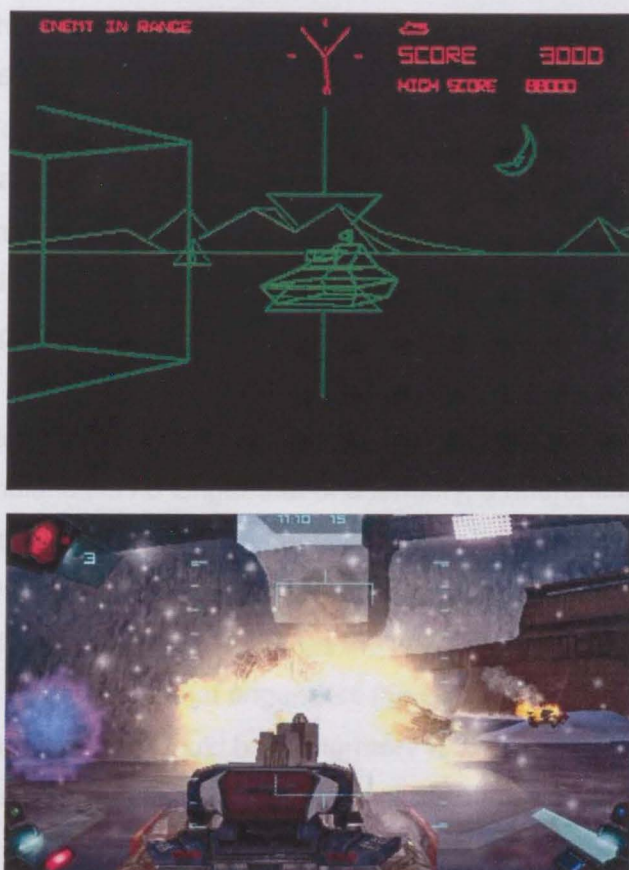
Most video games are spatial simulations. In his 2009 article 'An affordance based model for gameplay', video game theorist Dan Pinchbeck mentions the static objects defined by a number of parameters, i.e. x, y and z coordinates, which may affect the avatar by acting as cover, a reduction

in sight-lines, or as something for the avatar to stand on, thereby changing the avatar's y-coordinate. This single state object can gain a new state if it is made breakable, controlled by a single parameter (amount of damage it can take). With added capabilities, e.g. if the crate can be pushed around (altering its x and z coordinates), new attributes and therefore affordances are added. This is how programming structures construct the "physical" spatial dimension of the virtual world, as well as the avatar, whose main attribute is usually its movability, and any other inhabitants of the world. Game theorist Jos de Mul (2005: 251-266) mentions *spatial continuity*, an internal nexus made out of elements of the physical and psychic identity. The psychic identity of the individual creates the nexus of spatial continuity in games, as narrative usually unfolds through spatial exploration, much as it does in real life.

However, spatial subjectivity in games is limited as the parameters of the simulation must be contained and easily controlled. The player's agent cannot jump, for example, if the simulation does not account for it, or it cannot access an area if it is not available, even if the representational layer shows the opposite (to return to Aarseth's example, the player cannot go through a door, if the door is not part of the simulation). This is again very much a matter of genre and commercial success, as the paradigms that sell the most survive. The notion of spatial continuity is connected to Lacan's definition of the ego, which is built by making sense of our surroundings, based on the idea we have of ourselves and in an attempt to preserve that idea intact (Lacan, 2004 [1977]: 3-21). As proved by means of hypnosis, a person will attempt to preserve a continuous and constant notion of herself even if proven wrong, by inventing excuses that will not harm the person's ego, i.e. the idea of identity the person nurtures, and this extends to spatial situations (Lacan, 1988 [1954, 1955]: 118-145). In this Lacanian sense, a person's perception of space is a virtual construction, and a game can be regarded as an extremely limited reality: at its primary, simulational, level, the game creates the rules within which the player has agency in the world, and at its secondary level, it offers the geometric objects and textures by which the world is visually represented.

The formation of the ego in playing a game occurs through the interpretation of the stimuli offered by the game's simulation onscreen. Spatial awareness is given by the the position, orientation, and scale of the avatar and every other object in the world, which are all described in Cartesian coordinates. This again happens on the level of simulation and not of representation. It is the objects, methods, and variables in the code that define the experience of the world: where the player's agent is, how fast it is moving, where it can go and where it cannot go. All of this is irrelevant to the art the player sees on the screen. The art is interchangeable. For example, *Battlezone* (illustration 12; Atari, 1980), one of the first arcade 3D simulators, uses wireframe graphics to represent the position and movement of the player and other objects onscreen. The

graphics, in this case, are more simulational than representational. They merely act as placeholders for imaginary art. The gameplay of *Battlezone* is no different to a re-imagining of the game for the Playstation Portable, in 2007 (illustration 13; Atari). The only different thing in the new version is the textured 3D art of the game, as well as the additional particle and lighting effects. There is, in other words, a new representational layer added to the game, but without the simulational layer being affected.



12-13. Battlezone and BattleZone PSP

Even when there is an avatar, spatial continuity is the player's position in the mental model of the game's simulation in the player's mind. Regardless of the representational settings of the game, the player reconstructs the game model internally and tries to make predictions and create tactics. In this sense, it is only the simulation that matters. For example, in survival horror game *Resident Evil* (illustration 14; Capcom, 1996), the avatar moves from room to room of a mansion, as the camera position and angle change to enhance the dramatic impact of the action. The camera is fixed and renders static settings. As a result, the avatar is observed from a different angle and distance in each area. However, the player does not construct a mental model of the game that includes the camera angles. Of course, the game's representation is helpful in a filmic sense, in pinpointing items and characters, in highlighting the semiosis of the simulation. But the mental model of the game is two-dimensional, as the avatar can only move horizontally. It occupies only

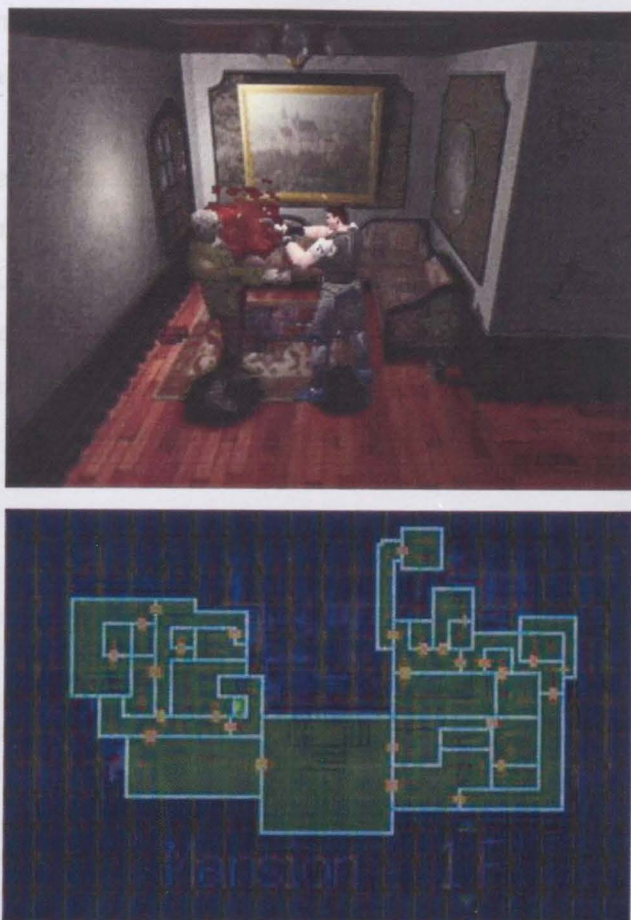
two dimensions in Cartesian space. In this sense, it resembles the top view map, the blueprint of the mansion, which is available in the player's inventory (illustration 15). The game could be played in exactly the same way, and it could produce exactly the same narrative if it were played on this 2D map. And it often is, as this view is more functional and makes play easier and faster.

This game world is therefore a representational simulacrum of an actual mathematical blueprint (model). The included art merely communicates the limits of the simulation, and the mansion, the characters, the acting, the blood, and everything else, do not have a meaning. They are 'make-believe' place holders serving the need for visual content. They are simulacra of the elements that they stand in place of. For Baudrillard, any representational imaginary of value disappears in the simulation, 'whose operation is nuclear and genetic, and no longer specular and discursive' (1998 [1981]: 2). There is no mirror of being or the real anymore, but genetic miniaturisation, 'the product of an irradiating synthesis of combinatory models in a hyperspace without atmosphere' (2001 [1983]: 170). The video game tries to make the real coincide with its simulation model:

Abstraction today is no longer that of the map, the double, the mirror or the concept. Simulation is no longer that of a territory, a referential being or a substance. It is the generation by models of a real without origin or reality: a hyperreal. The territory no longer precedes the map, nor survives it.

Henceforth, it is the map that precedes the territory — *precession of simulacra* — it is the map that engenders the territory and if we were to revive the fable today, it would be the territory whose shreds are slowly rotting across the map. It is the real, and not the map, whose vestiges subsist here and there, in the deserts which are no longer those of the Empire, but our own. *The desert of the real itself.* (Baudrillard, 1998 [1981]:

1)



14-15: Resident Evil action and map

The same occurs in first-person games. For D'Aloia, the avatar-body signals 'position' in both physical and enunciations senses: 'It signals a "first person" subjectivity who acts and interprets reality in order to give sense to both the Self and the world.' (2009: 52-56) The avatar gives the player a subject-position within a simulated environment, through which the player can act as an agent in the environment (2009: 52-56). As the human body is both part of the world and a point of view (Merleau-Ponty, 2002 [1945]: 84-101), the first-person avatar-camera is equally part of the virtual world and a point of view (D'Aloia, 2009: 52-56). But the mental simulation of the game is again a blueprint of the game. This is not incidental. The game engine works as a two-dimensional map in most games, and it is the 3D graphical and aural representation that distracts from this fact.

The first-person viewpoint seemingly dissolves the duality of the signifier, *I* and *he* or *she* at the same time, as there is no avatar to control. Just the player's agency through the camera. However, the object of the camera is existent in the simulation, it is not just an abstraction. In a way, it is the avatar, except the player sees the world from the avatar's eyes. The player "object" still exists in programming terms. The simulation treats the player's agent, whether it is a camera or a geometry, in the same way. It gives it a position, angle, scale, speed, and so on. In this sense, there is no difference between the first-person view and the third-person view. The textual experience of the

game will not change whether the world is perceived from a first or a third-person perspective, or even by means of 2D images, or text, or just sounds.

Spatial interaction in *DressCode* will depend on the proximity of the avatar to the other players, as well as the way the avatar moves. The player will try to remodel the social Cartesian space in her mind. The avatar will have a position and an orientation, which will affect the interaction with other agents by means of gaze, i.e. what the avatar is looking at, and proximity, i.e. what the avatar can hear. In programmatic terms, the avatar's movement should not be any more complex than the following:

```
function Move ()
{
    moveDirection = transform.TransformDirection(Vector3.forward);
}

function UpdateSmoothedMovementDirection ()
{
    forward = forward.normalized;
    var right = Vector3(forward.z, 0, -forward.x);
    var targetDirection = Input.GetAxis("Horizontal") * right + Input.GetAxis("Vertical") *
forward;
    if (targetDirection != Vector3.zero)
    {
        moveDirection = Vector3.Lerp(moveDirection, targetDirection, smoothDirection *
Time.deltaTime);
        moveDirection = moveDirection.normalized;
    }
    var curSmooth = smoothSpeed * Time.deltaTime;
    moveSpeed = Mathf.Lerp(moveSpeed, targetDirection.magnitude * speed, curSmooth);
}

function Update() {
    UpdateSmoothedMovementDirection();
    verticalSpeed = 0.0;
}
var movement = moveDirection * moveSpeed + Vector3 (0, verticalSpeed, 0);
movement *= Time.deltaTime;
var controller : CharacterController = GetComponent(CharacterController);
var flags = controller.Move(movement);
transform.rotation = Quaternion.LookRotation(moveDirection);
}

function GetSpeed () {
    return moveSpeed;
}

function GetDirection () {
```



```
return moveDirection;
```

This gives the avatar a direction (angle) and speed by means of the keyboard arrow keys, and it is essentially all of the player's agency in terms of movement within the environment. I chose this control scheme over the literal four-direction and the mouse-driven point-and-click schemes, as I find it to be more representative of how an actual person would decide to move within an environment, and I believe that it gives the player the highest degree of subjectivity out of the three options. The subjectivity and therefore identity of the player will be affected through movement in the game world, as factors such as body movement and proximity to other characters will help determine social interaction. I will try to capture an abstraction of the semiology of body language in the design of the mathematical model of the game, one, however, that will attempt to discard gender stereotyping with regards to body movement, such as the one that researchers Sonia Fizek and Monika Wasilewska identified in the walking, sitting, dancing, and making gestures of the avatars of *Second Life* (2011: 90). The player will instead have the ability to customise the physical expression of the avatar, choosing from an expanding array of movements, which will not be attributed or linked to a specific gender.

Ludic Involvement

At the same time, within gameplay, there are the aspects of problem-solving, coming up with strategies after evaluating a situation, and assessing the resources and condition of the avatar. These cause ludic involvement, another prime factor of identity construction when playing a video game. Holopainen and Meyers (2000) consider video gameplay an evolutionary mechanism, and they have proposed a neuropsychological model for studying game design elements. They found the evolution of the human mind to be the main reason why playing games is enjoyable. The main mechanisms behind playing a game in this context are closure and displacement of the sense of self, brain functions which evolved to support survival and social stability. Holopainen and Meyers (2000) identified two kinds of closure: predictive, when the mind completes mental models (as in assuming the whole thing is there when we can only see part of it), and dramatic, the formation of a story structure for the creation of a stable identity and sense of self. The two create a feedback loop, where 'the expectation of resolution drives the player to perform the actions needed to reach closure'. This happens through somatic displacement, i.e. projecting identity into the avatar, and temporal displacement, i.e. predicting the views of others.

In playing a game, the player is displaced into the avatar, in another space, and into hypothetical conditional states, i.e. predicting possibilities in the game world (Klevjer, 2006: 110). The player strives towards predictive and dramatic closure in the game instinctively, in order to achieve the game's goals (Holopainen & Meyers, 2000). Predictive closure is brought by the mechanics of the game, i.e. puzzles, ways of beating enemies, and so on, and the dramatic closure is brought by the implied or explicit narrative of the game (Holopainen & Meyers, 2000). The feedback loop Holopainen and Meyers describe is the product of the interaction between the game's program loop and the player's expectation and projection of what is needed to progress the overall flow of the game text as a whole – by changing its access of the different programming objects. There is, in other words, an interpretation of the simulation of the game in the player's mind, as Will Wright, designer of *SimCity* (Maxis, 1989), put it during an interview in 1995 (Manovich, 2001: 223). But the simulation has been designed for the particular mind. It is custom-made for the consumer who prefers to play the specific kind of simulation.

Baudrillard believes that there is forced grouping and categorisation of the social and personal world taking place on the basis of objects (2005 [1968]: 208). The consumers of video games are roughly classified in a rather patronising way in an imposed order created by the industry/market. Every need is catered for through an abundance of choice (always within clearly defined categories and genres), which may 'provide the illusion of culture' (2005 [1968]: 209). But, as Baudrillard concludes, 'objects are *categories of objects* which quite tyrannically induce *categories of persons*'. These categorised objects police social meanings and control significations (2005 [1968]: 209). They stand for a social order which is built upon the sign of affluence. The branding of gaming formulates a language of consumption, which retracts from subjectivity and meaning. It is intertextual, self-referential, based on spectacle and technology. Even though the demographics of video game players is continually evolving due to the industry's expansion and diversification into venues catering for varied audiences – the Entertainment Software Association claims that in 2011, the average game player age is 37, with 29% of the gamers over the age of 50 – the medium remains the same at heart: it approaches every player as regressing to a child.

In *DressCode*, the player will strive towards predictive closure, as she will have to assimilate the interface, i.e. the signifieds of the representational level of the simulation, in order to build on the abstraction of the game's model, and make decisions on subsequent actions, based on the expected reactions of the game's agents. Dramatic closure will also derive from progress within the game's narrative, and through the completion of tasks and scenarios, which will include the dramatisation of social situations. However, even though the game will have elements of various existing genres, such as RPGs, internet dress-up games, puzzle games, and social worlds, it will not belong in a specific genre of commercial games itself. If anything, it will belong in the genre of

the ludic simulation that represents a social system, the likes of which have been examined extensively by Ian Bogost (2006; 2007), whose purpose is to question the very socio-economic framework it is part of and participates in. In *DressCode*, the abstract representation of the fashion system is there to be engaged with, so that the player may discover how the system works and gain an informed view on it. This is not to say that I am positioning myself against the fashion system, but rather that I am wishing to examine it in depth within the medium of the computer simulation, and that I am wishing to offer the same opportunity to anyone else interested.

Performative Involvement

The nature of gameplay, and the unison of the three simulational kinds of involvement (kinaesthetic, spatial, and ludic) is *performative*: controlling an avatar in a virtual world – as in the theatrical dramatic performance of *Façade* (2005) – can be seen as performance. Professor of Game Development Craig Lindley defines the gameplay gestalt as the 'configuration or pattern of elements so unified as a whole that it cannot be described merely as a sum of its parts', that requires a set of 'perceptual, cognitive, and motor operations' (2004: 215). Digital aesthetics expert Andrew Darley (2000: 151) thinks of gameplay as kinaesthetic performance that 'becomes almost an end in itself'. Video game theorist Emma Westecott (2009) has gone so far as to use the semiology of puppetry to describe the video game character as a performing object.

Avatarial dress is part of this performance. After all, fashion has already been described as theatrical social performance by Baudrillard (1993: 87-93): we perform our selves in social settings, and our image is part of this performance. In a game, we may perform by controlling an avatar, or we may perform in a social context if there are other human agents in the game. In other words, the performance can take place as representation, i.e. by exchanging signs with other (human) agents by means of avatarial dress and verbal or textual communication, or as simulation, by taking action in a virtual Cartesian space in terms of movement, orientation, and the such. In both cases, dress can be part of gameplay as performance, but performance in a video game, and particularly by means of fashion, is subject to the codification of socio-economic structures. There is limited subjectivity in the total objectification of the player/wearer. Manovich, for one thing, believes that there is no "pure computer": a game designer approaches the design of the game through a number of cultural filters, and simulations impose their own logic on data, adding up increasing layers of conventions (2001: 117).

This is why in *DressCode*, the player will be able to change the avatar's appearance at will. More importantly, this will be the main aspect of the gameplay. The player will still have to negotiate with

the "fashion system" of the game, but subjectivity is the main goal of the game's design. In this context, the player will have to solve the problems, or puzzles, imposed by the missions of the game, particularly when play will be goal-oriented, in order to achieve certain goals and unfold future scenarios. The player will have to rely on strategic planning, and seek predictive and dramatic closure through elaboration of 'cause and effect' reasoning: the interpretation of the simulation in the player's mind will help calculate ways out of somatic and temporal displacement.

The focus of the game is on *performance*, i.e. how the self is presented in social interaction. The attire of the avatar will contribute to the signs communicated in this performance, as will the way the avatar moves, what she says, and other factors. This performance is not purely kinaesthetic, spatial, or even ludic, as in many, usually fast-paced games, but rather expressive: it involves the exchange of several kinds of signs between the participants. The player will have to elaborate and negotiate the avatar's appearance with the simulated in-game socio-economic system. Bogost makes a distinction between "serious" simulations (scientific, military, etc.), which strive for objective representation, and games, which make use of subjective representation (Bogost, 2006: 122). However, he doubts that there ever is a clear enough distinction between objective and subjective representation in every medium where there is a conflict between authorial intent and interpretive freedom (Bogost, 2006: 123). *DressCode* does not escape subjectivity, having been conceived and designed by an author, but it nevertheless attempts to present a relatively objective representation of the fashion system, utilising the inherent tension between individual utterance and cultural ruling as the main gameplay mechanic.

I feel that this kind of gameplay is different to what is available on the market and the research of the video game today. One could argue that this kind of game does not avoid addressing and defining a particular kind of consumer, and one would be right in assuming so, but the game is not necessarily made for people attracted to fashion. The game is primarily a simulation that will help understand how dress and fashion work in social interaction, and by extension how they can be implemented in other products and projects. As Ian Bogost has demonstrated in *Persuasive Games* (2007: 1-64), video games possess expressive power, as they make use of visual rhetorics to persuade the player through representation. The main concern of my research is to make clear to the player the extent to which she is objectified in playing a video game, partly through limitation of avatar appearance and actions, and to restore some of the player's subjectivity.

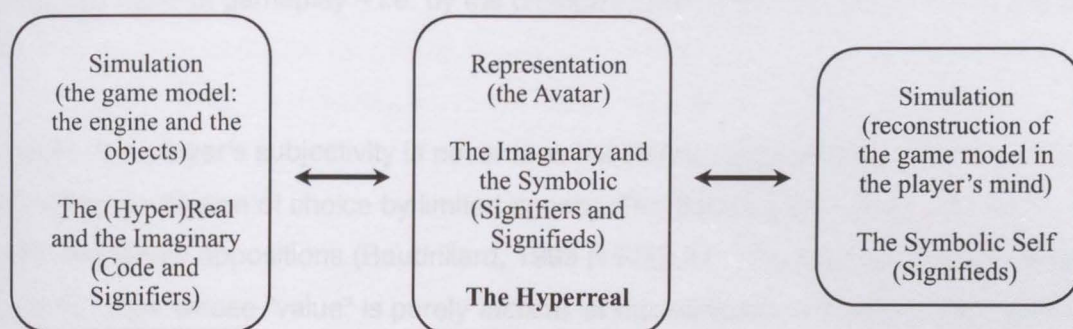
From "Agency" to Subjectivity

There are several theories regarding identity formation in virtual environments, some of which support a structure of parallel identities, such as the one by James Gee (2004: 54-56), where the identity produced in a game is located in the interface between the player and the avatar. In every virtual identity theory, however, the notion of agency is central. Agency is important because it makes the player (through the avatar) the Subject to some extent in the game world. The element of control is what moves gameplay forward, what makes a game interactive. And this is what affects the identity of the player, as the player communicates with a system which takes the player's input and translates it to something else, before it communicates it back to the player.

Revisiting Janet Murray's 1999 work in their article 'Agency Reconsidered', Mateas et al (2009) describe agency as what the player experiences when there is balance between the formal and material affordances and constraints, that is suggesting dramatically probable events, making material affordances available for taking actions, and providing the underlying support and the system response for the interpretation of those actions (Mateas et al, 2009: 3-7). The game gives the player a set of abilities, describes the fundamental rules, and offers the player suggestions, hinting at, or explicitly demanding specific actions. The game reacts to the player's actions affirmatively if the actions have been taken towards the expected progress of the game, or negatively if the player's actions make no sense to the game. In this sense, agency is not free will, but interacting in specific ways within a system that suggests possibilities (Mateas et al, 2009: 3-7). Players originally assume and consequently understand the game world and its rules. Actions must be chosen from the available interface material, and carried out through the underlying software model. Wardrip-Fruin makes a similar observation, namely that 'agency requires evoking the desires a work satisfies' (2011: 345). Inevitably, there are so many game genres, fuelled by a limited number of engines, which are developed depending on the popularity of the genre. The simulations are designed to do specific things. As such, they objectify the predictive performance of the player. Functional simulational agency may be intact, but overall subjectivity is compromised. The simulation does not create communication or produce meaning, it rather stages both (Baudrillard, 1995: 56). In this process, subjectivity is hindered. This was explored earlier in the analysis of *Monkey Island*. The player did not get any results by clicking on non-interactive areas, and so other actions for progressing in the game should be taken. The game also offered the player visual and textual cues, which uncovered the code's mechanics, and through which the conditional statements of the code became satisfied and so the game progressed.

Baudrillard is sceptical of this unity with the screen, the lack of scene and gaze: 'You slip on your own life like a data suit' and you enter the screen, where the body is genetically modified. There is

an umbilical, tactile, cellular immersion in place of aesthetic illusion: machines produce only machines. There is no longer a man-machine distinction, the machine is on both sides (2000: 176-177). In order to make decisions and take actions in the game world, we must first model that world in our mind. This is why the game's software model is important: the player does not see the reality of the code directly, but the signifieds of the code on the screen. The player then reconstructs an internal model of the code of the game, a simulation of the representation of the simulation.



This notion of *predictive performance* by means of remodelling and internalising an existing model is not exclusive to the activity of playing a video game. One purpose of play, which also derives from our evolution, is to simulate situations in our brains and to explore the different possible outcomes. In this sense, we create reductionist models of the world in our mind and play with them. We need play in order to rehearse for, and to test ourselves in preparation of, difficult situations. Cognitive psychology, and particularly situated cognition studies, has evolved to finally see comprehension as perceptual simulations that prepare us for action (Barsalou, 1999a: 77). For Gee, language is tied to 'people's (goal-directed) experiences in the material and social world', which are stored in the mind as dynamic images tied to perception 'of the world and of our own bodies, internal states, and feelings' (Gee, 2008: 255). The models we build help us make sense of specific situations, conversations, or texts, and test out what consequences follow before we take action, by roleplaying and projecting motivations (2008: 255). 'Humans', writes Gee, 'tend to want to understand objects and words in terms of their "affordances" for actions.' (2008: 256) He asserts that, as the simulations run in the mind to assess situations are representations of experience, but not real information or facts, they act as games in the mind (as goal-oriented simulations), or as "moddings" (modifications) of existing experiences (2008: 256). In this sense, everything in the mind is a goal-oriented simulation. The mind assesses the situation and tries to take the best possible action. A video game, according to Gee, creates 'a three-way interaction among the virtual

character's mind/body (the player's surrogate), the character's goals and the player's goals, and the design features of the virtual world in terms of affordances for effective action' (2008: 261). This is the trinity of the player, the simulation, and the avatar, or of computer simulation, representation, and player simulation. The simulation of the Self in the player's mind, combines with the re-simulated simulation of the game. The player makes projections, makes a decision, and takes action. The result is agency in the game world by means of the avatar. This affects the simulation of the game. The game is now at a different state. The avatar is also at a different state. The simulation has changed, and it is now travelling back to the player's mind, where it is re-simulated. It is now combined with the simulation of the player's Self, as altered by the last exchange of signs during this last cycle of gameplay – i.e. by the changes made within the game due to the player's agency.

In this sense, the player's subjectivity is never real, but always fabricated, provoked and cunningly guided to offer the illusion of choice by limited agency. The avatar abides to a universe of structures and binary oppositions (Baudrillard, 1993 [1976]: 57). It is controlled by the 'digital and programmatic sign, whose "value" is purely *tactical*, at the intersection of other signals ("bits" of information)', within a code of command and control (Baudrillard, 1993 [1976]: 65). There is forward/backward, left/right, action/non-action, and so on. These are the "affordances". Ultimately, they are dependent on and limited by the input schemes (amount of buttons, for example), but most importantly by what is apparent on the screen, which is mostly of a "physical" nature, i.e. movement, collision, and so on. Any real-world emotions are communicated via representation (text, sound, or film). Both input and output are, in turn, limited by the nature of programming code, essentially the very nature of simulation, which is mathematical. Mathematical sciences are already simulacra of reality: numbers do not exist in the world, they are abstract concepts with which we model reality. Bogost mentions media theorist Friedrich Kittler, who argues that we are in fact the product of the technologies we use (Bogost, 2006: 36). Kittler claims that there are limits to how far software and hardware metaphors can be taken, as hardware constraints limit the expression of the author (Kittler, 1999 [1986]):

In face, the entire hardware architecture of the Atari 2600 (also called the Atari Video Computer System, or VCS) was crafted to accommodate *Pong*- and *Tank-like* games. The device's memory architecture and hardware register settings provide access to a playfield backdrop, two player sprites, two missiles, and one ball. The VCS is generally considered one of the most difficult platforms to program, and gameplay innovation on the platform required developers to work within its constraints. These constraints are not only physical (a paltry 128 bytes of RAM and 2 kilobytes

of game data on the cartridge) but also conceptual: the hardware was designed for games like *Pong* and *Combat*, artifacts based on tennislike attributes. While the ROM size of 2600 carts eventually increased, new game concepts required VCS programmers to manipulate the hardware's affordances to create new play experiences. The VCS offers a striking example of how the structure of a technology platform exerts expressive pressure on the software created to run on it. (Bogost, 2006: 59)

Bogost contrasts Bolter and Grusin's concept of remediation (2000), i.e. the ability of new media to inherit modes of representation from older media, with intellectual property as an external mediator that is governed by legal and commercial forces. *Half-Life 2* (Valve, 2004), for instance, borrows the unit operations of previous successful games of the same genre, such as *Quake* (id, 1996), through licensing, which is a legal, and not a discursive function (Bogost, 2006: 61):

In August 2003, the consumer PC magazine *Maximum PC* reported on the new features of the widely anticipated *Half-Life 2*, including improved bump mapping, particle effects, fresnel effects, and volumetric effects. All of these features are visual; none has to do with people, save the player's phenomenal encounter with them (Bogost, 2006: 64).

Bogost agrees there is representational remediation taking place in the medium, however something else is also in effect, namely the logic of unit operations, a function that is rooted in a mode of discursive authorship different from the one Bolter and Grusin describe (Bogost, 2006: 65), and so Bogost defines a simulation as 'the gap between the rule-based representation of a source system and a user's subjectivity' (Bogost, 2006: 107). This gap, he writes, is relevant to Saussure's semiotics (1995 [1916]), Derrida's *différance* (2001 [1967]), and Lacan's *objet a* (Lacan, 2004 [1977]), all of which define signs by their differences, and it is the basis for meaning-making in the medium (Bogost, 2006: 107): 'games seek to create a correlation between the player's mental model of the game rules and his understanding of the real world' (Bogost, 2006: 120).

However, if the world that the avatar inhabits is limited and not behaving or reacting like the real world, the abilities of the avatar as a reflexive part of the world, and as a result the subjectivity of the player who controls the avatar, is impaired. Gee defines video games as 'goal-directed simulations of embodied experience' (2008: 254). The instrument that mediates agency in the

game world is the avatar, which signifies the player by means of sameness and difference, and by being both Object and Subject. The avatar is the representation of the simulation of the agency of the player in the game world. Its capabilities and restrictions are based on the game's model, defining the boundaries of agency and embodiment (Klevjer, 2006: 90). As the body is both object and subject, that is 'being' and 'doing' cannot be separated (Merleau-Ponty 2002 [1945]: 159), and as the body is 'our general medium for having a world' (Merleau-Ponty 2002 [1945]: 169), we embody the avatar in order to inhabit the virtual world. Klevjer rightly identifies this as embodiment, and not identification; the latter only occurs with 'other people's actions, not with our own' (Klevjer, 2006: 90). Klevjer adopts Gibson's ecological concept of affordance as a way of 'grounding perception in the intentionality of an organism which "always already" inhabits its environment'. There is no interpretation or abstraction, but direct sensory data, which the organism, in this case the embodied avatar, absorbs in order to make sense of the world (Gibson 1986 [1979]: 140). The avatar is a reflexive, not an instrumental, extension. It is directly affected by its environment, and this is why it is not a mere tool, but intrinsically connected to the game world. Any alteration of the avatar reflects the player's participation in the in-game ecology.

If we take away all representation, the avatar as the player's agency is little more than a few lines of code which deal with the input of the player by means of a control device. This input changes the state of the game by switching binary conditional loops on and off and accessing different objects of the program in different ways. The avatar is part of the software model as much as any other object is part of it. In this sense, the avatar is just another object of the many in the simulation, which happens to have one aspect of it open to input from the outside world. The avatar is the game's subject but also one of the many game's objects, and in this sense, the pieces of code which define the player's agency in the world, as well as the player's commands, are the reality of the avatar. However, the character as part of a narrative, in the way the concept is used in Klevjer's work (2006), can still exist without any input from the player but it cannot exist without the code, which largely defines what the avatar can do. Thereby, the video game becomes a compulsive repetitive activity, as the agency of the player is minimal in scope, but repeated endlessly: subjectivity is minimal.

So, agency means avatar embodiment in a world that has limited affordances, which however may expand as the game progresses. Steven Poole (1999: 207) identifies a necessity for the constant expansion of the game's affordances in an attempt to make the player feel free to negotiate those hurdles seemingly in self-invented ways. The principle of constantly acquiring brand new abilities and objects is fundamental to many examples within the medium. Most of the enjoyment when playing the *Pokémon* games (Nintendo), for example, which are otherwise standard role-playing games, derives from collecting rare creatures and trading them with other players; creatures in this

case exist as an in-game commodity and make the game open-ended, as the rarest of the creatures are very hard to obtain. The expansion of affordances is symbolic consumption (or even actual consumption in many cases) in order to increase agency over the simulation. Agency is commodified as increased subjectivity in the game's objectifying world.

Symbolic exchange is a notion that is learned through play from an early stage, and this is more important to gaming than its content. Brian Sutton-Smith, who advocated a theory that encompasses both children and adults, uses seven rhetorics of play to examine it in its various forms, among which are the *rhetoric of the self* (2001 [1997]: 173). The rhetoric of the self is applied to fun and escapist solitary activities, like playing player-vs-computer video games, and it puts weight on individuality, which is an important concept in exploring identity. Sutton-Smith writes:

Freedom has become not just the freedom from work but also the freedom to be a conspicuous consumer, and to participate in the material riches of consumer civilization. The emphasis on subjectivity in play follows, from this account, the emphasis on subjectivity in the economy. Habituation to this materially oriented life leads to the belief that being able to make one's own choices is what life is all about. Play, in these terms, is found to be an especially suitable and often relatively cheap form of such free-choice consumerism. (Sutton-Smith, 2001 [1997]: 178)

For video game theorists Katie Salen and Eric Zimmerman (2003: 516), Sutton-Smith's rhetorics of play identify how games and play embody ideological systems and social values and explain how specific forms of play perpetuate and justify these values. It is clear that Sutton-Smith considers subjectivity part of identity-constructing play, and as part of what we consider freedom, which includes the freedom to choose what to buy. In constructing the self, then, we play with consumption. However, play in the rhetoric of the self is an inexpensive form of enjoyment through choice, as the person constructs the self by following patterns of consumption but without necessarily consuming per se. This is symbolic consumption. But then again, all consumption is symbolic.

The games' system of reward and expanding affordances has its roots in Baudrillard's notion of *the code*, but also in narcissism and the psychology of Lacan's *mirror stage*. This is because we always seek the ideal Self in external sources, which are mostly objects. We develop ourselves by means of consumption. Celebrated games designer's Will Wright expressed this view during an

interview at the Web 2.0 Expo in San Francisco, in 2009. One of Wright's basic premises in making a game is that people are narcissistic, so the more the game is about them, the more emotionally involved they are likely to be. He believes that users like crafting their own identity and communicating through it, and that before current technology, people did this through their lifestyle choices, such as their wardrobe, car, or house (Wright, 2009). But the most obvious testament to our narcissism is the fact that in online activities, the user is always the centre of the network, as this is our cultural philosophical perception of the world (Wright, 2009). We are always at the centre. Narcissism, in its non-pathological forms, is about looking one's self in the mirror, which is what virtual environments that involve anthropomorphic avatars – such as RPGs and action games – are quintessentially about.

Cultural theorist Adriano D'Aloia also finds that gaming is overbalanced towards Selfness (D'Aloia, 2009: 56), as there is a saturation of the Self to the detriment of the presence of the Other. In online virtual worlds, in particular, the player experiences 'almost auto-erotically' his/her own ego, intra-subjective logic being stronger than inter-subjective logic (D'Aloia, 2009: 56). The reconstructed simulation, as well as the signifiers leading from the signifieds of the representation of the game, taking place in the player's mind, are more intense than the feeling that the player is in a social space surrounded by 'real' people. The relationship with the program/mirror is stronger than the relationship with any other human being, as the Self takes priority over the Other. 'Visual and sensorial perception oscillates between two declensions of the same Self' (D'Aloia, 2009: 56). This reinforces narcissism as a main force in participating in a virtual world.

The aspect of possessing more and more products that make us 'better' and 'more fit' for our society, is part of a pluralistic capitalist consumerist ideology, which wants the members of the society to be first and foremost consumers. The narcissistic tendencies we have in the sense that we want to enhance ourselves and our appearance every chance we get by means of dress, decorations, and enhancements, are also part of this state. These factors affect identity in the virtual or the non-virtual world, however, the fact that these changes can happen much more easily in the virtual realm, means that identity therein becomes more fluid and subjective. The fact that we can get rid of one body and embody another with ease also has implications.

DressCode is an attempt to move from limited agency towards true subjectivity. The player will not so much take spatial or other "physical" actions – even though body movement and character proximity will matter – as she makes meaningful simulational and representational decisions on avatarial appearance and communication, which may yield positive, negative, or ambiguous results. This is not power over the game environment, but rather the power to perform "socially" and affect the environment as a result of dress, dialogue, movement, and other decisions, which

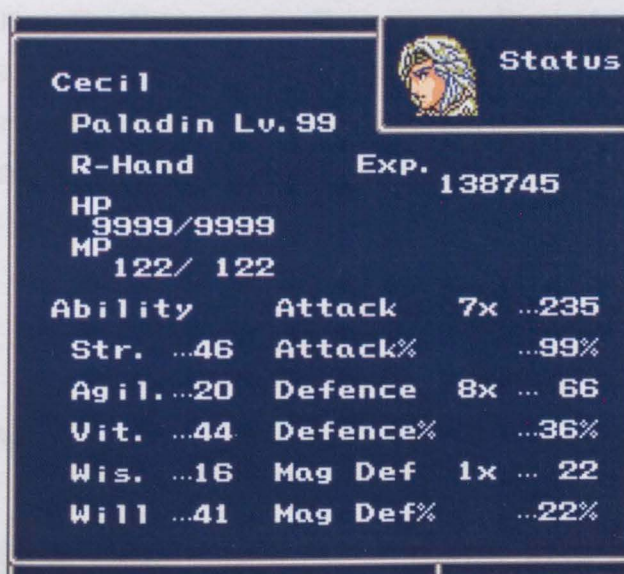
will produce signs. These affordances and constraints will be made clear over time through experimentation, and they will be confirmed by the interface of the game in visual, textual, and aural terms. This will mainly occur through character responses and assisted by textual descriptions. The game will originally offer a limited set of affordances, and will reward the player with an expansion of affordances, whether the player is involved in free, 'sandbox', or structured mission-driven play. The game will hint at the relevant choices and will favour them, however, I will try to avoid the inclusion of absolute terms such as right or wrong choices, as this will inevitably hinder subjectivity. There will be, for example, relative evaluation of the garment and/or accessory combination, in relation to that of the other characters involved, the environment, and the other attributes of the avatar. In this sense, the player's decisions will always make sense to the game. This will hopefully produce some kind of meaning, as the simulation will not be played in absolute terms, but rather as an increasingly complex accumulation of signs which will be presented and exchanged in different ways. These will only become more complex through interaction with other agents and elements. I assume that this increasing complexity of the syntax of signs may produce meaning, even if it will still be an abstraction. This will of course not support free will in the game world, and there will still be a 'simulation gap' between player expectations and actual game affordances, but it may prove to be a step towards it.

The player will not be able to reconstruct the model of the simulation easily, as there will be a great amount of variables involved. This way, the player will not resort to shallow, mechanical, and domineering play over the computer, but will have to perform complex projective reasoning. However, as the game is a simulation, abstraction is unavoidable. The goals of the embodied avatar will become the goals of the player, as she reflects on and calculates the affordances in the environment. The affordances may expand by the introduction of more garments, accessories, jewellery, and the such, as well as new characters, environments, and events. Expansion of agency may be achieved through the consumption of articles in the game. The game is centred on the avatar as a narcissistic experience, which is symbolic of self-adoration through consumption in the 'real' world.

Avatarial Dress as Simulation

Fashion theorist Susan Kaiser refers to dress as *body boundary*, which she defines as the distinction between body space and surrounding space, self and non-self (Kaiser, 1996: 107-8). Standing between the Self and the Other, dress has a practical use in gameplay. It can be seen as a set of expanding capabilities for coping with the game's challenges, which can be augmented with new features. Affordances expand as the game progresses (Poole, 1999: 207), and so dress can be used as an indicator of this expansion. The numerical attributes of characters in role-playing games, for example, are signifiers of the characters' capabilities.

Role-playing games (RPGs) are games that depend on arrays of attributes, and sets of abilities. They revolve around the explicit affect of these variables, as the characters progress by raising their various powers and gain new capabilities over the course of the game's story, which may transpire as new commands in the interface. In this way, the ego of the player is constructed in the simulational sense as an array of numeric and textual attributes: Level = 10, Experience = 1300, Hit Points = 300, Magic Points = 122, Strength = 46, Agility = 20, Vitality = 44, Wisdom = 16, Will = 41 (illustration 16). This is a typical array for RPGs, which make the simulation visible to the player, in other words they turn the simulation to textual representation for the player. However, most games work similarly, even as they hide such internal mechanics from the player under visual representation, i.e. graphics and animation.



Cecil		Status	
Paladin Lv. 99			
R-Hand	Exp.	138745	
HP	9999/9999		
MP	122/122		
Ability	Attack	7x	...235
Str. ...46	Attack%	...99%	
Agil. ...20	Defence	8x	...66
Vit. ...44	Defence%	...36%	
Wis. ...16	Mag Def	1x	...22
Will ...41	Mag Def%	...22%	

16. Final Fantasy IV status screen

In digital role-playing games, and in action games with role-playing elements, the avatar develops over time by means of power-ups and new items, and becomes the embodiment of the player's experience of playing the game. These power-ups and items work as an extension of the game's

semiotic structures in that they expand the avatar's abilities so that it can surpass increasingly difficult obstacles. That said, a video game may be seen as the completion of a series of tasks in order to upgrade the avatar so that it can complete subsequent tasks. In this sense, the avatar's capabilities-to-game-difficulty ratio remains near-constant throughout the game. The idea behind game balancing is to pace the game so that it is fair to the player, not too easy or hard, and to make sure that the player's skill is the most important factor in determining success (Adams & Rollings, 2006: 358-61). Challenges must be offered at a consistent level of difficulty so that players remain in a state of 'flow' (Csikszentmihalyi, 1990). The difficulty of the challenges increase gradually to counteract the player's growing experience and familiarity within the game (Adams and Rollings, 2006: 358-61). Therefore, characters can be regarded as a set of capabilities (Newman, 2004: 54), as it is the ever-expanding characteristics and abilities of avatars, among other affordances, that facilitate progress through the course of gameplay.

But if the difficulty remains constant and the status rise of the player is an illusion, then the game puts equal weight on upgrading as it does on the rest of the gameplay mechanics. This works similar to the fashion system of the non-virtual world, through the commodification of objects, and ultimately consumption itself as the purpose of the game.

An example of a game which makes use of dress as a means to represent the various capabilities of the characters is *Final Fantasy X-2* (illustration 17; Square-Enix, 2004). In *FFX-2*, the characters can acquire new costumes, which are mostly based on mythical archetypes, and which arm the characters with new abilities. The Alchemist, the Berserker, the Black Mage, the Dark Knight, the Samurai, the Songstress, the Thief, and the Warrior, are some of them. The capabilities that are given to the characters through the use of these costumes are based on the theme of the costume, i.e. the thief can steal valuable items from the opponents, the alchemist can make potions that can heal the characters, and so on.





17. Final Fantasy X-2

The simulation of dress is a mathematical system, and dress is described in the program of the game in terms of strings of characters and numeric values. In the case of the *Final Fantasy X-2* costumes, what happens in the simulation, regardless of any visuals, is that it switches from using specific parts of the code, to using different part of the code. For example, the Black Mage costumes will make use of different animations to the Warrior costumes, but more importantly, they will give the characters different abilities and different attributes. This means that the command menu on which the game's battle system depends will include different options, which will be attached to different behaviours. This also means that the characters' magic defensive and offensive attributes will be higher when dressed as Black Mages, while the physical attack attributes will be higher when dressed as Warriors.

The different affordances bring a subjective shift. The identity of the player is affected by such simulational differences due to the mental re-construction of the player's agency in the game's world. In other words, the internal simulation of the player will be remodelled to accommodate for such changes. For Baudrillard, to simulate is not simply to feign: 'Someone who feigns an illness can simply go to bed and pretend he is ill. Someone who simulates an illness produces in himself some of the symptoms.' In this way, simulation stands between "true" and "false", between "real" and "imaginary" (Baudrillard, 2001 [1983]: 171). Such simulational changes affect the player's strategies and actions in the game, and they also affect the emotional investment of the player in the avatar in terms of 'doing', i.e. game emotions. In other words, they affect the simulational identity of the player. The representation of the dresses also changes, but it mainly changes to reflect those alterations in the simulation. The visuals are arbitrary. The player only needs to know when the character's physical attacks are stronger, and when magical attacks are more powerful, for example.

This has psychological consequences, as the player has the innate tendency to want to improve the avatar, which stands for the player's Other, but also ideal. The avatar is a symbol of

progressing and reaching an ideal state, which is sometimes never achieved, but however remains an endless process of improvement. The avatar is immortal, as death is not represented, but simulated. In this sense, the video game may be seen as a futile activity based on narcissistic fascination through the exchange of elementary signs with the game, whose only purpose is to reassure us that we will not die, that we will dominate the environment (nature) and be immortal. And we can only achieve this by upgrading, by consuming. Games are comedic because life is tragic. Kirkpatrick finds the death of the avatar to be central in the meaning of video games, as there is 'nothing in the formal concept of progression [which] necessitates this use of metaphoric death to punctuate the rhythms of play'. Death is key to repetition as a defining feature of the video game and it is what restricts meaning in the medium as instead of a grown up, meaningful, tragic conclusion, we are offered childish comedy (Kirkpatrick, 2011: 187, 190):

Death is the point of contact between form/rhythm and meaning in video games...the salience of the death metaphor drives the development of the kinds of fiction that we associate with neo-baroque excess. In tragedy proper the death of the hero is central...In overcoming inevitability they are destroyed but we, the audience, are given a vision of the human as elevated, higher than mere things and capable of moving beyond the reach of causality...tragedy is beyond the reach of video games...The individual hero is not sufficiently differentiated from the order of things – nature and objects – to determine a transcendent function...This use of death in video games is the key to the kind of meaning that they can offer, that is present in them. This is allegory and its importance is that it separates signs from referents and deploys them in, usually repetitious, sequences where they form part of a 'masquerade or spectacle' and take on altered significance. On the one side, they are mere machine...but on the other they hover over a vertiginous excess of potential meaning. (Kirkpatrick, 2011: 182-185)

As Boellstorff points out, the term 'avatar' is the original Sanskrit word for incarnation of the Hindu god Vishnu (Boellstorff, 2008: 128). The meaning of games may be found to a certain extent in this resurrection, as the avatar dies when we do not play the game. We move from text to text through repeated deaths and by replaying every section. Death in some early fantasy and adventure games was seen as a meaningful ritual which was accompanied by exclusive graphics and music (in games like *Shadow of the Beast*; Psygnosis, 1989). But these days it is mostly mechanical, systematised, and devoid of meaning, so it is trivially bypassed in view of a new attempt at a game section.

As Kirkpatrick points out, playing a video game involves the risk of rejection by the text (2011: 51), and it is the experience of 'dying' in the game which creates the form of the video game (2011: 111). But I would argue here that in many cases this is not so much a rejection as a cue to spend more in-game currency (time or money) to upgrade. This system of numbers is symbolic of the real-world socio-economic system. It is about the commodification of in-game goods, products, services, religions, and values. In *FF* titles, as in many RPGs, the characters explicitly find or earn money (the in-game currency, in the case of *FF*, 'Gil') by completing quests or killing monsters. They can exchange this money for goods, which will upgrade their powers and abilities, or give them more vitality and energy ('hit points' and 'magic points'). They can also exchange money for products, i.e. technology in the form of new weapons, armour, and vehicles. They may pay money to play games at the arcade or to compete in Chocobo racing (racing on big yellow birds). They may pay money for information. All of this in order to complete more quests, kill more monsters, and earn more Gil. There is, in other words, a complete socio-economic matrix in place, with all elements interconnected.

This in-game system of "social standing", as Baudrillard would say, allows anyone, regardless of caste, class, or any other criteria of social discrimination, to construct an identity by means of consumption. The code establishes a *universal* system of signs and interpretation (Baudrillard, 2005 [1968]: 89). This is the individual by numbers, the person in the simulacrum of the 'real' socio-economic system. This may be regarded as the true meaning of games that allow for the expansion of the player agent: consumption, in the sense of renegotiating the terms of the simulation. The meaning of the video game is binary agency and the expansion of this agency. The power to say 'yes' and 'no' in different ways. The message of the game is its form.

For *DressCode*, I will employ the *FFX-2* paradigm in relation to avatarial dress as a central gameplay mechanic. New articles could be used as a means to expand the avatar's social affordances, therefore acting as "keys" to more advanced spatial or narrative areas. A new Chanel suit in the avatar's wardrobe, for example, may mean that the avatar can work as a lawyer for a prestigious firm, therefore expanding the possibilities for gameplay. More rare and unique items of clothing will mean more exclusive but also more demanding social roles by means of social and professional standing, and acquaintances.

The ego of the player will be constructed by avatarial attributes such as 'fashion', 'subculture', 'comfort', 'casual/formal', 'style', and 'match'. These will define the category the overall look of the avatar belongs in, such as 'designer fashion'; whether the attire belongs in a specific subculture, such as 'hip hop', how comfortable the attire is, how casual or formal it is, and how well the

combination works. The last three will probably be expressed as numbers. The other characters will have a similar setup, and this will define their "compatibility" and reactions to the avatar. The clothing objects will also have attributes attached to them: 'colour', 'material', 'fashion trends', 'comfort', 'subculture' and so on, and they will belong in categories such as trousers, tops, etc. These attributes will affect the avatar's and the other character's overall attributes, both temporarily, i.e. for as long as the character is wearing the items, and permanently, i.e. as a progressive accumulation of preferences. The different environments (stages) may also have specific characteristics which will further affect all other objects. In this sense, the numeric and textual attributes of the objects (items, characters, and stages) are more important than the art involved, which will serve only as a compliment to the attributes. These will be calculated within specific syntaxes in order to produce meaning for the player. For example, the compatibility of the avatar with another character may be expressed as a comparison of the sum of the 'fashion', 'subculture', 'comfort', 'casual/formal', and 'aesthetics' variables, combined with the player's declaration of how much she approves of the other character's attire, and all divided by the number of variables involved:

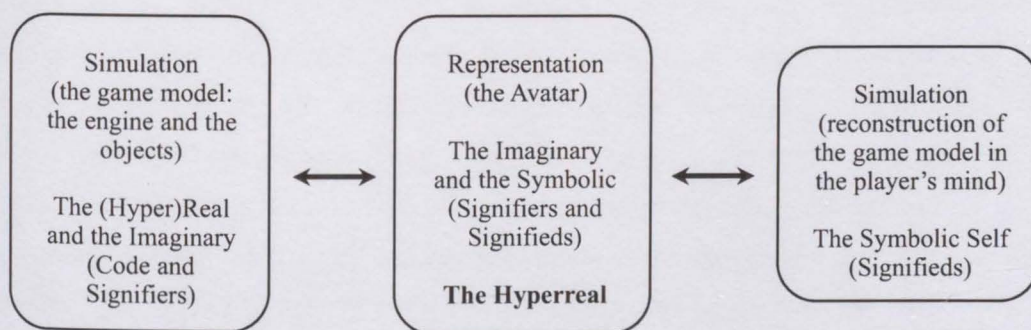
$$\text{Compatibility} = (\text{fashionRatio} + \text{subcultureRatio} + \text{comfortRatio} + \text{casualFormalRatio} + \text{aestheticsRatio} + \text{characterScoreGivenByPlayer}) / 6;$$

Consumption plays an important role here, as the player will have to "purchase" or otherwise earn items that will allow her to progress in the game, either in her own terms, or as part of a set, goal-oriented scenario. The avatar will be a project of constant renovation and reflexion of the mood of the player, but at the same time slave to the fashion system and the social system of the game. The death of the avatar will never occur as a symbolism of the player's rejection from the game, but as the game will be based on a representation of the natural passing of time, the avatar may naturally grow older, both in terms of simulational and visual characteristics, and eventually "pass away".

Baudrillard has postulated simulation as a key term for understanding late modernist (mediated) reality (non-reality). This idea of simulation has found its expression in the video game, which I find is a literal manifestation of Baudrillard's view. As we shall more specifically see in the third chapter, which examines the social identity of the player, the video game loop feeds back to the simulation of social reality. It is this system of fashion as social standing which I will attempt to implement in *DressCode*. However, I feel that the key to a meaningful simulation lies in *syndesis*, the interface between the simulational and the representational layer, and so the latter is the aspect which I will examine in the next chapter.

Chapter 2 – Self-Identity through Dress in Virtual Environments

In my analysis of virtual identity in Chapter 1, I established the following factors that affect the identity of the player. The game's text forms on two separate layers, those of simulation and representation. The semiology of the video game is therefore dual. The notion of avatarial performance is important on both layers, as identity in virtual environments is constructed both through embodiment/agency and through identification/empathy, i.e. both by 'doing' and 'being'. This is due to the bimodal nature of the video game, which separates the simulational identity, as the identity formed by taking action in a game, from the representational identity, as the identity formed by having visual presence in a game. The emotional investment which facilitates this takes place in both spheres. In Lacanian terms, the psychological order of the game is as follows: the simulation is the imaginary which turns hyperreal; the onscreen representation is both the imaginary and the symbolic – as it contains both signifieds and signifiers; and the player's internal assimilation (or re-simulation) of the representation is the symbolic Self. The player connects with the avatar through embodiment and/or identification, by similarity and difference, in the extension of Lacan's 'mirror stage' theory (1977 [1966]) that I used in the last chapter, and so the player's identity is transformed. Depending on the game, agency may partly be established by means of symbolic consumption and reward (the expansion of affordances).



In this chapter, I will examine the construction of identity by means of avatarial dress in representational terms. As dress in the virtual world is an abstraction, i.e. a limited subset of dress in the real world, in the reductionist model of the simulation, *avatarial dress is a limited simulational and representational performance*. As such, it affects the player on both levels of identity within the

following relationships: the avatar and the environment (in terms of gameplay, on the simulational layer), the avatar and the Self (as 'being' and 'doing', on both simulational and representational layers), and the avatar and Society (in online settings, on the representational semiotic layer). I will be examining the relationship between avatar and Self in this chapter, through the discussion of representation. I will conclude this chapter by exploring how increased *syndesis*, the harmony between the layers of simulation and representation, may be advantageous for the medium, as a source of emulated world emotions (emotions of 'being') and meaning-making. As I have already examined the layer of simulation, it is now time to pinpoint possible problematic issues on the layer of representation.

The conceptual argument I set up in Chapter 1 with regards to Baudrillardian simulation is evident in the beginning of Chapter 2 through the historical progress of the video game from canonical first-order representation which invites and relies on interpretation, to simulational representation, which is configurative. Looking at Baudrillard's discourse on simulation as a key term to comprehend late modernist socio-economic structures one could indeed postulate a discursive feedback loop from the simulational representation in the video game, back into the simulation of social reality. There has been a cultural change from abstract representation to hyperral simulation, equally facilitated by technological development and driven by fashionable consumption.

In seeing ourselves in the manifestation of the avatar, we are not content with just the simulation, which is the reality of the video game as a medium. We also desire the cinematic, photographic, and textual representation, as the medium inherently supports them. We want to see and be seen, to be present in every mode of the medium, and in the consumption of the video game we have the consumption of all media simultaneously. More importantly, we want to consume all of these media-codes simultaneously as complete identities. The games are products which present the avatar as the commodification of identities. There are countless characters, and we want to be as many of them as possible. In buying one game, the player purchases a 'part of the whole' (Baudrillard, 1998 [1970], 26), the whole lifestyle of the sport star (*Tiger Woods EA*), the rock star (*Rock Band EA*), or the porn star (*Playboy Mansion Ubisoft*).

As I discussed in the previous chapter, video game theorist Rune Klevjer believes that the player of the video game temporarily adopts a specific imaginary lifestyle through the embodiment of the avatar, which is a reflexive extension of its habitat (Klevjer, 2008, 110). The player inhabits the environment through agency of the avatar and makes sense of the world via direct sensor, data stream and feedback via direct sensor that leave off to engage physical and virtual worlds. The player's mind is therefore involved in the configuration of the virtual habitat through the use of an

The Layer of Representation

Although the primary sphere of function in video games is simulation, the included art is what is immediately perceivable by the viewer, who may not be the player. Representation therefore may also be important, even if it is secondary, as it communicates signs in the same way other visual media do. Narrative and affective involvement (Calleja, 2011) are used to give the player the necessary narrative and emotional/aesthetic incentive to engage in the game by using *metaphors* for the game world, such as a specific theme, most often futuristic or mythical fantasy. Bolter and Grusin (2000) explain this in terms of *remediation*:

...as electronic media become simultaneously technical analogs and social expressions of our identity, we become both their subject and object. We are the focus of the camera and the camera itself. Our identity is mediated and remediated, because 'we always understand a particular medium in relation to other past and present media'. Remediation recapitulates this Lacanian psychic economy, the desire to be immediately present to oneself. (Bolter & Grusin, 2000: 236)

In seeing ourselves in the manifestation of the avatar, we are not content with just the simulation, which is the reality of the video game as a medium. We also desire the cinematic, photographic, and textual representation, as the medium inherently supports them. We want to see and be seen, to be present in every mode of the medium, and in the consumption of the video game we have the consumption of all media simultaneously. More importantly, we want to consume all of these media-modes simultaneously as complete identities. The games are products which present the avatar as the commodification of identities. There are countless characters, and we want to be as many of them as possible. In buying one game, the player purchases a 'part of the whole' (Baudrillard, 1998 [1970]: 26), the whole lifestyle of the sport star (*Tiger Woods*; EA), the rock star (*Rock Band*; EA), or the porn star (*Playboy Mansion*; Ubisoft).

As I discussed in the previous chapter, video game theorist Rune Klevjer believes that the player of the video game temporarily adopts a specific imaginary lifestyle through the embodiment of the avatar, which is a reflexive extension of its habitat (Klevjer, 2006: 110). The player inhabits the environment through agency of the avatar and makes sense of the world via direct sensory data absorbed through the interface (Gibson 1986 [1979]: 140). The mind of the player and the game's model are therefore involved in the configuration of the virtual habitat through the use of an

analogous avatarial schema. Media and communications expert Frank Biocca sees the body as the 'fundamental communication hardware, a simulator for a mind' (1997: 13). McLuhan (1967: 8) has also pointed out much earlier that as interfaces augment the body, the media become extensions of our senses. Upon inhabiting an avatar, the user feels self-presence, that is the effect of the virtual environment on the perception of one's body, i.e. one's body schema or body image. This happens not in an abstract metaphysical futurological way, but rather via a pragmatic exchange of signs. Such increases in self-presence correlate with higher levels of cognitive performance and emotional development (Biocca, 1997: 23). As such, they affect identity on the semiotic level of representation. In this sense, the mental model of the user's body is affected by 'the mapping of the physical body to the geometry and topology of the virtual body', and the difference of the virtual body in social meaning, which is situationally and environmentally dependent (a cowboy avatar will have different social meaning in the wild West than in a contemporary southern rural environment) (Biocca, 1997: 23). Biocca's notion of self-presence is connected to Calleja's narrative and affective involvement, together working towards the increased incorporation of the player into the game environment. The social-semiotic role of the avatar is partially determined by its geometry and kinematics, as well as by implicit and explicit social norms imported from the user's social environment. Issues of class, gender, occupational role, and body type are all raised within embodiment (Biocca, 1997: 23). Biocca identifies three bodies present in virtual environments that involve embodiment: the objective body – the physical, observable, and measurable body of the user; the virtual body – the representation of the user's body inside the virtual environment, and the *body schema* – the user's mental or internal representation of his or her body – which is not stable and can be significantly altered by embodiment in virtual worlds (Biocca, 1997: 22-3). The body schema is the interpretation in the player's mind of both simulational and representational layers of the avatar.

Biocca argues that we are already cyborgs, as any piece of clothing, accessory, tool, or any other technology that attach themselves and augment the body, is of cybernetic nature, as the signs of the technology interface with the signs of the body (1997: 24). As cognition and identity are embodied in simulations run by our sensors and effectors, then 'the mind is adapted to the simulation of the cyborg body' and it is difficult to pinpoint where the identity is present (Biocca, 1997: 24). This means, Biocca claims, that identity is not located in the human body, in its clothing, in the computer, or in its avatar in the virtual world, but rather in all of these. Identity is affected by anything that happens on everything that we turn into a semiological extension of our bodies. With regards to the avatar, changes in its appearance and the way it moves affect identity, as the body schema in the virtual, and therefore in the imaginal environment is altered (Biocca, 1997: 20-1).

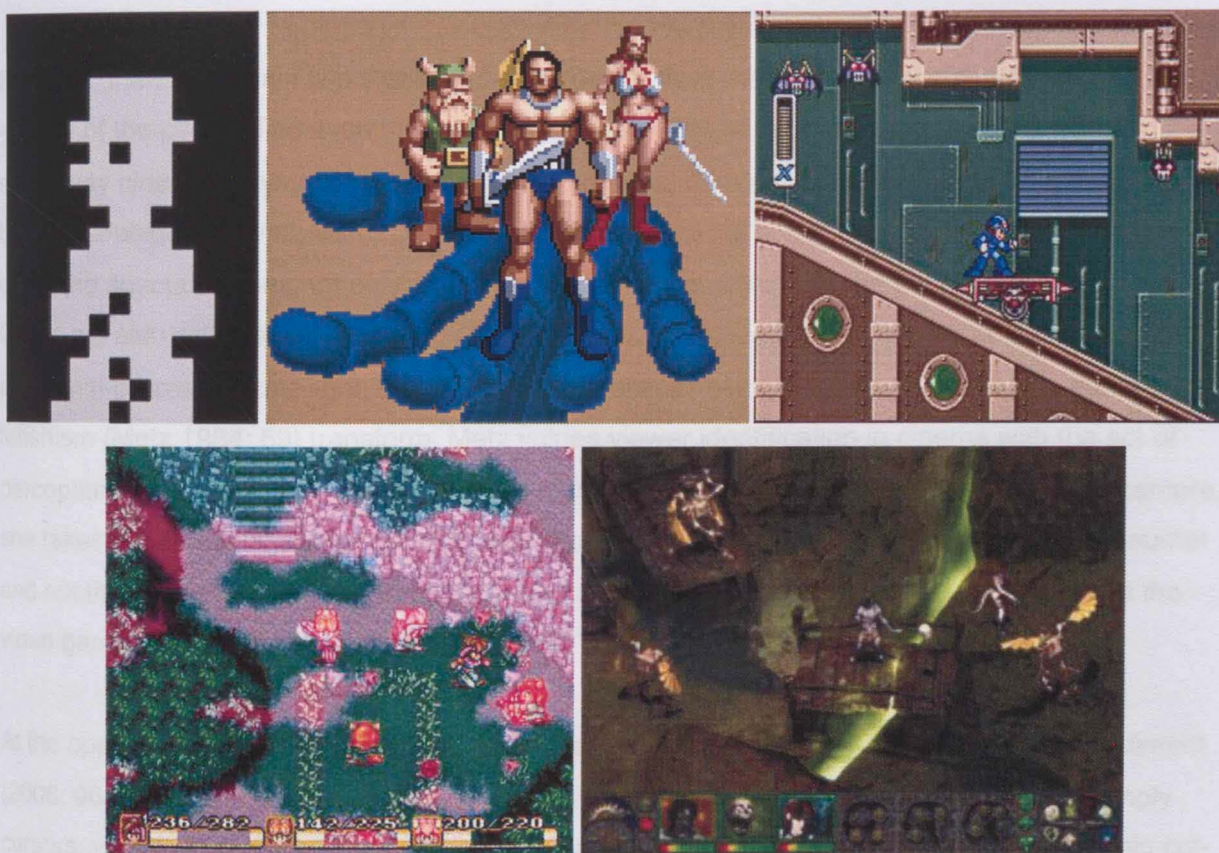
I believe that in this sense, the body schema is equally altered by fashion: the body is almost always clothed, and so the signs of the dress are incorporated within the signs of the body. In this light, fashion may be seen as a cybernetic symbiosis of nature and society: dress is the interface through which we communicate by means of visual cues, and the representational level of our symbolic simulation of the reality of nature. However, this symbiosis is problematic and entails friction between the wearer's subjectivity and the objectification of her body by the system of objects within the Baudrillardian socio-economic code.

Dress in the video game must be presented on the screen. The video game is a visual medium, associated with other visual media that have predated it, and so the content is *remediated* (Bolter and Grusin, 2000). The establishment of specific conventions as regard view and perspective mainly serves the sensory limitations of the human player/viewer. Lev Manovich comments:

Dynamic, real-time and interactive, a screen is still a screen. Interactivity, simulation, and telepresence: like centuries ago, we are still looking at a flat rectangular surface, existing in the space of our body and acting as a window into another space. Whatever new era we may be entering today, we still have not left the era of the screen. (Manovich, 2001: 115)

The standard form of the medium in the 1980s and early 1990s was flat 2D graphics, where dress representation was mostly illustrated, or drawn, either by hand, or on bitmap graphics editors such as *Deluxe Paint* (Electronic Arts). The first anthropomorphic characters started to emerge in the early 1980s, as the arcade machines and home computers and consoles became powerful enough to use animated sprites (2D pixel art). The first examples, such as Miner Willy from *Manic Miner* (illustration 18; Bug-Byte, 1983) only make use of one colour. As the technology of the hardware advanced, sprites gradually became increasingly colourful and detailed, and clothing became more specific and distinguishable. At that stage, identification through dress was similar to that in 2D animation, illustration, and comics. Even though the element of embodiment was still present in the psychological connection of the player with the avatar, there was usually no visual alteration of the 2D sprite. At best, there was a choice between two or three characters. Those characters were closed, fixed characters, whose appearance did not change at all during the progression of the game. In *Golden Axe* (illustration 19; Sega, 1989), for example, the player can choose between a male and female human, and a male dwarf, but none of the characters' appearance evolves during gameplay.

Furthermore, even in the late 1990s, characters were represented within a small area of the screen and in a limited colour palette. In side-scrolling games such as *Megaman X* (illustration 20; Capcom, 1993) in particular, the character can only be seen from the side, slightly turning so that part of his front is visible. As a result, emotional investment in such entities was existent but limited. As we move to sprites with more instances, i.e. more frames and states, as in tile-based top-down games like *Secret of Mana* (illustration 22; Square, 1993), emotions of 'being' are increasingly aroused, as the characters can be viewed from different angles. The same is true of the isometric 2D setting, where the 2D art is displayed as to give the illusion of depth, as in *Planescape: Torment* (illustration 21; Interplay, 1999).



18-22. Clockwise from top left corner: Manic Miner's Willy, Golden Axe, Megaman X, Planescape: Torment and Secret of Mana

However, these characters were still more representational than simulational. Baudrillard claims that the closer one gets to the perfection of the simulacrum, the more evident it becomes how everything escapes representation: there is no real, a third dimension is only the imaginary of a two-dimensional world. We have an 'escalation in the production of a real that is more and more real through the addition of successive dimensions', however 'only what plays with one less dimension is true, is truly seductive' (1994 [1981]: 72-74).

With the advent of 3D graphics in the mid-1990s, the video game gradually changed to follow an expanding set of cinematic conventions, the use of cameras positioned in the 3D space being among the most obvious. In cinema, the use of cameras causes cinematic signifiers to be dual, as the viewer is absent from the screen (Metz, 1986: 45). 'The cinema', writes French post-structuralist film theorist Christian Metz, 'involves us in the imaginary as it draws all perception to switch it over into its own absence' (1986: 46). Film is like the primordial mirror except the spectator's own body is not reflected (1986: 57). However, the cinema is symbolic: the spectator does not need to be depicted on the screen, as 'the practice of the cinema presupposes that the primitive undifferentiation of the ego and the non-ego has been overcome' (1984: 46). The viewer is not on screen, and so there is a process of identification with what *is* on screen (1984: 46).

In games there are again two signifiers, which derive from the agency of the simulation and the agency of the player. The avatar is the symbolic existence of the player in the game world, in the same way cinema is symbolic. However, the primordial mirror of the game takes on a more literal but also ambiguous symbolism, as the spectator can see his or her body on the screen. In this case, the spectator does not only identify with the objects which are there without her, with the Other, but also with herself, in a narcissistic manner. The spectator is not only all-perceiving, but also omni-present. In this light, the three main processes of cinema, identification, voyeurism, and fetishism (Metz, 1984: 69) transform. Metz values viewer identification in cinema with the act of perception itself, more than identification with characters. As the viewer identifies with the camera, she takes on an active, authoring role, even though in reality, the viewer is the image's consumer and not the image's producer (Metz, 1984: 9). I believe that this phenomenon is amplified in the video game, as the player embodies the avatar and gains agency in the game world.

At the opposite ends of this argument, there are theorists like Klevjer, who argue for embodiment (2006: 90), and theorists like Grodal, who argue that the characters of video games are simply cursors, vehicles for gameplay, who become independent round characters only during filmic cut-scenes (Grodal, 2004: 129-56). But contrary to the secondary filmic identification, in games there is an intimate connection between player and character, which is rather based on introjection (Filiciak, 2003: 87-102). The player projects his or her identity onto the avatar, which transforms this identity. The consciousness of player and avatar become one. The description and development of the character's set of features is a characteristic example of the avatar telling the player who she is. In turn, the player develops the avatar according to her own preferences. The identity of the avatar is in essence adopted by the player, who tries to develop an open character in her own image. The relationship between author and player is blurred, as the player is given co-authorship of the final text, and the three cinematic processes, i.e. identification, voyeurism and fetishism, are altered and complicated by embodiment: they all reflect the player's self (Filiciak,

2003: 87-102). The video game is a narcissistic medium, and it revolves around the *incorporation* of the player in the environment (Calleja, 2011: 3). Calleja mentions that technologists, media psychologists, and human-computer interaction researchers, usually refer to the gameplay experience as *presence*, while humanists and social scientists, as *immersion* (Calleja, 2011: 33). However, all of the above approaches are based on the use of metaphors to describe the same kind of experience:

The metaphor we should use to understand the sensation of inhabiting a virtual environment would best draw upon our knowledge of the experience of inhabiting the everyday world...Virtual environments are an important part of our everyday life and are more productively seen as deeply interwoven with our sense of reality. A metaphor of virtual world habitation, therefore, should draw upon the experiential gestalts of everyday habitation; that is, a view of consciousness as an internally generated construct based on the organisation of external stimuli according to existing experiential gestalts (Dennett, 1991; Damasio, 2000; Lakoff and Johnson, 2003). (Calleja, 2011: 168)

Calleja proposes that both experiential phenomena described by the antithetic metaphors of presence and immersion, or as otherwise presented in the present research, by the schism between embodiment and identification (even though identification and immersion are overlapping but not identical concepts), can culminate in the notion of *incorporation*. Incorporation is still a metaphor, but it avoids certain problematic connotations present in the other two terms (Calleja, 2011: 3).

The incorporation of the player is directly affected by the different uses of cameras. As 3D game worlds have been developed based on a Cartesian spatial logic, and due to remediation, camera positioning has evolved as a reduction or bastardisation of cinematic camera conventions, to conclude in three usual camera settings: the first-person viewpoint; the third-person viewpoint with a tracking camera; and the third-person viewpoint with a static camera. Clarke and Mitchell claim that with regards to identification, the three different cameras have three different effects: the first says 'I am the character', the second 'I control the character', and the third 'I am watching the character' (Clarke & Mitchell, 2000: 85-89). For Clarke and Mitchell, a first-person view will increase embodiment, but will diminish empathy, as the avatar and its dress is not visible – except perhaps its hands. A moving third-person view will enhance the feeling of agency and will also offer a good level of empathy, while a static third-person view will highlight the aspect of watching the

avatar, and therefore the aspect of empathy, while maintaining the aspect of agency (Clarke & Mitchell, 2000: 85-89). Even though I consider these assertions oversimplifications, I do find that the third-person view offers a good balance between embodiment and identification. Both the avatar's dress and its effects on the environment can be clearly seen in the third-person view, which, according to Amorim, Trumbore, and Chogyen (2000), is more appropriate for situational awareness. The isometric view, more specifically, as a third-person view devoid of perspective distortion, offers a more subjective point of view (Klevjer, 2006: 151), and I believe that both cameras can be used for the successful representation of avatarial dress. The third-person view appears to invoke higher emotional attachment with the avatar, as according to D'Aloia, observing a still or moving body may involve the observer's motional and emotional faculties (2009: 53). D'Aloia believes that empathy occurs through feeling, not understanding; through co-presence and pre-cognition: 'I am "in your own skin" in the simulacral form of the "as if"' (2009: 52). This is a process that does not require cognitive effort, but an experiential feeling of the Other as ourselves, and empathy occurs automatically, simply because the avatar is visible (2009: 53-6). The Lacanian quality of gaming, as the player stares in the screen-mirror, turns the Other into the Self (2009: 53-6). A full third-person view, even if distanced from the character, is preferable in this respect, as the player can orbit around the character to observe the garment, as demonstrated in *Tomb Raider* (illustration 23). The element of narcissism, and therefore emotions of being, are heightened in the third-person POV, as the player can usually observe the character from every angle and distance. This observation completes the player's *body schema*, which is also affected by the dress of the avatar (Biocca, 1997), and so self-presence is affected, which in turn affects cognitive performance and emotional development.



23. Tomb Raider

I will use a 3D isometric third-person POV for *DressCode*, as I find it to be the most appropriate view for the setting of the game, balancing embodiment and identification well. I have chosen not to use a fully rotational 3D view, as I believe that the avatar, as well as the social environment, may

be observed more easily within the fixed-camera isometric setting. There will be no perspective distortion so that the entirety of the environment and characters within may be observed easily. This is a conscious decision based on the expected experience of the player and has nothing to do with technical limitations – a rotational view is very easy to implement within the *Unity* authoring environment and the isometric view I will adopt and develop will likely be an adapted version of the rotational view. However, the camera will have a zoom function, so that the player may approach the avatar to see details on its appearance. As the game will feature full 3D models, the characters will be able to rotate in order to face any direction for movement and conversation. The representational performance of the avatar will be made more immediate in this way, and the body schema of the player will be affected appropriately so as to increase self-presence and emotional attachment with the avatar, and therefore allow identity performance. The narcissism of the player must be satisfied with the appearance of the avatar and what it communicates to the virtual society.

personal expression, but does not have any effect on gameplay. The second mode may contain one or more of the following mechanics: *acquisition/instrumental*, where dressing is an instrumental part of gameplay, as in RPGs; *acquiring/trying clothes*, as in *The Sims*; *There.com*, or *Second Life*, where players buy articles in the virtual world, or from an external website, most of which is player-created – this is mostly done as a social activity, i.e. to be seen in new clothing (in *World of Warcraft*, clothing can be earned in combat or quests or purchased from non-player merchants or other players via auction, and materials can be used to create standard items, while *There.com* and *Second Life* award points for dress-ups); *trading/gifting/trading*, i.e. giving items away to lower-level players; *fashion design/creation*, in fashion oriented activity software, like *Berbie Fashion Designer*.

DressCode will achieve somatic displacement (Hick-Guthrie and Meyers, 2000) by focusing on the formation of identity of the avatar by dress choices. This identity will be for personal expression as a social activity, but it will also be instrumental to gameplay. In this way, the game may be seen as an RPG, which revolves around fashion items for the expansion of the attributes of the avatar. The creation of fashion design by the players and its trading will also be featured and encouraged.

Dress in games is linked to genres. Genres are socially acceptable discursive forms, which are not neutral or value-free (Woggoner, 2009: 44). Woggoner argues that discourses within a video game genre influences identity as different genres demand different strategic approaches (2009: 45).

Genre in video games can be categorised in terms of type (RPG, fighting, virtual worlds, shooters, RTS, third-person action, sports, graphical and text adventure, etc.) that is the kind of mechanics, the gameplay mechanics, the kind of simulation, and theme (for example Medieval, fantasy, science fiction, mixed/post-modern, historical/period, military, sports, contemporary/realistic), or the representational content of the game. There may be nearly any combination of type and

Avatarial Dress in the Context of the Fantasy Genre

Before any suggestions can be made on the inclusion of fashion in games or on the development of avatarial dress, an overview of the defining tendencies of dress as it stands today in the medium, and as formed by its history, must be carried out. In 'Playing Dress-Up: Costumes, role-play and imagination', Pearce et al (2007: 4-5) identify two modes of dress-up play, which depend on the relationship between the player, the costume, and the game character. They revolve around Holopainen and Meyers's concept of *somatic displacement* (2000), i.e. projecting oneself into another entity. These two modes of dress up play are: *doll-play*, where the player is 'dressing up a character that is distinctly not herself, but over which she has (often god-like) agency', as in *Barbie Fashion Designer* (Mattel Interactive, 1996) and *The Sims* (EA, 2000); and *identity/avatar/costume*, where the player *is* the character, as in open-ended metaverses, where identity is a form of personal expression, but does not have any effect on gameplay. The second mode may contain one or more of the following mechanics: *armour/instrumental*, where dress-up is an instrumental part of gameplay, as in RPGs; *acquiring/trying clothes*, as in *The Sims*, *There.com*, or *Second Life*, where players buy articles in the virtual world, or from an external website, most of which is player-created – this is mostly done as a social activity, i.e. to be seen in new clothing (in *World of Warcraft*, clothing can be earned in combat or quests or purchased from non-player merchants or other players via auction, and materials can be used to create standard items, while *There.com* and *Second Life* award points for dress-up); *twinking/gifting/trading*, i.e. giving items away to lower-level players; *fashion design/creation*, in fashion oriented activity software, like *Barbie Fashion Designer*.

DressCode will achieve somatic displacement (Holopainen and Meyers, 2000) by focusing on the formation of identity of the avatar by dress choices. This identity will be for personal expression as a social activity, but it will also be instrumental to gameplay. In this way, the game may be seen as an RPG, which revolves around fashion items for the expansion of the attributes of the avatar. The creation of fashion design by the players and its trading will also be featured and encouraged.

Dress in games is linked to genre. Genres are socially acceptable discursive forms, which are not neutral or value-free (Woggoner, 2009: 44). Woggoner argues that discourse within a video game genre influences identity as different genres demand different strategic approaches (2009: 46).

Genre in video games can be categorised in terms of *type* (RPG, fighting, virtual worlds, sandboxes, RTS, third-person action, sports, graphical and text adventure, etc.), that is the *kind of* game, the gameplay mechanics, the kind of simulation; and *theme* (for example Medieval, futuristic, fantasy, mixed/post-modern, historic/period, military, sports, contemporary/realistic), or the representational content of the game. There may be nearly any combination of type and

theme, where the former refers to the modes and dynamics with regards to dress by Pearce et al (2007) mentioned above, and the latter will of course influence the kind of clothing or costume. Medieval RPGs, for example, utilise the identity/avatar/costume mode, and contain the armour/instrumental mechanic – and also the acquiring/trying clothes dynamic and the twinkling/gifting/trading dynamic if the game is an online game. They also, by thematic definition, feature Medieval costume.

The commodification of in-game entities encompasses and actively involves the representational sphere of the games. The video game product is categorised to specific genres which derive from commercial factors and the medium's history. It is obvious that a history of dress in video games by category would be very much dependent on both mechanics and theme, and that the combinations would be too numerous. Therefore, for the purposes of this analysis of representation, I choose to originally examine the representation of dress in games according to theme, before I move on to mention its connection to the simulations by means of *syndesis*. There appear to be three main non-abstract themes throughout the medium, particularly connected, but not exclusive, to specific kinds of simulation, dealing respectively with the *science fiction/futuristic*, the *mythological/historical*, and the *modern/fashion-oriented*. This is why I am separating my analysis of dress into video games that feature fantasy settings and stories, and games that deal with realistic contemporary settings and stories.

I will of course focus on clothed human characters, as other kinds of player agents, such as animals and machines, are not relevant to this research. Furthermore, I will restrict the number of games mentioned to a small selection belonging in specific genres which satisfy the requirements of the present research, namely games with typical fantasy-oriented settings, as opposed to games based on realistic settings, in order to stress the differences between the two categories. A complete list of games including dress is beyond the scope of this research, which seeks to establish the relation between identity, dress, and game, primarily within a specific game prototype (*DressCode*) and by extension genre, i.e. the third-person avatarsial identity-building game based on social realism. In this case, *DressCode* can be regarded as a non-traditional, fashion-themed RPG. Even though this outlook excludes science fiction and period costume, in order to contrast fantasy and social realism, and to contextualise the use of dress and fashion in the medium in general, I feel obliged to include a brief analysis of costume which derives from futuristic and historic or mythic settings. An analysis of dress in video games would be incomplete if it did not account for all kinds of dress themes that permeate the medium.

In an article entitled *Genre Trouble*, in *First Person: New Media as Story, Performance, and Game* (edited by Noah Wardrip-Fruin and Pat Harrigan), Espen Aarseth argues that, even though video

games are themeable – that is, one can apply any representational layer onto a particular simulation (2004: 48) – and the player can be immersed in a different visual and aural “universe” each time, the gameplay that is afforded within the game’s model does not change. He gives the example of chess, which one can play ‘with some rocks in the mud’, or with ‘pieces that look like the Simpsons family’, and it would still be the same game. Aarseth then goes a little too far in this direction, moving on to describe the proportions of Lara Croft’s body (illustration 24) as irrelevant to the player, as he claims that the inclusion of any body would not affect the gameplay of *Tomb Raider*. ‘When I play, I don’t even see her body, but see through it and past it’ (2004: 48). While this may be true to a certain extent, and only in the sense that it does not make a difference as regards the gameplay, it also has other repercussions. As I have already argued, the player’s identity is constructed on two parallel levels, those of simulation and representation at the same time, but separately. What I mean by this is that, like Aarseth, I do not think that the representation affects how the game plays. However, the very fact that representation is forced in place on top of the simulation without bearing any immediate significance for the simulation, is in my view alarming in cultural terms. The player may be *passively absorbing what is happening on the screen* in terms of visuals, as she struggles to cope with the simulation, and while deriving pleasure from it. It is the relative unimportance of the representation in gameplay, which paradoxically makes it of utmost importance in the video game as a cultural form. In this sense, i.e. with the excuse that game’s graphics are meaningless, just a justification for thematic content, the author may propagate any world view and pass any messages he likes without considerable resistance. And this is exactly what electronic narrative expert Stuart Moulthrop writes alongside Aarseth’s article, as a response to his view:

Seeking to exclude narrativist contraband, Aarseth embargoes all cultural implications. We are not to understand the game of chess as an allegory of feudalism or Tomb Raider as a misogynist-masochist fantasy. (Moulthrop, 2004: 47)



24. Tomb Raider Legend

Moulthrop's argument is that Aarseth's approach may be sufficient in terms of a mathematical analysis, but not of any serious cultural critique. After all, it seems unlikely, he writes, that a digitised Rowan Atkinson would do as well as Lara, and concludes that even though one may disregard the avatar during play, 'the significance of games as cultural forms goes beyond the player's time in the loop' (2004: 47).

In order to update this argument and make it more relevant to today's reality, I decided to carry out my own quantitative research on the subject, in order to establish whether my speculations, namely that the schism between simulation and representation, i.e. the lack of syndesis, the reliance of visual content on meaningless fantasy stereotypes, and the lack of social realism in both simulation and representation, are correct. In a focus group that was conducted within the AIU school of fashion, where I teach two classes ('fashion trends' and 'CAD for fashion'), I handed out questionnaires to 22 fashion students, aged 17-23 (see Appendix 1). The questions were designed so that I may gain an understanding of the state of dress in video games through primary quantitative research, and to measure the extent of the issues identified from my own experiences of playing video games, from the literature involved in this research, and from conversations and debates with experts and fans alike. The focus group had a few limitations, most obviously its small sample of players (22) and the fact that most of them were females (20 out of 22), aged 17-23, and US or British citizens. Furthermore, most students were on a number of fashion-oriented classes, such as 'fashion marketing', 'fashion design', and so on, in addition to one of my classes, 'fashion trends' or 'CAD for fashion', and as such, they could be classified as 'fashion students'. This may entail a predisposition to like fashion or to be positive towards fashion or dress-oriented projects and products.

The detailed findings are included in Appendix 1. The majority of the students were regarded as casual or mainstream game players, as they consumed and played games on their mobile phones and/or their game consoles (mostly Wii and Xbox 360). What transpired in this focus group is that there was a general dissatisfaction with the characters' given appearance and the relative lack of customisation, particularly with regards to fashion. Students seemed to identify with or embody the avatar to different extents, confirming that gaming is a personal and subjective activity, largely defined by the player: some want to just be successful at playing the game, while others like to develop a lasting connection with the avatar. However, most of the students agreed that character dress does not offer a representation of the real-world fashion system, relying instead mostly on basic, stereotypical styles, and lacking variety. Many students appeared to have positive role-playing experiences with existing characters, but few could say the same about the performance and expression of the player's own identity in the game world by means of existing characters and the current limited affordances. At the same time, they did not feel that the injection of fashion would be advantageous for every game, as avatars' dress was widely regarded as contextual, i.e. dependent on the setting. This view was amplified by a lack of comments on gender bias: to the question 'Do the characters of video games look the way you would like them to look?', only one student pointed out that games are addressed at male gamers. This could mean one of two things: either there is no problem with gender representation and men and women alike are satisfied with it; or that all genders bypass the appearance of the characters in order to engage in the gameplay. This appears to be aligning with Moulthrop's view, and there is a good reason for this: the representation of the characters and their costumes does *not* affect gameplay. Aarseth is right on this. However, as I just argued, this is the very reason why the player absorbs the cultural messages of the representation without objecting, as she is busy engaging with the simulation. This in a sense *forces the player to adopt the point of view of the author*.

To return to the lastly mentioned article, Aarseth (2004: 48) claims that games are not intertextual, as the player does not need to have previously played one game in order to play another. This is another point I disagree with, as it is the very nature of the simulation that accounts for the video game as the ultimate intertextual medium: one of the main arguments in this thesis is that video games are too much alike. And this is part of the same problem regarding representation, namely that it is the form that counts for most people, and not the content. There is much to say about the different ways different audiences engage with video games, and casual gamers may not have as much of a defined or stated preference for specific simulations as hardcore gamers. However, I have not met many people who buy by theme – for instance 'cowboy games', or 'robot games', or 'pirate games' – except young children. Many, if not most, gamers prefer a particular kind of simulation: they are either 'first-person shooter', or 'online RPG', or 'third-person action/adventure', or 'mobile phone touch-screen 2D puzzle' players, or players of any other established, prescribed

form of simulation. This is a very logical phenomenon, and it is another reason why representation takes a back seat, even though it is the main force in the promotion of the products, but more importantly, the main vehicle of cultural views and messages.

Conflict and the Cyborg

One of the most common costume in games, the futuristic body suit, mainly draws its influences from the American and the Japanese comic book and animation traditions, as well as movie heroes. There is a trajectory of the superheroes and their suit from the static pages of comics, as two-dimensional illustrations, to their animation in cartoons and anim , to their full hyperreal representation in cinema, and finally to their availability as avatars in the video game. This remediation brings with it all of the objectifying characteristics of the inherited media, such as problematic gender representation, but also issues which are amplified within the video game medium, such as militarist ideology.

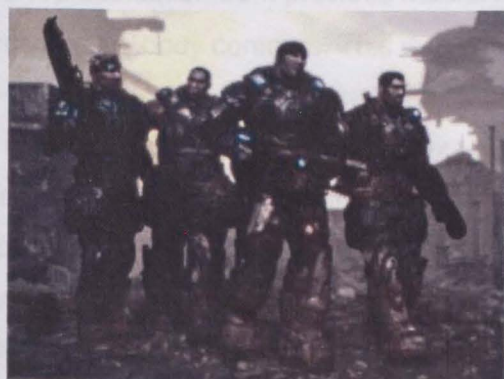
Researcher R. Stuart Geiger points out that online worlds impose on the players a 'globalised capitalist hegemony' and a 'violent normalisation based on hierarchy and militarism' (2006: 8). But this is not exclusive to online titles. War games, along with futuristic technological fantasy games, are among the most popular genres. This is expected for a number of reasons: firstly, video game technology derives from military technology, and one of its first applications was military simulation. Media theorist Alexander Galloway mentions that Ronald Reagan predicted in the 1980s that 'action videogames were training a new generation of cyber-warriors ready to fight real foes on the real battlefield', something which is evident today (2006: 141). Many action games are realistic training tools either as skill-builders or as instructive of a larger militaristic ideology (Galloway, 2006: 71). Secondly, war is a favourite theme in boys' play, as toy soldiers and superhero figurines used to be before home computers and consoles. The logic of conflict is inherent in the majority of video game genres, as it has been in the narratives of previous media. It is the battle between 'good' and 'evil', between 'us' and 'them'. Thematically, but also ideologically, this logic permeates a large part the medium, where it usually manifests as a symbolic clash between the human and the machine:

There is no interactivity with machines (any more, in fact, than there is with human beings: that is the illusion of communication). The interface does not exist. There is always, behind the apparent innocence of the technology, an issue of rivalry and control. (Baudrillard, 2002: 178)

War games like *Medal of Honour* (illustration 25; EA, 1999-2010) and *Call of Duty* (illustration 26; Activision, 2003-2010), are among the most popular genres on the market. Military science fiction is a futuristic extension of these, and it is a constant thematic preference in the modern media. The video game is a technological medium, and traditionally, people who used computers in the early days of the technology, were people who liked to fantasise about technology. Thus, its history has developed favouring science fiction, and its simulational 'make-believe' aspect facilitates it.

Paradoxically, this conflict with the machine occurs through cooperation with it. In cybernetics, a shared textual frame, i.e. a common body of texts, allows different fields of knowledge associated with machine systems and living organisms to bind: control and communication are linked to computers and the human mind in a binary logic (Tomas, 1994: 28), as the player and the computer code form a communications network, a cyborg. This symbiotic relationship, writes Klevjer, merges the simulator and the player by means of identification; it is a reflexive cybernetic feedback loop, as the player 'becomes hyper-aware of the computerised specificity of the simulation, and the player's mind is able to tune in to the workings of the underlying formal structure' (Klevjer, 2006: 103). The cyborg suit of the video game character is the imaginary manifestation of this cybernetic symbiosis. Be it military gear or futuristic robotic suits, the body suit of the video game hero is both a symbolism and a literal representation of the enhancement of human abilities by means of technology. The cyborg suit is the manifestation of the computer code as dress, which gives our corporeal movement superhuman abilities.

In descriptive terms, futuristic attire involves mostly distressed metallic armours whose shape mimics the musculature of the body, and high-technology fabrics. It is mostly inspired by military wear, space exploration technology, and science fiction. *Metroid's* Samus Aran (illustration 32; Nintendo, 1986-2010), *Halo's* Master Chief (illustration 27; Microsoft, 2001-2010), and the characters of *Gears of War* (illustration 31; Microsoft, 2006-2011), *Crysis* (illustration 28; EA, 2007), and *Mass Effect* (illustration 30; BioWare, 2007-2010), belong in this archetype. *Deus Ex: Human Revolution* (illustration 29; Square Enix, 2011) features a character who has been surgically enhanced with mechanical parts and so he is an even more literal representation of the cyborg.



25-32. Clockwise from top left corner: Medal of Honour, Call of Duty 3, Halo's Master Chief, Crysis, Deus Ex's Adam Jensen, Mass Effect, Gears of War and Metroid's Samus Aran

There are constant identifiable tendencies in this theme: hard panels of metal, usually following the body's contours, embellished with electronic circuits or hydraulic/mechanical constructions, and held together with screws or seams, are combined with soft materials on the joints and areas of movement in general. The colours are usually black, white, greys, military greens, yellows, and browns, sometimes complimented by fluorescent red, blue, green, and orange details. Baudrillard (1994 [1981]: 81) asserts that such elements in science fiction are a projection of the real world of production:

Mechanical or energetic extensions, speed, and power increase to the nth power, but the schemas and the scenarios are those of mechanics, metallurgy, etc. Projected hypostasis of the robot. (Baudrillard, 1994 [1981]: 81)

The Objectified Body

In this remediation, however, costume in futuristic science fiction games also inherits elements of gender representation from previous media. As such, it is often either masculinised or sexualised by exaggerating body contours. This is very characteristic of the *Metal Gear* series (Konami, 1998-2008; illustration 33), for example: black leather clothing completely covers the character's body and it is so tight as to reveal and exaggerate the musculature of the body. There is also phallic imagery in the form of guns and boots. This is the "fetishised" body suit, a suit which bares connotations revolving around the fetishisation of body parts and ultimately the whole body, usually tightly wrapping it, highlighting its lines, and strategically exposing or covering areas, in order to attract attention to particular parts. As another example, the protagonist of *StarCraft Ghost* (Blizzard, 1998-2010), Nova (illustration 34), wears a body suit which is partly covered by hard body armour. The costume is obviously armed with technology which grants the female protagonist superpowers. However, it is also designed carefully to reveal her body's contours and draw attention to her lower body.



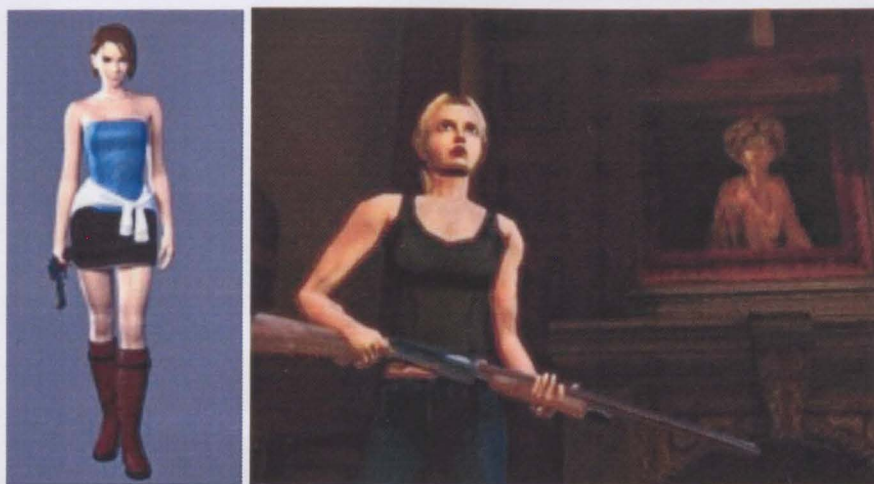
33-34. MGS's Snake and StarCraft Ghost

There is clear gender stereotyping here. Menswear normally denotes status, rank, success, virility, maturity, masculinity: it denotes *power* (Edwards, 1997: 22). Male avatarial dress primarily denotes the power of the avatar over its environment, i.e. the avatar's potency in the game world: the male avatar's powers are "written" on his costume, as the superhero's suit signals the abilities of the hero. Female avatarial dress, on the other hand, may be about power, but it is also equally about an imagined self-adoration, which excites the male gaze, as associated with cinematic identification, voyeurism, and fetishism, by feminist film theorist Laura Mulvey (1986: 208). In psychoanalysis, the concept of gaze is established in the notion of Lacan's mirror stage (1981 [1953]), as a device in the formation of human subjectivity. It is a dialectic between the Ideal-Ego (the imagined self-identification image) and the Ego-Ideal (the imaginary gaze of another person upon the Ideal-ego). It therefore revolves around scopophilia, i.e. pleasure in seeing and being seen, and it has narcissistic signification. Mulvey separates pleasure in looking into active/male and passive/female (1989 [1975]: 3): the empowered male gaze, which is a patriarchal structure (Mulvey, 1986: 208), projects its fantasy onto the female figure, which is styled in order to excite the observer. This is an orthodox trope of Western visual culture, beginning with the representation of femininity through occidental photographs and moving images. Man possesses a gaze natively, whereas the female gaze only exists when woman assumes the role of a man in gazing (Mulvey, 1989 [1975]). Under the male gaze, female avatars become narcissistic objects for the pleasure of the player. The male figure, on the other hand, 'cannot bear the burden of sexual objectification', as 'man is reluctant to gaze...' (1989 [1975]: 20). Voyeurism is therefore prominent when the player controls a female avatar, and male players often admit to playing a female avatar because of its visual qualities, and not as something they identify with (Adam, 2001: 101). The male, or the female player when adopting a masculine subject position, fetishises the female avatar by

erotically contemplating the whole of a part of its body and its attire. Voyeurism may also take place between the player and other characters, either player or AI-controlled.

These inherited from other media issues make the representation of the body in games problematic, and in particular the female body, which is usually represented as overly sexualised. The fact that representation in games is a separate entity from simulation and not tied to the primary function of the medium only makes things worse. Gender stereotyping has a long history in video games, and it is still a burning issue in the industry. In an article published in 2002, Berrin Beasley concluded that there was considerable gender role stereotyping in games at the time, with female characters being vastly underrepresented (there were more animals or aliens of indeterminate gender than female characters) (Beasley, 2002). There were also issues regarding the clothing of the female characters, such as less clothing or more bare body parts than their male counterparts. Nearly half of all female characters were big-busted, one third of which appeared in games rated 'E', and the majority of female characters were dressed in ways that brought attention to their bodies, and particularly their breasts. At the same time, males were 'more likely to be heroes and main characters, use more weapons, have more abilities, and were more muscular and powerful', while 'females were more often supplemental characters, more attractive, sexy, and innocent'. Females were frequently portrayed as sex objects (Dietz 1998; Ivory 2006; Scharrer 2004). This reinforces gender stereotypes and can impact attitudes towards women (Ward et al. 2005: 143-166). Beasley's quantitative research revealed a great chasm between representation of male and female characters in games, with the most notable issues being the asymmetric distribution of gender roles and the over-sexualisation of the females.

A qualitative research of the same period offers similar findings. Sarah M. Grimes (2003) analysed the female protagonists of three mainstream titles, namely *Metroid Prime* (Retro Studios, 2002), *Resident Evil* (illustration 35; Capcom, 2002), and *Eternal Darkness: Sanity's Requiem* (illustration 36; Silicon Knights, 2002). She found *Resident Evil's* Jill to be highly problematic due to her depiction as a victim, her visible sexualisation, and her apparent physical weakness, especially compared to the male protagonists of the game (Grimes, 2003: 7-13). All three heroines found to be contributing to potentially harmful Western beauty ideals, even if they were not all presented as sexualised. These ideals were further underlined by use of clothing, camera angles and character interactions, and clearly contribute to the passive representation of women as sex objects meant to be looked at, or gazed upon, even when they are the protagonist. This mix of stereotypically feminine traits and masculine behaviours creates a paradox, as – Grimes concludes – a “physically attractive” heroine is more likely to be perceived as an effective role model, whereas a “sexualised” heroine will probably be perceived as a sexual object.

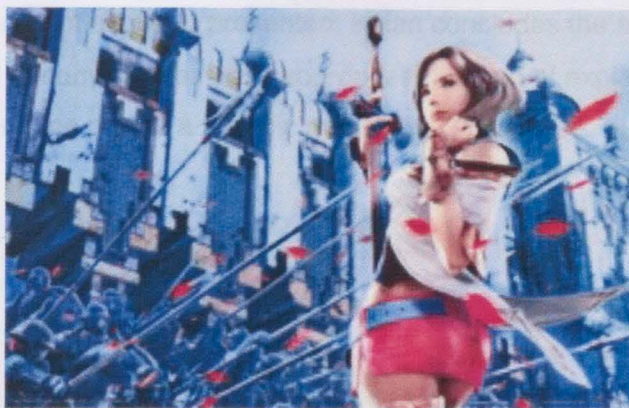


35-36. Resident Evil's Jill and Sanity Requiem's Alexandra

These issues still persist today. The characters of the *Final Fantasy* series (illustration 37; Square, 1987-2011), for example, feature tight-fitted clothes, presumably made of leather, juxtaposed with loose soft fabrics. Extremely short skirts and boots that end just below the skirt expose the legs at a very intimate point, just below the hips. The tops almost invariably reveal the stomach, shoulders, and chest. The effect is enhanced by the characters bearing extremely long phallic swords or guns, to denote that they may be sexually receptive but they also are extremely dangerous. In the *Dead or Alive Xtreme* series (illustration 38; Tecmo, 1996-2011), clothes are omitted completely, as the game is set on an island where a number of sports and other activities can be performed. The characters are extremely sexualised, with idealised bodies, very influenced by the Japanese culture of cuteness – looking much like children with glamour models' bodies – and dressed in tiny bikinis.

I'm a heterosexual male, and while I guess I don't actively dislike books in games, I like great characters in games for more. The compulsive need for developers to make their female characters overly sexy tends to detract from my immersion, especially when they're wearing what amounts to a metal bikini or a freakin' sword. (Kolan, 2011)

Kolan continues to write that love stories are also mishandled so that there is dissatisfaction from both the female co-protagonist and the male protagonist, and that a scantily clad woman is often used to attract more customers, but this paradoxically excludes half the consumer base. At best, immersion may occur if the player is a straight male, but not a straight female, or a homosexual male. The female player, in particular, may find inadequate next to the character of a player as Kolan mentions Alyx Vance of *Half-Life 2* (illustration 39) as one of the few exceptions to the rule, who is reasonably, but not distractingly good-looking, practically dressed, realistic and emotional, and so she invokes empathy from the player. Even though she is Gordon Freeman's love interest,



37-38. Final Fantasy XII and Dead or Alive Xtreme 2

In a noteworthy non-academic article on IGN.com entitled 'Bringing a Bikini to a Sword Fight', Nick Kolan writes:

I'm a heterosexual male, and while I guess I don't actively dislike boobs in games, I like great characters in games far more. The compulsive need for developers to make their female characters overly sexy tends to detract from my immersion, especially when they're wearing what amounts to a metal bikini to a freakin' swordfight. (Kolan, 2011)

Kolan continues, to write that love stories are also mishandled so that there is disassociation from both the female co-protagonist and the male protagonist, and that a scantily-clad woman is often used to attract more customers, but this paradoxically excludes half the consumer base. At best, immersion may occur if the player is a straight male, but not a straight female, or a homosexual male. The female gamer, in particular, may feel inadequate next to the character she plays as. Kolan mentions Alyx Vance of *Half-Life 2* (illustration 39) as one of the few exceptions to the rule, who is reasonably, but not distractingly good-looking, practically dressed, realistic and emotional, and so she invokes empathy from the player. Even though she is Gordon Freeman's love interest,

this is only suggested, and not explicitly presented. Kolan concludes the article by asserting that sex and violence should become contextually appropriate instead of explained with "*just because*". In other words, they should be part of a specific meaning.



39. Alyx Vance

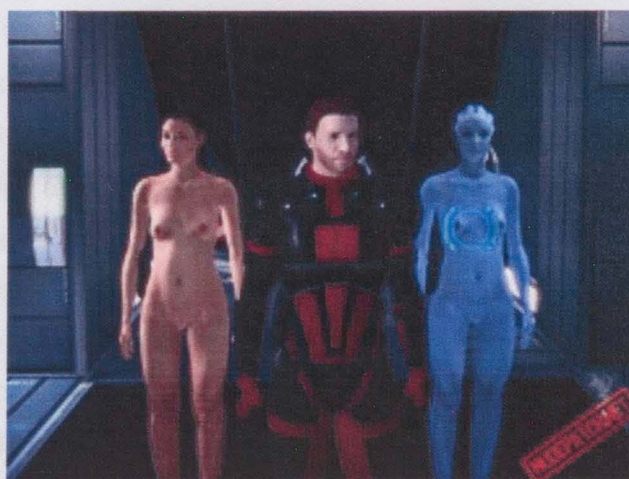
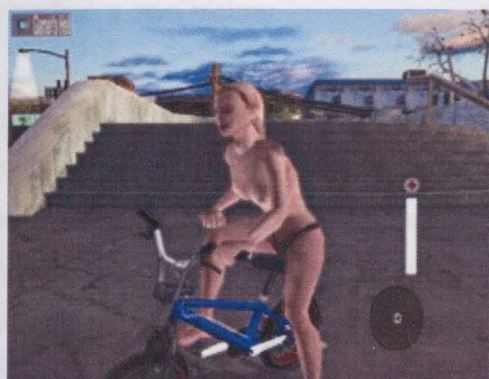
As it stands, character designs are more often than not deliberate idealisations, or visual 'hyperboles', of femininity and masculinity. The gamer knows that this is an illusion, and this obscene hyperreal exaggeration and stereotyping ultimately renders the characters non-sexual. It turns them into empty simulacra which are taken for granted as a de facto part of the medium (Baudrillard, 1999 [1983]), even as caricatures. They fail to make an emotional impact of any sort on the player. Fashion works on the same principle, as fashion designers work mainly within certain limits that the objectifying code has always demanded. To step outside them means to forsake commercial impact. This is why there is stereotyping equally in the design of the video game characters, via overused and tired significations, which are common within society in the notion of *genre*.

Fashion historian Valerie Steele sees fashion as 'a symbolic system linked to the expression of sexuality', which permeates both sexual behaviour and gender identity (Steele, 1996: 182). While the notion of the expression of sexuality through avatars will be examined in detail in the following chapter, I must state here that, as the avatar is a primordial model of the player, so avatars may be a primordial model of the player's expression of sexuality via (self-) adoration of the avatar as the extension of the player's body schema. However, as society defines beauty, the female avatar is subject to modification (Dworkin, 1974: 112). The "fashion-beauty complex" revolves around gaze and reshapes the avatar. Judith Butler's *performativity* (1990), as female play in meeting social expectations (1990: 33), can be transferred to the virtual domain. Following this notion, females perform femininity through the avatars that they are given. Player subjectivity is thereby hindered, as the designs are subject to the conscious decision by

producers to communicate stereotypes, based on consumer research and conclusions on consumer desires. Of course, the consumer is an active agent in the process of creating media stereotypes on demand. However, partly due to the historically male-dominated industry, which has not caught up with other industries yet, and partly due to the overdeveloped element of hyperreal spectacle in games, many female gamers consume their own physical hyperboles. The extent to which this is done willingly is unknown.

Paradoxically, there are few examples of full nudity in video games altogether, if the so-called 'adult games' – these are games with limited distribution addressing exclusively adults and having sex and/or nudity as their main subject – such as Japanese *hentai* (illustration 40) and strip poker games, are excluded. In earlier examples of the medium, nudity was mostly used for comedic effect, as in the adventure franchise *Leisure Suit Larry* (illustration 41; Sierra Entertainment, 1987-2009). Then there were the coin-operated puzzle games at the arcades, which featured nude female imagery, such as *Lady Killer* (illustration 46; 1993, Mitchell Corp.) and *Qix* clone *Gals Panic* (illustration 42; Saint Fun, 1998) and some of which were transferred to the home consoles. With the widening and upward expanding of the demographics of the market, mainstream titles that involved female nudity started being published. *BMX XXX* (illustration 45; Acclaim, 2002) and the *God of War* franchise (illustration 43; SCE, 2005-2010) are good examples of this trend. PC players also use 'patches' on games, i.e. software which changes the appearance of the in-game models, in order to "undress" the characters, and there are whole websites dedicated to offering nude patches for games (nudepatch.net, for example). Interestingly, there are no patches for male avatars, which confirms the aforementioned speculations regarding the male gaze on the avatar (illustration 44).





40-46. Clockwise from top left corner: Hentai dating game, Leisure Suit Larry, Gals Panic, God of War, Mass Effect nude patch, BMX XXX and Lady Killers

This, for Baudrillard, is a modified sexuality, which is achieved within the system of fashion (1993 [1976]: 95-105). The avatar – if we consider the avatar to be the *mannequin* in Baudrillard's political economy of the sign – is sexuality itself as a sign: Baudrillard (1993 [1976]: 95-105) writes that sexual seduction through fashion occurs within a modified sexuality, due to a human 'taboo that bears on futility', and eroticisation is always focused on a fragment of the body. The skin does not imply nudity, but eroticism, as it becomes a 'medium of contact and exchange'. Male sexual potency depends on articles of clothing refashioning the female body according to current ideals in order to excite in seemingly new ways. Skin is exposed and concealed in specific ways to create a

balance between the forbidden and the allowed. And this is what we can observe in video games, albeit in further exaggeration. In fashion, seduction is the way to sell clothes mainly through attractive, persuasive fashion photography. Costume as a tool for seduction works similarly in video games, where we deal with the *mannequin*, as the body is a made up construction, an excuse for sexuality. The costumes of the characters are usually featured in the advertising of the games in order to attract buyers. The costumes also have to be designed so as to enhance the virtual bodies sufficiently for the players to feel attracted to the characters. Ultimately, what we are witnessing is a hyperbolic depiction of femininity and masculinity engaging in exaggerated scenarios inherited from other hyperbolic media, such as comics and animation, or deriving from the medium's own history.

However, the body as nature and not as sexuality, the nude body as opposed to the fetishised body, is very rarely used in games. Crucially, the models of the characters are created with the clothes painted on them, and a change of clothing means a complete change of model. In this sense, the body of the avatar does not exist. There is no nature, no real, just sexual signification and fashion, just the imaginary and the symbolic.

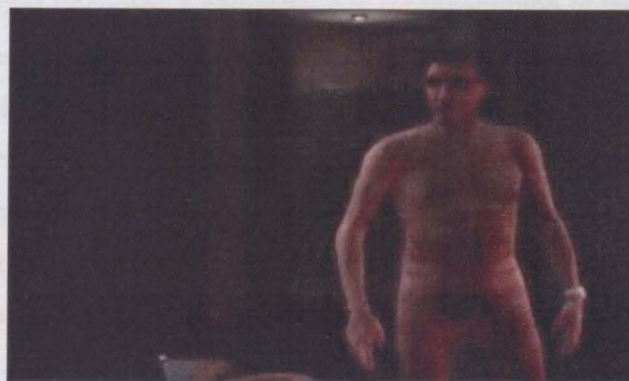
For Baudrillard (1993 [1976]: 101), the body is the site of the drama and the denial of castration, as illustrated by the Chinese custom where the female foot is mutilated and then venerated as a fetish. Likewise, the entire body is subject to marking and mutilation, followed by erotic exaltation. In this context, rouged lips are phallic, as the made-up mouth does not have a use value, such as speaking, eating, or kissing, but instead they only serve a perverse erotic and cultural function. When the eyes are metamorphosed by make-up, they do not gaze anymore, 'they revel in their own fascination'. Desire is mediated by a restructuring of the signs of the body as phallic accumulation. This becomes a full political economy. The female body is the fetish-object, 'an immense labour of phallic simulation at the same time as the spectacle of castration':

Any body or part of the body can operate functionally in the same way, provided that it is subject to the same erotic *discipline*: it is necessary and sufficient that it be as closed and as smooth as possible, faultless, without orifice and 'lacking' nothing, every erogenous difference being conjured up by the structural bar that will *design(ate)* this body (in the double sense of 'designate' and 'design', visible in clothing, jewellery or make-up, invisible but always present in complete nudity, since it then envelops the body like a *second skin*. (Baudrillard, 1993 [1976]: 102)

The erotic privilege of the female body as flawless abstraction works for women just as much as for men. In the video game, the woman is united with her body as erotic matter. Baudrillard mentions the James Bond film *Goldfinger*, where 'a woman is painted in gold, all her orifices are blocked up in a radical make-up, making her body a flawless phallus'. But the same is true for every avatar: it does not have any functions except to be gazed at. Its dress or its nudity are permanently marked on it. And it is always youthful. This is a designated nudity, a lattice of signs without a body. For Baudrillard, this is not a negotiation of identity by the subject behind the mask, but a consumption of the subject's identity and, ultimately the subject becoming an object for symbolic exchange:

Closure of the mirror, phallic reduplication of the mark: in both cases the subject is seduced by itself. It seduces its own desire and conjures it up in its own body, doubled in signs. (Baudrillard, 1993 [1976]: 107)

Nudity is rarely integrated in the narrative or necessary as the presence of the body without clothes, but is instead used as the absence of clothes, that is, just to tantalise the player. Nevertheless, there have been examples recently of nudity being used in – slightly – more meaningful ways. Such examples include *Heavy Rain* (illustration 47; SCE, 2010), where the character takes a shower during gameplay, as dramatic tension is building up, and *Grand Theft Auto IV: The Lost and Damned* (illustration 48; Rockstar Games, 2010), as one of the gangsters has a massage in one of the cutscenes, which is used to make a point about the plot. Such examples are used in the context of social realism, and the naked body is depicted more as nature than as sexuality. Of course, it is difficult to completely devoid the female nude of sexuality.



47-48. Heavy Rain and GTA IV

History and Mythology

The notions of the male gaze and of the female dress as a scopophilic device also permeate historic and mythological costume design, where there is consistent hyper-sexualisation of the women and hyper-masculisation of the men. When women are featured at all in such settings, they are often represented mainly as objects of desire or helpers, and this reflects on their attire, as the exaggerated aspects of the female physique are further enhanced and made prominent by use of dress that selectively reveals or conceals them. Tight clothing that reveals the curves of the body is common, and the chest, neck, waist, and limbs may be bare, or dressed tightly so that the form of the body part is underlined. These tight parts may be juxtaposed with loose parts or parts which alter the overall form of the body to point to specific parts, such as the breasts or legs, by making them the focal point of the composition.



49-50. Diablo, and Baldur's Gate characters

Tabletop RPG designer James Wallis asserts that players like to be able to take on the role of someone with superior abilities to their own, as this becomes an escapist occupation (Wallis, 1994: 66-83). RPG expert Michelle Nephew also believes that the role-playing experience is mainly imaginary, as the character becomes a self-reflective representation of the player's psychological drives, reversing the hierarchy of cultural power, and displacing the player into a better world (Nephew, 2006: 124-5) through performance (2006: 120-1). In this context, male-oriented RPG settings are a 'direct contrast to the impotency that society forces on male gamers' (Nephew, 2006: 128). The casting of female characters in typically male roles is a result of this, and it disallows women to identify with a character, something common in the fantasy genre, which never 'breaks women characters out of the confines imposed by male fantasy' (2006: 131):

By drawing on fantasy tropes, pseudo-historical background, and the work of biased writers like H.P. Lovecraft, role-playing games in this way disempower women either by masculinising them or by positioning them in the roles of devalued and extraneous non-player characters (NPCs) who are manipulated by the GM [game master]. The dominance of the male adventurers is consistently foregrounded though the game's thinly disguised gender inequality and focus on combat and violence – the hallmarks of male fantasy and an outlet for the male players' erotic desires is provided by the misogyny common to role-playing. (Nephew, 2006: 131)

Kirkpatrick believes that even though the salience of fantasy themes is commonly attributed to the upbringing of game designers (dungeons and dragons, preoccupation with violence, etc), there are also similarities of content with the first baroque: 'a concern with magic, the fantastic and a playful culture of death and spectral apparitions'. He finds that an excess of pattern over meaningful content is present in both the baroque and the video game (Kirkpatrick; 2011: 175).

Stereotyping in the fantasy genre, however, goes beyond gender. For Baudrillard, history is our myth, or lost referential, and it becomes a fetish on the screen (1994 [1981]: 31). Historical immersion is important, but the imagery of each era is mediated and distorted. Media theorist Eva Kingsepp (2007: 366) points out that the same visual codes and genre conventions present in popular culture are what historic events such as the Third Reich and World War II are represented through. One of the main functions of dress in narratives is to position the characters in a specific time frame and place, and these are denoted through references to social archetypes and/or formal attire. Historic costume attempts verisimilitude, but the result is a biased, popularised, and codified verisimilitude. The characters are references to history, but abstract references at that, which are defined by their difference to the themes of other games and characters. Here we have history as commodity and as a simulacrum. The same is true of all historic game settings, from Medieval graphical adventure games such as *King's Quest* series (illustration 51; Sierra, 1980-1998) to Prohibition era American Mafia in *Mafia* (illustration 52; Gathering, 2002).



51-52. *King's Quest* and *Mafia*

The notion of authenticity becomes increasingly irrelevant as we move from pseudo-historic fantasy to quasi-mythological fantasy, which pervades the majority of the titles. Heroic fantasy themes are mainly based on the romanticism of the past, mainly of the Western Medieval and Nordic mythologies and traditions. Other, less common influences, include classical Greece in games such as *God of War* (illustration 58; Sony, 2005-2011) and *Titan Quest* (illustration 55; THQ, 2006-2007); and the Victorian myth of the Vampire in the *Castlevania* (illustration 57; Konami, 1986-2010) and *Devil May Cry* (illustration 56; Capcom, 2001-2008) series.



53-58. Clockwise from top left corner: Ultima VII, Warcraft III's Arthas Menethil, God of War's Kratos, Titan Quest, Castlevania characters and Devil May Cry's Dante

Other games play with references more promiscuously. The characters of RPG series *Final Fantasy* (illustration 59; Square Enix, 1987-2011), for example, have many different cultural and mythical elements, which vary from game to game in the franchise. In *FF VII*, the costumes of the characters are equally influenced by the attire of Japanese warriors, Western Medieval warriors, modern street wear, modern casual wear, and modern sportswear, among other things. This is a very postmodern approach to character costume, which is very characteristic of Japanese games. The mixed influences derive from contemporary Japanese pop culture, such as manga (comics)

and animé (animation), which are based on Japanese myth, legend, and philosophy, as well as an interpretation of American pop culture, most notably action films, comic book superheroes, and Disney's animation. Another notable example of this approach is *Chrono Trigger* (illustration 60; Square, 1995), which mixes science fiction with the aforementioned elements of Japanese and American history and pop culture.



59-60. Final Fantasy VII and Chrono Trigger characters

The fantasy theme is very common in both Eastern and Western RPGs, the later of which are direct descendants of tabletop RPGs such as *Dungeons & Dragons*, and originally influenced by ancient epic literature, such as Homer's *Odyssey*, and more immediately by Anglo-American romantic literature, such as the works of William Morris, C.S. Lewis, Edgar Rice Burroughs, and J.R.R. Tolkien (Huber, 2005: 169). The genre of heroic fantasy can be seen as one by which questions of race, nation and ethnos are worked out in fictional geographies (Huber, 2005: 170). For Kingsepp (2007: 366), in the mythological we are also dealing with existential questions about the nature of good and evil and of life and death.

Video game theorist Tanya Krzywinska points out that myth and mythic play perform a structural, a stylistic, and a rhetoric function in virtual worlds, which are extensions of a 'blueprint formulation' that is expanded from fictional worlds common in the fantasy, horror, and science fiction genres (2008: 123). These worlds are in turn derived from pre-existing mythological traditions, such as the Celtic, Greek, North American, and Nordic (2008: 125). What Krzywinska calls 'the hero quest format' is a modern adaptation of the heroic literature of ancient civilisations, partly formulated by American writer Joseph Campbell (1988 [1949]). Most fantasy multi-player games have spatial structures similar to many mythological systems, as well as the contemporary fantasy genre in literature and film. They are based on a constant, consistent, and complete secondary universe, as evident in J. R. R. Tolkien's work (Krzywinska, 2008: 126).

Campbell compared the myths of many religions and philosophies, and concluded that there are common elements and structures, to the point where they can all be described within one formula. In a quasi-psychological attempt based on Freud and Jung (1988 [1949]: 4), but also influenced by anthropology, he devised the 'standard path of mythological adventure', as mirrored in the formula represented in the rites of passage in all civilisations: *separation, initiation, return*. Campbell calls this threefold unit the *monomyth*. In 1992, Christopher Vogler published *The Writer's Journey: Mythic Structure for Storytellers and Screenwriters*, which turned the Joseph Campbell synthesis into a plot outline, illustrated by films like *Rocky* (1976), *Star Wars* (1977), and *An Officer and a Gentleman* (1982) (Bordwell, 2006). Through film, but also as a direct influence, Campbell's work has been used extensively in games, as the goal-oriented structure is the perfect canvas for heroic narrative. Vogler (1992) has been cited in game design literature repeatedly (Dunniway, 2000; Jacobs, 2007: 25-42; Krawczyk & Novak, 2006; Rollings & Adams, 2003). Critics of Campbell's work assert that cultural hegemony transpires in the use of monomyth, through Western conventions such as the linear progression of time. Other criticisms are that the monomyth is very reductionist, as there really is nothing "mono" about it, and that the games industry relies on it a little too often (Blackwell, 2007). However, the monomyth is still quoted among the most prominent influences in game design, and it has been so overused in my opinion that it henceforth inevitably leads to stereotypical creations. While archetypes are useful in establishing a narrative structure, and archetypal fantasy costume certainly has a place in the medium, I find that this can work against multiplicity in the representation of dress.

Stereotyping of Contemporary Dress in the Action Genre

Stereotyping, i.e. the creation of a pronounced form developed from physical, emotional, and cultural elements in an attempt to establish specific audience recognition (Hedgpeth & Missal, 2005: 58), is the main issue with avatarial dress. One only has to read Patrick Kolan's (2011) article on IGN.com entitled 'The Devolution of Character Designs, or 'How Every Game Hero Looks Like Vin Diesel'' to realise the extent to which this statement stands (illustration 61). For Baudrillard, this serialisation is inevitable as art becomes a product:

Art and industry can thus exchange signs: art, in order to become a reproductive machine...and production, in order to lose all social purpose and thus to verify and exalt itself at last in the hyperbolic and aesthetic signs of prestige that are the great industrial combines...In this vertigo of serial signs — shadowless, impossible to sublimate, immanent in their

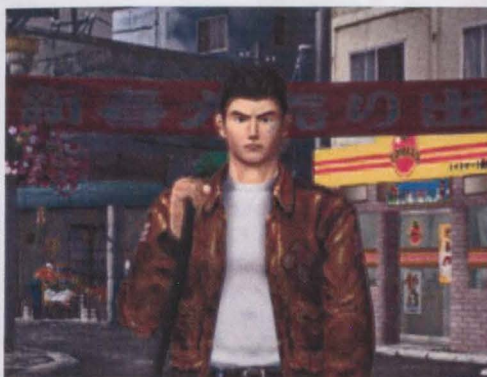
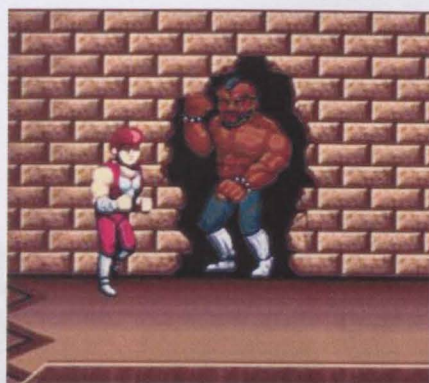
repetition – who can say where the reality of what they simulate resides?

(Baudrillard, 1993 [1976]: 75)



61. Star Wars: The Force Unleashed, Too Human, GTA IV, Killzone 3, Infamous 2 and Wheelman characters.

A large part of the action genre, which includes fast-paced games, where the emphasis is on shooting or melee fighting, involves casual contemporary (as opposed to futuristic, historic, and mythical) dress: the protagonist of *Contra* (illustration 62; Konami, 1987) is typical of the characters of early side-scrolling shooting games, wearing a pair of blue jeans, no top, a bandana, and carrying a machine gun; *Final Fight's* (illustration 64; Capcom, 1989) Cody is characteristic of the 'beat-em-up' arcade games of the late 1980s, wearing a white t-shirt, blue jeans, and wrist bands. This generic action look appears to have been influenced by 1980s action movies such as *Rambo: First Blood* (Orion, 1982) and *Top Gun* (Paramount, 1986). Many martial arts-themed games have also featured Japanese interpretations of 1980s punk styles: the characters of *Double Dragon* (illustration 63; Taito, 1987) wear wrist bands, tight trousers, and have punk hairstyles such as mohawks. The video games industry first prospered and started to expand in the 1980s, and as many companies made their debut in that era, some of the intellectual property derives from it. The action hero has gradually been elaborated with more complexity and detail, as for example in action-adventure *Shenmue* (illustration 67; Sega, 1999), but some of the stylistic roots persist to this day: *Grand Theft Auto IV* (illustration 65; Rockstar, 2009) and Sony's *Uncharted* series (illustration 63; Sony, 2007-2009), which are famous for their attention to realism and detail, follow the style prescribed by the codification of the action genre, i.e. the same stereotypes as imprinted on the cultural collective unconscious.



62-67. Clockwise from top left corner: Contra, Double Dragon, Final Fight, Grand Theft Auto IV's Niko, Uncharted: Among Thieves and Shenmue.

Another action sub-genre, the 'survival horror', has its own parallel tradition. *Alone in the Dark* (illustration 69; Various, 1992-2008) was the first of the kind, and while the original featured formal dress, recent attempts to make the series commercially successful have dressed the character in a conventional "action" style (white t-shirt/blue jeans/leather jacket). The *Resident Evil* series (illustration 68; Capcom, 1996-2011) involves different player characters in every game, but they all have similar references: some of them wear modern police uniforms, some are dressed casually, and a few are dressed formally, for example in long dresses and high heels. What makes their attire more action-oriented than casual, is that it is accessorised with weapons, military boots, leather bullet holders, and gun holders. The *Silent Hill* games (illustration 70; Konami, 1999-2009) prefer another, more "artistic", approach: they dress characters in distressed, bloodied nurse uniforms or formal dresses, which convey the moody atmosphere of the game as it derives from the schizophrenic personality of the characters. However, they are still fundamentally based on the same 'survival horror' stereotypes common to most titles belonging in the genre.



68-70. Clockwise from top left corner: Resident Evil characters, Silent Hill characters and Alone in the Dark

As games have already formed genre definitions and history, they make use of traditional references based on the lineage of the medium. Even though such anachronistic references are showing their age today, the intertextual constants within a franchise, as well as the declaration of the target group by the product and its promotion, keep them alive. This is equally, if not more, prominent in fighting games, where the characters are seen from the side, as the camera occasionally switches and revolves around the characters for dramatic effect, enhancing the player's identification with them. The costume of fighting game characters has evolved at a fast rate, due to the nature of the gameplay, which usually only presents two characters at a time fighting. For this reason, the computational power available to the designer of the characters is greater, and there are more possibilities regarding the characters' dress, including advanced cloth and hair simulation. *Dead or Alive 5* (Tecmo, 2011), for example, features fully animated clothing and hair. In this respect, the fighting genre offers the best affordances for dress representation, especially as the body of the fighter, and not the environment, is the focus. Chinese and Hong Kong martial arts films are one of the main influences of character costume in fighting games. The first titles of the genre were two-dimensional, and the fighters were usually dressed in martial arts

uniforms. *Karate Champ* (illustration 71; Data East, 1984) and *Way of the Exploding Fist* (illustration 72; Melbourne House, 1985) are two examples of this.



71-72. *Karate Champ* and *Way of the Exploding Fist*

However, the fighters became superhuman as the genre absorbed cultural references and gradually developed a specific self-referential look. There were intertextual references between the franchises, and increasingly exaggerated character abilities and appearances, as every series attempted to compete by impressing the consumer with its characters. For Hutchinson, the stereotype of the fighting game is constructed 'by means of costume, facial and bodily characteristics, weapon usage, movement, and voice':

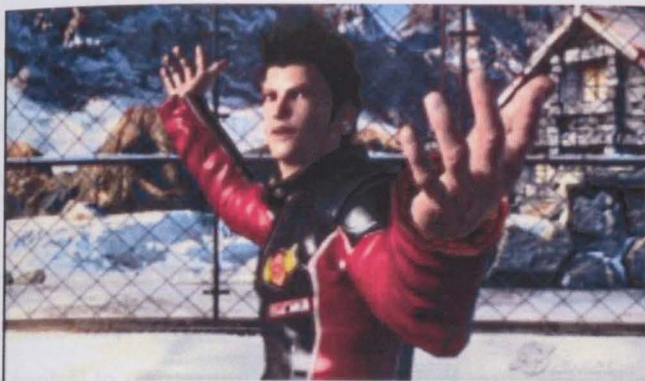
Although most of these constructions may be described in terms of stereotype, it is apparent that archetypal figures are also present...Such mythic timelessness is a hallmark of essentialization, in which the core features of a particular culture are presented to the exclusion of other features, gradually coming to stand in for the culture as a whole. Thus, Japan is boiled down to images of ninja and samurai, whereas ancient Europe can be represented by pirates and courtiers...Over time, these essentialized images become stronger and more pervasive in the consuming culture, through the process of repetition, reinforcement, and naturalization. (Hutchinson, 2007: 286-8)

Modern fighting games such as the *Street Fighter* (illustration 73; Capcom, 1987-2011), *Virtua Fighter* (illustration 76; Sega, 1993-2010), *Tekken* (Namco, 1994-2011), *Dead or Alive* (illustration 74; Tecmo, 1996-2011), and *Soul Calibur* (illustration 75; Namco Bandai, 1996-2009) series, typically offer a variety of characters, all with different costumes, influenced by their nationality, ethnic traditions, style of fighting, as well as action and fantasy elements. Chinese Chun-Li, for example, wears a blue *qipao*, an early 20th century Chinese dress. The traditional dress has been

modified to allow for easier movement. She also wears white combat boots, a brown pantyhose, silk brocades and ribbons in her hair, and spiked bracelets. In most such titles, fantasy elements are mixed with traditional elements, i.e. the myths and legends of the countries and periods the characters hail from: some of the characters have Victorian, some Medieval, and some Chinese references. Hutchinson finds a similar logic in the characters of Soul Calibur II (Namco Bandai, 2002):

Taking Soul Calibur II as a case study, we may see an array of stereotyped images of fighting figures. We have a number of clearly Japanese figures from myth or history: Taki the female ninja, Mitsurugi the samurai swordsman, and Heihachi, an elderly karate expert. Other Asian countries are well represented, with Xianghua from ancient China, Maxi from the Ryukyu Kingdom, Yunsung and Seung Mina from Korea, and Talim from Southeast Asia. Caucasian characters include Raphael, master of the French rapier, Cassandra and her sister Sophitia, both short-sword fighters after the manner of ancient Athens, Cervantes, a pirate from Spain, and his daughter Ivy, raised in the English aristocracy. (Hutchinson, 2007: 288)





73-76. Clockwise from top left corner: Street Fighter IV characters, Dead or Alive, Soul Calibur characters and Virtua Fighter.

It is clear that fashion is not a considerable part of a video game, as the style of character dress is mainly influenced by the fantastical setting of the game. A lot of dress choices in video games are limited, and perhaps in some cases anachronistic and irrelevant. The computational power of today's home entertainment technology simply does not justify the exclusion of multiplicity and quality of avatarial dress. I will try to address this issue with the creation of *DressCode*, which will move away from stereotypical costume design and towards fashion: it will feature casual, sports, and formal dress styles and items. As the focus of the game is dress, fashion items will be many, varied, and made with attention. Multiplicity will be brought about by a dynamic fashion system, on which the game will depend. This will be updated by an external database, in which new styles and trends will be added every new season. The players will also be able to use or exchange their own creations. Furthermore, there will be several kinds of levels of the fashion market included, such as high street and designer clothes and accessories. Perhaps later extensions can also make ethnic dress or localised products available. Hair styles and make up will also be available. More importantly, they will be made by a person with some knowledge of fashion on both levels of conception and production, and not by a "classically" trained concept or 3D artist. I hope that this will help avoid stereotypical looks such as the aforementioned t-shirt/jeans/jacket which has been repeated in many examples of the medium. The numerous items included will be high-quality 3D

models textured with high-resolution bitmaps. Cloth and hair simulation is considered, but it is not clear as to whether it can be implemented with the current technology at my disposal and within the given timeframe. However, if this will not be included in the submitted version of the prototype, it will most certainly be added at a later stage.

Crucially, dress in most games only affects the representational layer in order to enhance the affective involvement of the player in the game (Calleja, 2011). In *DressCode*, fashion will instead be central to gameplay, and it will affect and reflect the simulation. Dress in the game will be used to communicate meaning, as well as altering the body schema of the player. Personal expression will be accomplished through subjective performance of body and dress. The available options will unavoidably reflect the designer's personal world view, however I will try to minimise the objectification of the player: stereotyping, serialisation, idealisation, and gender exaggerations will be purposefully diminished. The objective of *DressCode* is to offer the player the ability to act out her social fantasies by truly personal and subjective performative experiences.

Nudity and the concept of the naked body as a blank canvas will be explored in the proposed fashion game prototype, in order to establish the relations between body, dress, and the social world. This is one of the reasons why the avatar's polygonal in-game model will be featured as a nude body, where clothing articles can be put on as separate entities, independent models that will have physical properties and individual attributes akin to real clothing. The avatar will therefore always exist as a nude body underneath the clothing, and so concealment can be achieved in various ways in order to attract the non-player characters. The player will be able to choose the avatar's body, and so gender stereotyping will not be present. The player will create the avatar by her own standards, and so its attributes will be visible by the other players, affecting interaction, but there will be no measure of attraction in the code. However, to what extent the player wishes to expose the avatar's body will affect both representation and simulation. The virtual community may formulate and conclude to its own norms and standards of expression of sexuality, and draw the line between desirable and excessive. As performance is at the heart of the game, performativity of sexuality and beauty norms will be part of it, however the rules, unless in mission-driven gameplay, will be defined by the online community. In technical terms, as the body of the avatar will be separated in parts, the code will be able to establish which parts are covered and which are not, which are tightly or loosely concealed, and which are covered by translucent materials. The body in *DressCode* will not be a flawless abstraction, as much as the medium allows it of course, but rather an entity carrying its own significations. Nudity in the game will be meaningful.

Avatarial Dress as Social Realism

As I am employing fashion as a possible solution for problematic representational issues, I will now explore two methods I consider useful for the inclusion of dress that enhances the *syndesis*, i.e. the connection, between the simulation and the representation, and can help produce meaning. So far, the most common kind of realistic dress in games has been casual, which includes street and sports wear, as in *Tony Hawk Pro Skater* (illustration 77; Activision, 1999-2010), a series that helped put street culture in games. Street subcultures, such as hip hop and punk fashion, including caps, shorts, big loose t-shirts, loose low jeans, and trainers, are commonly found in the medium today.



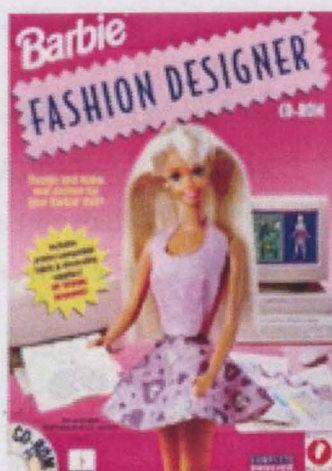
77. Tony Hawk Pro Skater 4

The evolution of realistic sports games has also occurred at an impressive rate. As sports games are extremely successful commercially, a lot of funding is injected in their production. Early sports games, such as *Track and Field* (illustration 78; Konami, 1983-1988) and *FIFA International Soccer* (illustration 79; EA, 1993) were two-dimensional and featured poorly animated small character sprites. As a result, the representation of the kits was limited and generic. With every new release of each series, and as gaming hardware became more powerful, the representation of the athletes became increasingly realistic (illustrations 80 and 81). Current sports games feature graphics almost indistinguishable from photography. The athletes' movement is motion-captured and the athletes' kits closely reproduced. Even the athletes themselves are digitised and reproduced as 3D models.



78-81. Clockwise from top left corner: Track and Field, FIFA International Soccer, FIFA 2012 and Madden NFL 2012

Another notable genre that flirts with social realism is that of fashion activity titles, which can hardly be regarded as games in the ordinary sense, but which have some interesting features with regards to avatarial dress. Such activity titles are *Barbie Fashion Designer* (Mattel, 1998; illustration 82), *Barbie Fashion Show* (Mattel, 2004), the *Bratz* series (THQ), *Project Fashion* (Empire, 2007), *Fashion Designer Style Icon* (505 Games, 2007), and *Imagine Fashion Designer* (Ubisoft, 2007) (illustration 83). Fashion activity titles are targeted at young girls, and they are the digital equivalent of dressing up dolls. Basic scenarios may be given, but the main goal of such software is to teach the young person how to create clothes, how to combine styles, and how dress affects social interaction. Most of these titles have an instructional or educational character.



82. Barbie Fashion Designer cover



83. Barbie Fashion Show, Fashion Designer Style Icon, Bratz Rock Angels, Imagine Fashion Designer and Project Fashion covers.

However, these genres do not account for a few things that would classify them as social realism. For one thing, they do not separate the body from the clothing. Even in most fashion styling titles, the body of the avatar is substituted completed in order to accommodate clothing changes. For another thing, there is no system in place which allows for the external input of new styles and trends. As a so-called 'new medium', the content of games could be automatically and dynamically updated. There is no reason, then, for the characters' clothes to be static and permanent. A dynamic fashion system, which would increase affordances for personalisation, could be positive for avatar embodiment. Most importantly, clothing is purely cosmetic, and it does not affect gameplay in the slightest, with the exception of very few fashion styling titles, where specific combinations must be made for the player to achieve certain goals. Even such titles use this mechanic in an elementary way, and do not give the clothing articles their own numerical or otherwise simulational attributes. Synthesis is therefore not established between simulation and representation. This is why the first inclusion in *DressCode* will be a simulation of the semiological system of fashion. Galloway asserts that gaming is a purely expressionistic medium, which may attempt visual "realistic-ness", but which has no grounding in realism as 'a technique to approximate the basic phenomenological qualities of the real world', which goes beyond realistic visual representation (2006: 70-84). In cinema verisimilitude is important. Metz writes: 'Everything on the screen is set to be believable, even though the viewer knows it is made up' (1986: 61-74). Film, of course, draws on complex codes of generic and social verisimilitude, derived from the film's genre and the viewer's lived experience (Street, 2001: 7). It is debatable whether verisimilitude in games can be achieved, as increased realism can lead to an increasing lack of believability, due to the Uncanny Valley effect (Nagayama & Seyama, 2007). Verisimilitude in the video game seems an oxymoron, as remediation re-simulates the object in every new medium, to the point where we end up with something which claims realistic representation, while in fact being the ultimate fake:

Reality itself founders in hyperrealism, the meticulous reduplication of the real, preferably through another, reproductive medium, such as

photography. From medium to medium, the real is volatilised, becoming an allegory of death. But it is also, in a sense, reinforced through its own destruction. It becomes *reality for its own sake*, the fetishism of the lost object: no longer the object of representation, but the ecstasy of denial and of its own ritual extermination: the hyperreal. (Baudrillard, 1988a: 145)

Many developers use visual fidelity to imply quality and authority, and as Bogost puts it, 'Just as poor or "generic" package design can turn consumers away from a quality product, so the skin of a procedural rhetoric might influence player enticement' (Bogost, 2007: 49). However, in games we experience the alteration of the body schema (Biocca, 1997) not only in representation, but also in simulation, and embodiment is more important than filmic identification. It appears that what is important here is not visual realism, but the presence of a system of signs, which, however abstract, can communicate certain meaning which will be of advantage to the simulation and compliment it. This is where social realism can be applied, as the representation of real life and all of its negative aspects and struggles (2006: 70-84), which has a strong socialist political dimension: realism in cinema refers to the code of the working class (Jameson, 1971). Galloway suggests that game studies should follow the same arguments, judging games not by the degree of realistic representation, but rather by how accurately they reflect critically on the experience of everyday life, and all that it entails (2006: 70-84). As games are an active medium, they must involve realism in action:

Whereas the visual arts compel viewers to engage in the act of looking, games compel players to perform acts. Any game that depicts the real world must grapple with this question of action. In this way, realism in gaming is a process of revisiting the material substrate of the medium and establishing correspondences with specific activities existent in the social reality of the gamer. (Galloway, 2006: 84)

Aarseth doubts that the activities of the player have social weight which affects the world (1997: 167). Likewise, for Kirkpatrick, video games are not political art in the sense of avant-garde, i.e. conscious artistic political interventions, but they 'seem to inherit and exemplify many of the tensions and paradoxes of the modern artwork' (2011: 36). At the moment, games adhere to one of the roles of the entirety of the culture industry: pacification through comfort (2011: 38). Real art's role is to instead maintain a distance from the prevailing social order, creating a new order of

things and offering an alternative view to the current hegemony (2011: 39). But the way video games work does not allow the viewer to take their content seriously:

Gameplay involves an attitude that is cynical and humorous, which says:

'Yes, it's a beautiful image, but you'd be wrong to take it seriously'.

(Kirkpatrick, 2011: 41)

Kirkpatrick believes that the video game has to play with the attributes of the society that produced it, so that brands, consumerism and money power have to have a role in it, even if not explicitly (2011: 44). In this sense, Kirkpatrick writes, the video game experience must be resistant, but not oppositional, to the dominant societal logic (2011: 44). My interpretation of this statement is that video games must model socially realistic situations, taking into account all the major forces having effect in a system, while at the same time explicitly exhibiting an abstract but equivalent representation of the results these forces have in the system. In other words, a simulation is not complete unless it is symmetrical in the distribution of what Bogost (2006) calls 'unit operations': one ideological side should be countered by its opposite, and the more the represented positions in the simulation, the more complete the model would be. In a game about fashion, this would entail the inclusion and negotiation between 'trendy' and 'not trendy', between objectification and subjectivity, between the personal and the social, between the industry and the consumer, between formal and casual wear, and so on. The resistance needed comes from making the real agenda of the forces involved obvious to the player through the appropriate use of metaphor and abstraction. In other words, there is no point in excluding fashion from a game if the author is opposed to it because it is in one of its forms an extreme capitalist phenomenon associated with the objectification of the consumer; it is much more constructive to include fashion as completely and transparently as possible, and to expose its underlying dynamics in order to allow the player to understand it as a system, to make a decision in the game, and to inform an opinion in life. Ideological bias should not translate to an erroneous unrealistic and asymmetrical simulation, but to the exposure and highlighting of aspects of the abstraction of social reality through the right metaphors.

Bogost offers two useful examples of social realism in games: Talking about *Vigilance 1.0* (2001, illustration 84), a video surveillance game by Martin Le Chevallier¹, he identifies the game's

¹ In *Vigilance*, the player watches over many places through surveillance screens: streets, supermarkets, parking lots, shops, apartment buildings, schools, etc. She has to point out the most important infractions: robberies, pocket-pickings, burglaries, shop-lifts, breaches of the highway code, trash-abandoning, drug dealing, solicitation on a public place, procuring, drunkenness, sexual harassment, adultery, incest, pedophilia, zoophilia, necrophilia, etc. This earns the player points. However, unpunished infractions increase the rate of amorality of the society. The player gradually becomes conscious that to play the game is in a way to play against the discourse of the game. At the end, the denunciation of a controlled society, the total visibility and spying, puts him in a position of self-denunciation.

tendency to force the player to see the consequences of the metaphor of vigilance as comprehensive regulation. This way, he writes, 'the game challenges the ideological frame it initially represents': (Frasca 2004: 87, 90)

The game's purpose is not to promote surveillance nor moral purity, but to call such values into question by turning the apparently upstanding player into one of the depraved whom he is charged to eliminate. (Bogost, 2007: 110)

The second example is *GTA: San Andreas* (Rockstar, 2004), whose rhetorics, according to Bogost, indirectly affirm the metaphor of criminal activity as moral depravity (Bogost, 2007: 118). In both games, as in any other 'procedural rendering of a license', interrogation and critique may be performed by the player (Bogost, 2007: 175).



84. Vigilance 1.0

Before Bogost, Frasca identified this ability of the simulation to challenge ideas and ideals:

[One could] take the cultural pervasiveness of simulation as a challenge to develop a more sophisticated social criticism. This new criticism would not lump all simulations together, but would discriminate among them. It would take as its goal the development of simulations that actually help players challenge the model's built-in assumptions...Neither art nor games can change reality, but I do believe that they can encourage people to question it and to envision possible changes. Unlike narrative, simulations are a kaleidoscopic form of representation that can provide us with multiple and

alternative points of view. By accepting this paradigm, players can realize that there are many possible ways to deal with their personal and social reality. (Frasca 2004: 87, 93)

I believe that, by introducing the code of dress in the video game (the personal code in this chapter and the social code in the next), I will come closer to a socially realistic game in *DressCode*, and perhaps a socially realistic medium altogether, if my assumptions on its social realist capacity prove to be correct. I have identified two main ways to arrive to social realism in *DressCode*, and these are *syndesis*, and *multiplicity*.

Lacan's concept of the ego as an illusion (2004 [1951]: 7) is very useful in identifying identity in virtual worlds. Language and derivative symbolic systems allow us to make sense of the perception of external factors, which are not concrete, but changing depending on what we strive to make of ourselves and of our world. Lacan postulated that the unconscious is a structure similar to language, as it works on the principles of *metaphor* (substituting a word for another word) and *metonymy* (involving a linear form of displacement), which are linguistic idioms, and this can be observed in the analysis of dreams (2004 [1951]: 173). Metonymy corresponds to the syntagmatic displacement of desire in language, whereas metaphor corresponds to the paradigmatic substitution, the condensation of linguistic figures into one nodal point. As W. B. E. Wright has said, metaphors and metonymies are used in games in order to allow the player to understand the simulation through representation (Pearce, 2002). As per Mouthrop's analogy, Power Atkinson would be inappropriate in the role of Lara Croft (2004: 47).

This is what I call *syndesis*: the perfect connection between simulation and representation, which can be achieved in one of two ways, either the positioning of an appropriate visual metaphor on top of a simulational object, or the positioning of a set of simulational values, attributes, and functions, under a visual object. This may sound like a given, something that video games should achieve by definition, but in reality, the number of in-game objects that consist of both a visual representation and a set of attributes and/or functions is minimal, and strongly linked with the core mechanics of the simulation. Clothing objects, for one, very rarely do.

The internalisation and interpretation of the game's simulation expands and reforms the identity of the player in unique ways. Dress takes part in this internalisation, and it can affect the way the player perceives the avatar, and to what extent the player accepts the avatar as an extension of

Syndesis and Multiplicity

Dress in virtual environments can be one or more of the following three things: a visual representation of dress in a filmic or photographic sense; a textual representation of dress in a literary sense; a visual and/or textual simulation of a representation of dress; and part of the gameplay mechanics of a game, as part of the simulation of the game. For the effect of connection with the avatar to be optimum, simulation and representation of avatarial dress must work hand in hand, the one corresponding to the changes of the other. This way, the emotional investment of the player in the avatar will be complete, i.e. it will have both elements of real-world simulated emotions and win-lose game emotions, and the simulational identity of doing will be constructed at the same time as the representational identity of being. This may have a positive effect on the production of meaning.

Lacan's concept of the ego as an illusion (2004 [1951]: 7) is very useful in identifying identity in virtual worlds. Language and derivative symbolic systems allow us to make sense of the perception of external factors, which are not concrete, but changing depending on what we strive to make of ourselves and of our world. Lacan postulated that the unconscious is a structure similar to language, as it works on the principles of *metaphor* (substituting a word for another word) and *metonymy* (involving a linear form of displacement), which are linguistic idioms, and this can be observed in the analysis of dreams (2004 [1951]: 173). Metonymy corresponds to the syntagmatic displacement of desire in language, whereas metaphor corresponds to the paradigmatic substitution, the condensation of linguistic figures into one nodal point. As Will Wright has said, metaphors and metonymies are used in games in order to allow the player to understand the simulation through representation (Pearce, 2002). As per Moulthrop's analogy, Rowan Atkinson would be inappropriate in the role of Lara Croft (2004: 47).

This is what I call *syndesis*: the perfect connection between simulation and representation, which can be achieved in one of two ways: either the positioning of an appropriate visual metaphor on top of a simulational object, or the positioning of a set of simulational values, attributes, and functions, under a visual object. This may sound like a given, something that video games should include by definition, but in reality, the number of in-game objects that consist of both a visual representation and a set of attributes and/or functions is minimal, and strongly linked with the core mechanics of the simulation. Clothing objects, for one, very rarely do.

The internalisation and interpretation of the game's simulation expands and reforms the identity of the player in unique ways. Dress takes part in this internalisation, and it can affect the way the player perceives the avatar, and to what extent the player accepts the avatar as an extension of

herself. In a game that accounts for dress, the player might develop the avatar by what they believe is appropriate in order to accomplish the task at hand, but also by visual identification. When the representational layer is added to the video game performance, the visuals and sounds may also produce meaning, which will be independent to the meaning of the simulation, and it is up to the author to decide how strongly to link the process with the visual or aural metaphor. There is a distinction between the two different levels of in-game ego formation. What the player *does* in the game by means of avatars agency belongs in the sphere of the simulation. What the avatar looks like, i.e. the player's visual presence in the virtual world, belongs in the sphere of the representation. Of course, the two levels ultimately construct one identity, that of the player. The functions of the two spheres are different and only connected by cultural conventions (and are therefore irrelevant), and so they should be kept separate in their original examination. However, increased *syndesis* between the two semiological layers may prove fruitful for the medium. It may be the answer to increased emotional response, production of meaning, and subjectivity. This would entail a signifying representational shift accompanying the simulational shift brought about by such changes as avatar upgrades or any change of avatars state. In *DressCode* in particular, two factors, namely a representational effort towards similarity with the player and a simulational effort towards progress within the game, will transform the identity of the player.

To that effect, Doris Rusch (2007: 2) suggests games that dynamically turn the player's emotions into fiction, rather than imposing a story that may be independent of the player's emotions, or even contradict them. Such existing games, are *Fahrenheit* (illustration 85; Atari, 2005), where gameplay tension is represented in the story as claustrophobia, *Silent Hill* (illustration 86; Konami, 1999) where gameplay tension is represented as paranoia, and *Ico* (illustration 87; SCE, 2002), where gameplay tension is represented as caring.



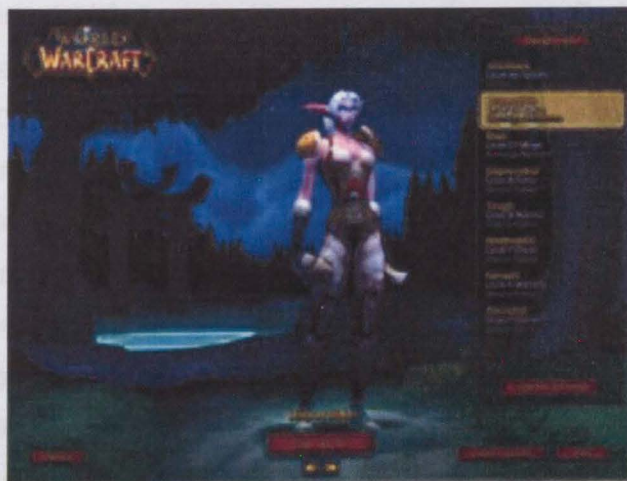


85-87. Fahrenheit, Silent Hill 2 and Ico

What these games do is make an attempt to link and harmonise the representation with the simulation more closely than other games. Maybe herewith lies the answer. Maybe to enhance the emotional impact of a game is not necessarily to make the visuals more “believable”, but to make the visuals have an impact on the simulation and the player’s agency, and vice versa. The answer to increased subjectivity must lie in the interface between the player’s input and the program’s output.

The costumes of the characters of Japanese RPG *Final Fantasy X-2* (Square Enix, 2004), which were mentioned in the previous chapter, are a good example of successful use of syndesis, as they have both visual and functional impact on the game at the same time. The female protagonists can acquire new costumes during the course of the game, which can be used to give them new abilities so that they can win battles that would have previously been unmanageable. The different costumes also add to the visual aesthetics of the game by offering variety, the lack of which would have made the game monotonous. This is the simulational and the representational sides of avatarial dress in high syndesis.

The characters of *World of Warcraft* (illustration 88; Blizzard, 1994), on the other hand, are open characters whose abilities and attributes can be partly decided upon at the start of the game, and then changed throughout the game. The avatars of *World of Warcraft* are not bound to a defined plot and do not have a personal narrative that will see them through a specific route in the game. The player can choose the character's weapons and dress from existing pieces, altering to a certain extent the character's appearance. However, the actual clothing of *WoW* characters cannot be altered after the beginning of the game, allowing only for peripheral aesthetic choices such as weapons and armour in consequent gameplay. The limited choices of aspects of identity appearance affect negatively the formation of virtual identity. Even though the character is open and develops through the player's actions during gameplay, the visual representation of the avatar does not always reflect those actions and choices. In other words, the development of the avatar is often carried out in a simulational sense, i.e. by gaining new abilities and raising statistics and attributes, but the representational side does not follow suit. As a result, players are sometimes unable to maintain the sense of embodiment because their new perception of their online identity is not reflected in the character's appearance any longer, and in some cases abandon that character (Martin, 2005: 5). The choices available for character creation are usually very limited, so it is difficult for players to develop and maintain virtual identity. This also means that many characters in the game will look similar or even the same, further affecting embodiment negatively (2005: 4). Appearances that do not evolve with the character's and player's simulational progress can be problematic.



88. World of Warcraft character screen

One of the stipulations for the design of *DressCode* is that it will allow, and more importantly encourage, the player to affect the appearance of the avatar at will, particularly as an increasing choice of items will become available, and the affordances of the game will *multiply*, as the game

will largely depend on the combinations of garments and accessories in order to produce meaning. The degree of choice regarding the appearance of the avatar should concern both the avatar's body – colour, body type, body characteristics, and decorations – and the avatar's clothing. The player should have unlimited choices concerning the colours, shapes, and styling of the avatar's body and attire. Identity is formed through subjectivity, and the realisation that the player does not normally have real choice regarding the avatar's appearance in the game world, but instead, a system that offers the illusion of freedom of choice by offering multiple, however prescribed and limited options – considering the numbers of players and avatar choices in each online world – works against immersion and can lead to the abandonment of the avatar and consequently the game (Martin, 2005: 5). Through typified genres of simulations and characters, video games offer what Baudrillard calls 'freedom by default', the illusion of subjectivity:

Everywhere today, in fact, the ideology of competition gives way to a "philosophy" of self-fulfilment. In a more integrated society individuals no longer compete for the possession of goods, they actualise themselves in consumption, each on his own. The leitmotiv is no longer one of selective competition, it is personalisation for all. (Baudrillard, 2005 [1968]: 201)

Dress choices depend on the personality and the gaming style of the player. Identity is relevant to personality styles, which influence gaming styles, as the player is more likely to develop the avatar to have similar abilities or attributes to her, in order for gameplay to make sense and for the player to feel comfortable making decisions and taking actions in the game. Bartle's taxonomy, for example, roughly separates MUD (multi-user dungeon) players into *killers*, *achievers*, *socialisers*, and *explorers* (Bartle, 2003: 130-170). Though reductionist, this differentiation will inevitably produce different dress results for every style of gaming, as the player will choose different weapons, armour, and other objects offered by the game, if the game has role-playing or customisation features in general. However, given the opportunity, the style of the character regardless of capabilities will also be approached differently by the different kinds of player. For example, 'role-playing' gamers (gamers who like to project a certain consistent identity) in *World of Warcraft* develop an image for the avatar outside function: they maintain a set of capabilities, but they also keep up a specific persona for the character, which may entail a separate layer of signs, for example accessories that do not add to the abilities, but to the character's image (Tronstad, 2008: 249-50). This image may have been chosen for intimidation or for sociability, depending on the personality of the player. The appearance of the avatars of 'non-role-playing' gamers, on the other hand, develops in parallel and as a result of functional choices based on gameplay needs, e.g. questing and levelling up (Tronstad, 2008: 249-50). In this latter case, there is synthesis

(connection of the representation with the simulation) by default, as the player does not seek a specific appearance for the avatar. However, for role-players, it is usually very difficult to achieve both the desired set of abilities *and* look (Tronstad, 2008: 249-50).

Most RPGs, but also many games of other genres, offer options for the creation and development of the avatar. In most Western RPGs, for example, there is a choice of profession or class, to accommodate for the player's style and preferences. In *Baldur's Gate* (illustration 89; Bioware, 1998), the player can play a fighter, a ranger, a paladin, a barbarian, a cleric, a druid, a mage, a sorcerer, a thief, a bard, or a monk. Each class has different advantages and disadvantages, and a mage will not be as physically strong or agile as a fighter, but he/she will be able to use offensive, defensive, or healing spells. Similarly, a ranger will be very effective attacking from a distance with a crossbow, whereas a barbarian will be more effective in short-range fighting. Furthermore, a diplomatic player may choose to enhance the character's 'charisma' ability over other abilities, whereas a player with a forceful explosive personality may choose to raise the character's 'power' attribute and make her way through the game less through talking and convincing non-player characters and more through brute force. The player can also choose the moral alignment of the character, i.e. good, neutral, and evil, further affecting gameplay. In *Star Wars: Knights of the Old Republic* (illustration 90; Bioware, 2003), the player can reside with the Jedi or with the Sith, thus being good or evil, and this choice enhances with time some of the avatar's attributes at the expense of others. Such a choice also affects the way the environment and the non-player characters (NPCs) behave. The player is offered moral subjectivity, even if it is elementary. And this is important, as it allows for the deliberation of morals, as opposed to traditional static narratives, which include clear moral statements. This sets the video game medium apart from other media and makes choices within it have consequences that collectively affect the player's identity. Frasca writes:

This makes simulations not such a good choice for sacred moral codes since you may not want to have your holy scripts alternately read, "Thou shall not kill," and "Thou shall kill." This also explains why video games are not a good realm for historic events or characters or for making moral statements. A video game about Anne Frank would be perceived as immoral, since the fact that she could survive or die depending on the player's performance would trivialize the value of human life. We all know that Anne Frank died and the reasons for her death; her story serves to convey a particular set of values (Frasca 2004: 86).

But in both aforementioned games, the character creation stage, which is crucially only available at the beginning of the game, has very limited prescribed options for the appearance of the characters. Furthermore, the changes that happen during the game do not reflect on the dress of the characters, but only on weapons and other peripheral items. So, even though the player has some moral choice as to how to align herself in relation to the simulation, which will affect gameplay, the characters do not evolve visually as they progress and their abilities, possessions, beliefs, and other factors change. This brakes the syndesis between what the player is communicated through sets of numbers and what she, herself, can see in the game screen. This is the connection that I am hoping to restore with the creation of *DressCode*.



89-90. *Baldur's Gate* Level Up screen and *Knights of the Old Republic* character screen

In *DressCode*, the processes that will invoke emotions will be produced in the simulation as the sum of an increasing numbers of factors. Representation will only serve to amplify these emotions. By this decision, I am attempting to shift the simulated real-world emotions away from the representation, and into the heart of the simulation. In this sense, subjectivity will produce emotional impact because of the underlying syntactic semiotic structure of the code, as affected and expanded by the player, and only amplified by the remediation of cinematic or literary conventions. These will still be emotions by the numbers, as the model is still mathematical, but these imaginal emotions will be produced not because of binaries like 'yes' and 'no', right and wrong, winning and losing, but because of complex *expressive processing*, as Noah Wardrip-Fruin defines it (2011: 3-6). There will be *procedural multiplicity* applied to the outcomes of agency.

Kirkpatrick believes that it is the incorporation of the player that gives the game its meaning: the circuit is the message, and interactivity, in the sense of a dialogue between affordances and agency, is the form (2011: 199). Perhaps the use of better algorithms, or more complex algorithms, may increase the depth of meaning in games. After all, the controller produces a syntax that has certain elementary meaning, a sentence that can be put in a larger context, or amplified in a certain way to produce more meaningful content. For a significant text to occur, the game must be

seen outside a range of prescribed actions (Kirkpatrick, 2011: 69), as currently, the movements of the player are guided but at the same time held apart from any actuated meaning (2011: 71). There is a discrepancy between the visual content, and the interface signs (2011: 70):

Just as Magritte's work forces a proliferation of simulacra, copies without substance or weight, so video games offer us experiences in which simulacra proliferate, where we engage with objects that are never quite what they seem but which, nevertheless do afford us experiences that are coherent in their own terms, that is, as video game objects...The video game object has to appear to be something else, without actually performing the representational function of standing for any one thing. (Kirkpatrick, 2011: 72)

Bogost also links sophisticated interactivity with greater responsiveness: 'tighter symbolic coupling between user actions and procedural representations' (Bogost, 2007: 42). He mentions *GTAV* (Rockstar, 2001), where the affordances of the game coupled with the player's manipulation gradually result in an expanded expressive space, as the player performs mental synthesis to fill the gap between subjectivity and game processes (Bogost 2007: 43). Bogost calls this gap between rule-based representation and player subjectivity the "simulation gap", and believes that complexity, expression, and meaning, do not depend on increased interface options, but on the quality of the coupling between the computer's procedural rhetoric and the exposition of that rhetoric (2007: 44):

...I want to suggest that vividness comes not from immersion, but from abstraction [as] meaning in videogames is constructed not through a re-creation of the world, but through selectively modelling appropriate elements of that world. (Bogost, 2007: 46)

While scientific simulations strive to perform objective models of the world, video games 'explicitly choose to represent some small subset of the natural world, in a necessarily biased manner' (Bogost, 2006: 97). Bogost revises Frasca's definition of simulations 'the simulation represents the real world *in part*, but not in whole', as follows: 'A simulation is a representation of a source system via a less complex system that informs the user's understanding of the source system in a subjective way' (Bogost, 2006: 98).

However, I find that metaphoricity can be used in this context to produce meaning from the syntax of the code, as increasingly complex structures gain their own functions and content and combine them with others: bits become letters (or numbers, or colours, or anything else), which become words (or equations, or images), and so on, ultimately becoming full texts. As they become more complex, signs of 'be' and 'do' may be associated by the designer and the player with signifiers by cultural convention, as metaphors. But even if the code can produce meaning, there is the problem of communicating that meaning to the player. This is why there are methodologies and libraries in place that follow a specific logic. The code of the computer game, in particular, even though very advanced in some ways, is very simplistic in others, and so it fails to a large extent to convey meaning: it focuses on the simulation of the spectacle and not of the complex emotion. Ian Bogost believes that even though meaning is essential to the way a program choreographs player actions, as unit operations are used within game engines in the same way tropes are used in literary genres, games collapse literary notions like metaphor and analogy into encapsulated unit operations, as they are like other games with the same engine (2006: 62). However, I believe that increased syndesis may be the solution in the right use of representational metaphor, through the inclusion of attributes and behaviours in the representational objects.

The player of *DressCode* will master the manipulation of the avatar in terms of 'physical' movement in (the) Cartesian space, but more importantly as the expression of meaning through the combination and manipulation of signs. The object of the game is the communication of signs to the other agents, which will be achieved by the complete openness and flexibility of the avatar. The remediated elements, i.e. the filmic, photographic, and even textual representation of avatars, will be in syndesis with the simulation in order to amplify the connection of the player with the avatar. Multiplicity will also be achieved in the game with an increasing number of items, which will be based in a cyclical, trend-based fashion system, and by including a large number of relative variables in the body-changer module of the game. The player will be able to create a unique identity for the avatar and live a particular lifestyle through it. The identity of the player will be thus transformed on both levels of simulation and presentation. Of course, absolute subjectivity is unattainable, however I hope that I will be able to offer a better, more believable illusion of subjectivity than what most games achieve. No doubt, different personalities will approach the game differently, and it would be interesting to see how the simulational choices tie in with the preferred aesthetic choices of each player. For example, will players play "by the numbers", attempting to achieve a specific goal, or will they dress the avatar in their own aesthetic preferences, i.e. according to their own style, or even how they prefer the opposite sex to look?

Dress in everyday life is a practical negotiation between the fashion system, social conditions, and norms, and as such, is complex and chaotic. Roland Barthes made a semiological distinction of

fashion as *langage*, *langue*, and *parole* (1990 [1967]: 9). This distinction separates the vestment as a common anthropological need, from dress as a common culturally shared expression, and the former two from the individual fashion as expression of the self. In games, such multiplicity in dress is presently commonly overlooked. This is why I believe that by connecting the semiotic system of fashion to the mathematical model of the simulation, both being syntactic affairs involving discreet unit operations (Bogost, 2006), I will be able to produce an in-game fashion system which will be based on and support sufficient syndesis and multiplicity.

For Bogost, procedural expression entails symbol manipulation, 'the construction and interpretation of a symbolic system that governs human thought or action' (2007: 5). He considers the tension between unit and system operations, as informed by the tension between Aristotelian dualism and final causality, the fundamental difference between particular uses of signs (*parole*), which he regards as (dynamic) unit operations, and broader flows of signification (*langue*), which he regards as (static) system operations (Bogost, 2006: 23). He further finds post-structuralism and its reliance on the reader (Barthes, 1977) and differential play of meaning (Derrida, 2001 [1967]) responsible for the move from systems to units (Bogost, 2006: 24), which culminates in computer programming in the form of *conditional control transfer*. The latter, developed by computer scientists Von Neumann, Eckert, Mauchley, and Goldstine, allowed programs to execute instructions in any order, and resulted in the Von Neumann architecture, which allowed for general computation for any purpose to be carried out regardless of the hardware (Von Neumann, 1945; quoted in Bogost, 2006: 25-6). Such advances, Bogost writes, 'place computation and cognition in a commensurate relationship, not a hierarchical one' (2006: 26).

Furthermore, Bogost identifies in unit operations an increased compression of representation, something which became common over the course of the twentieth century through the use of structuralism and computation (Bogost, 2007: 8). Video game theorists identified a relation between programmatic and semiotic operations early on in the medium's development, Aarseth (1997) and then Frasca (2003; 2007) being among the most important. Aarseth mentions media theorist Klaus Bruhn Jensen's (1990) reworking of Eco's (1976) "lower threshold" connection between semiotics and the signals of information theory, which paradoxically separates semiosis from information processing, where the interface stands as the visible front layer of the computer, the 'borderline and membrane between the two systems' (Aarseth, 1997: 27). Even though for Jensen 'people participate in *semiosis*', while 'machines participate in *information processing*' (Jensen, 1990: 36), the exchange of information between man and machine is formulated in symbols (Aarseth, 1997: 28), and Aarseth sets out to form a "cybersemiosis", influenced by the work of semiotician Thomas A. Sebeok, and by C. S. Peirce's assertion that 'the essential nature and fundamental varieties of possible semiosis...need not be a mental mode of

being' (originally quoted in Sebeok, 1991: 99; secondary quote in Aarseth, 1997: 29). Starting out with a discussion on Peter Bøgh Andersen's (1986; 1993) proposed semiotic system for the analysis of computer programming, which Aarseth finds guilty of relying on anthropomorphism for the relation and affect between its signs, the latter theorist rightly identifies the real action as being 'in the mathematical reality beneath the surface, where the relations and objects of the system are being processed' (Aarseth, 1997: 39). However, Aarseth's "cybersemiotic" theory, even though well formulated, does not quite get to the core of digital semiosis and remains limited in definition and scope. In analysing the semiotic functions of a button icon, he writes:

...a disabled button is no longer interactive: it has changed into a layout sign...The question, Is it still the same sign? cannot be answered. (Aarseth, 1997: 36)

A full binary semiotics is needed instead, so that the semiosis is paired with the smallest unit of the hardware/software system, the binary of affirmation/negation or 1 and 0. In her book *Semiotics of Programming* (2010), Tanaka-Ishii adopts a *pansemiotic* view, which she attributes to Peirce's notions of human thought: 'the fact that every thought is a sign, taken in conjunction with the fact that life is a train of thought, proves that man is a sign' (Peirce, 1931: 314). The pan-semiotic view 'allows comparison of computers with humans at the same level of the sign system' (Tanaka-Ishii, 2010: 21):

All information handled by computers ultimately consists only of zeros and ones, or bits, represented by electric signals passing through circuits.

These bits are combined into various patterns and computers are controlled by processing the bit patterns defined in programs. The computing world is a rare case in which the basic premise of pansemiotic philosophy holds.

(Tanaka-Ishii, 2010: 21)

Tanaka-Ishii begins the formulation of her theory with the use of the *lambda calculus*, originally designed by Alonzo Church and Stephen Kleene in the 1930s, mathematically equivalent to a Turing machine, and widely adopted as a fundamental framework for describing both programming and natural languages (Tanaka-Ishii, 2011: 52-53). Within any dyadic model after Saussure, the signifier is a function to articulate the signified, similar to every lambda-term, which articulates a unit (Tanaka-Ishii, 2011: 54), and so two lambda-terms are defined by their difference (Tanaka-Ishii, 2011: 68).

being' (originally quoted in Sebeok, 1991: 99; secondary quote in Aarseth, 1997: 29). Starting out with a discussion on Peter Bøgh Andersen's (1986; 1993) proposed semiotic system for the analysis of computer programming, which Aarseth finds guilty of relying on anthropomorphism for the relation and affect between its signs, the latter theorist rightly identifies the real action as being 'in the mathematical reality beneath the surface, where the relations and objects of the system are being processed' (Aarseth, 1997: 39). However, Aarseth's "cybersemiotic" theory, even though well formulated, does not quite get to the core of digital semiosis and remains limited in definition and scope. In analysing the semiotic functions of a button icon, he writes:

...a disabled button is no longer interactive: it has changed into a layout sign...The question, Is it still the same sign? cannot be answered. (Aarseth, 1997: 36)

A full binary semiotics is needed instead, so that the semiosis is paired with the smallest unit of the hardware/software system, the binary of affirmation/negation or 1 and 0. In her book *Semiotics of Programming* (2010), Tanaka-Ishii adopts a *pansemiotic* view, which she attributes to Peirce's notions of human thought: 'the fact that every thought is a sign, taken in conjunction with the fact that life is a train of thought, proves that man is a sign' (Peirce, 1931: 314). The pan-semiotic view 'allows comparison of computers with humans at the same level of the sign system' (Tanaka-Ishii, 2010: 21):

All information handled by computers ultimately consists only of zeros and ones, or bits, represented by electric signals passing through circuits.

These bits are combined into various patterns and computers are controlled by processing the bit patterns defined in programs. The computing world is a rare case in which the basic premise of pansemiotic philosophy holds.

(Tanaka-Ishii, 2010: 21)

Tanaka-Ishii begins the formulation of her theory with the use of the *lambda calculus*, originally designed by Alonzo Church and Stephen Kleene in the 1930s, mathematically equivalent to a Turing machine, and widely adopted as a fundamental framework for describing both programming and natural languages (Tanaka-Ishii, 2011: 52-53). Within any dyadic model after Saussure, the signifier is a function to articulate the signified, similar to every lambda-term, which articulates a unit (Tanaka-Ishii, 2011: 54), and so two lambda-terms are defined by their difference (Tanaka-Ishii, 2011: 68).

Tanaka-Ishii defines four kinds of signs as they appear in computer programs: Literals (consisting of constant values, such as numbers or strings of text), operators (consisting of special signs such as + (addition), * (multiplication), parentheses, and quotation marks), reserved words (signs defined in the language system design), and identifiers (signs defined and utilised within programs by programmers, representing a data structure and/or a function). This syntax of commands of presence and action ('be' and 'do') is a full semiotic system, which may produce meaning of some depth and extent, if the instance of representation (the content) coincides by cultural convention with the expression of simulation (the function). The distinction between 'being' and 'doing' is especially prominent in object-oriented programming, where the former emerges when relations are constructed from the signs' content, whereas the latter when relations are constructed from the signs' uses (content = semantics [*what*] versus sign = pragmatics [*how*] (Tanaka-Ishii, 2011: 71)). In the generation and execution of programs, different levels of semantics are used for the interpretation of identifiers: on the computer hardware level, identifiers represent addresses and values in bits at the hardware level; on the programming language level, identifiers like letters or words are defined and used in a program in terms of type, i.e. integers, Boolean values (true/false), decimals, and characters (all of which are basic pre-defined types), and programmer-defined complex types; and in terms of address, i.e. representing a value: 'this direct meaning as an address within the program gives a meaning to the identifier' (Tanaka-Ishii, 2010: 19).

To arrive at this conclusion, Tanaka-Ishii examines the common statement in programming $x := x + 1$, which attaches an identified (a value, content) to the identifier (x). This identifier, however, actually refers to the content stored at the address, which is trivial and unrelated to the content in the function. She deduces that the layer consisting of x as a signifier and its address is denotational, while the layer consisting of the value indicated by x is connotational. This brings ambiguity between cases when a signifier signifies its own content and the content of another sign. This also means that there is *firstness*, *secondness*, and *thirdness*: the lowest level of programming, the patterns of zeros and ones, are *icons*, as they represent values; the literals denoting these values in digits and instances are also icons; the references to the value located at the address represented by x are *indices*; and types, i.e. signs that embed a general idea about a value, are *symbols*. In *int x = 32*, *int* is the symbol, x the index, and 32 the icon (Tanaka-Ishii, 2011: 102-11). Hence, the generation of meaning, in one form or another, is expected insofar as there is content in a memory address. Furthermore, the combination of the content of the addresses by means of computation (or unit operations or expressive processing) produces increasingly complex meaning. This is how I am hoping to produce complex signs (signifieds *and* further signifieds) for the player in the syndesis of simulation and representation, by mixing the fashion signifiers stored modularly in separate memory addresses into complete styles, as chosen by the

person and influenced by the in-game natural (other players) or artificial (AI and other computational processes) society.

In the system of fashion, article combinations are adopted by the wearers depending on their personality and perception of personal identity, as well as on their social evaluations and regulations; dress has a personal and a social dimension, both of which contribute to identity. This is where semiotics can be useful: it can help us understand how the psychology of the wearer combines with the acceptable by society and suggested by the group options, in order to create a personal style. In Barthes' fashion semiotics, dressing is the personal way the wearer adopts dress which is proposed by their social group (1966 [1967]: 9). These are analogous to parole and usage in linguistics. Dressing has a morphological, psychological or circumstantial meaning, and does have a social meaning. The social code creates the conventions through which one can express oneself. A signifier can be a complete appearance or an element of the appearance (Keller, 1996: 226).

Barthes (1966 [1967]: 11) proved that dress is a privileged semiological field, as it can be read in terms of lexical and visual types, but also analysed on an ideological basis. It is the signifying function of dress which makes it a social object. Barthes treated the vestimentary sign as a complete syntagma, formed by a syntax of elements (1963 [1967]: 214). Barthes describes the semiology of clothing as syntactic rather than lexical, as we seldom look for the meaning of clothing in an isolated item, but in 'such functions, oppositions, distinctions and congruences'.

It is likely that single oppositions (leather buttons/other buttons) are only remotely meaningful; it is the 'combinatory variants', true functions of functions, which are able to achieve the status of being meaningful (for example: twisted/leather buttons/higher pocket, etc.). Of course, the absence of elements can play a role which is meaningful (for example, not wearing a tie); the vestimentary sign can be expressed as the degree zero, it is never null. Conversely, we should learn to decipher the accumulation of signifiers: in the majority of outfits there is a redundancy of messages, the study of which could lead to a structural definition of taste. (Barthes, 1966 [1967]: 23)

It is the syntactic nature of dress that I will exploit in order to establish a synthesis between DressCodes simulation and representation, as well as connotational meaning from the separate modal meanings produced by the attributes and functions, or any other content stored in memory.

The Semiology of Fashion

In the system of fashion, article combinations are adopted by the wearers depending on their personality and perception of personal identity, as well as on their social evaluations and aspirations; dress has a personal and a social dimension, both of which contribute to identity. This is where semiotics can be useful: it can help us understand how the psychology of the wearer combines with the acceptable by society and suggested by the group options, in order to create a personal style. In Barthes' fashion semiotics, *dress* is the personal way the wearer adopts *dress*, which is proposed by their social group (1990 [1967]: 9). These are analogous to *parole* and *langue* in linguistics. *Dressing* has a morphological, psychological or circumstantial meaning, and *dress* has a social meaning. The social code creates the conventions through which one can express oneself. A signifier can be a complete appearance or an element of the appearance (Kaiser, 1996: 226).

Barthes (2006 [1967]: 11) proved that dress is a privileged semiological field, as it can be read in terms of lexical and visual types, but also analysed on an ideological basis. It is the signifying function of dress which makes it a social object. Barthes treated the vestimentary sign as a 'complete syntagm, formed by a syntax of elements' (1983 [1967]: 214). Barthes describes the semiology of clothing as *syntactic* rather than *lexical*, as we seldom look for the meaning of clothing in an isolated item, but in 'true functions, oppositions, distinctions and congruences':

It is likely that simple oppositions (leather buttons/other buttons) are only remotely meaningful; it is the 'combinatory variants', true functions of functions, which are able to achieve the status of being meaningful (for example: tweed/leather buttons/lighter-pocket, etc.). Of course, the absence of elements can play a role which is meaningful (for example, not wearing a tie): the vestimentary sign can be expressed as the degree zero, it is never null. Conversely, we should learn to decipher the accumulation of signifiers: in the majority of outfits there is a redundancy of messages, the study of which could lead to a structural definition of taste. (Barthes, 2006 [1967]: 28)

It is this syntactic nature of dress that I will exploit in order to establish syndesis between *DressCode*'s simulation and representation, as well as combinational meaning from the separate modular meanings produced by the attributes and functions, or any other content stored in memory addresses.

The signifiers of an ensemble will be the individual articles in the first instance, their combination as a sum of their attributes in the second, and the complete appearance as carrying its own, independent significations. These will be defined within a syntactic method: there will be 'functions, oppositions, distinctions and congruences' (Barthes, 2006 [1967]: 28). For example, a white shirt will have its own simulational characteristics (perhaps: colour="white", comfort=6, casual/formal=5 etc.) but combined with a pair of formal creased black trousers, the ensemble would have a completely different meaning than the shirt worn with a pair of stone-washed blue jeans. In the former case the casual/formal indicator would be significantly above 5 (the middle), while in the latter it would be lower. Such results will be produced in the simulation by use of syntactic equations based on numbers but also strings of text. The ambiguity will derive from the large number of variables in the equations, as well as variables which are ambiguous and do not produce consistent results, such as random numbers. There may even be categories of variables and functions which will deal with the combination of contradictory items or significations. In particular, the notion of metaphoricity, as the indefinite commutation of the signified, will be employed, perhaps by use of the commutability of programming class characteristics, in order to produce results that derive from long chains of consequent significations.

The vestimentary code comprises some peculiarities. Barthes (1990 [1967]: 244) describes standard representation as working on two levels: denotation and connotation, or 'literal' and 'concealed' meanings. In traditional semiotics, the sign is the union of the signifier and the signified. However, in the vestimentary code, a particular fragment of the signifier does not necessarily correspond to any other particular fragment of the signified. For example, in "cardigan with an open collar", it is not just the opening which produces the casualness, but also that the opening is on the cardigan (Barthes, 1967: 61). The semiology of fashion is therefore a complex system which relies on contradictions and combinations. The signs are only defined in relation to each other. They do not have an absolute value. In this sense, fashion signs are extremely relative and subjective, almost trivial, no less as they depend a lot on postmodern intertextual references and connotations. Everything in fashion refers to something else, as fashion is a periodic system, and everything in fashion has been seen before, if with slight differentiations. Fashion 'announces the myth of change', writes Baudrillard (1993 [1976]: 90), celebrating it as its supreme value through the play of models and binary oppositions, in as per the tradition of modernism, and thus supporting 'infinite differentiation and the dialectical effects of rupture':

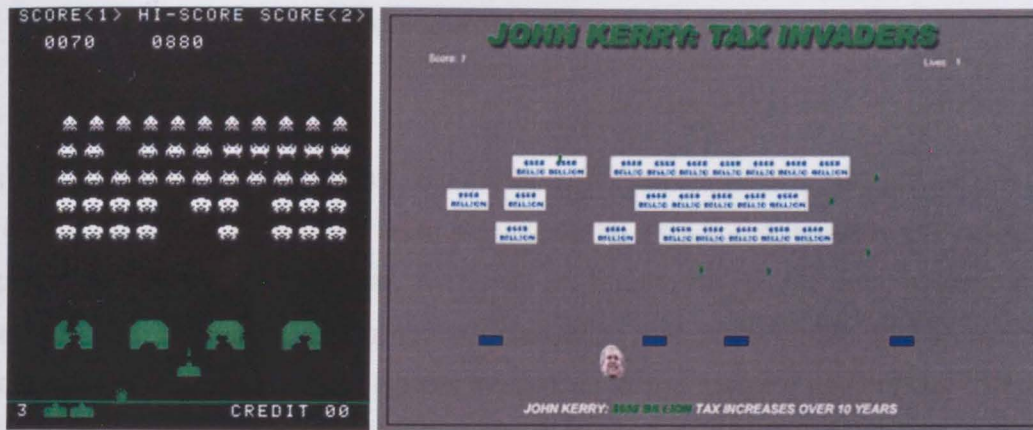
Modernity is not the transmutation but the commutation of all values, their combination and their ambiguity. Modernity is a code, and fashion is its emblem. (Baudrillard, 1993 [1976]: 90)

Fashion, then, is ambiguous. The signs of fashion may work in oppositions and by comparison to other signs, but they are never precise or clear. Fashion in this sense, can be seen as a modernist phenomenon, as its signs infinitely commute, that is, they differ according to the context they are in. They revolve around 'rupture, progress and innovation'. They do not have an objective, true value, in isolation. In fashion, the (collective) objective production of meaning of a style (*sens*) takes place through the 'play of simulation and combinatory innovation' (Baudrillard, 1993 [1976]: 91). Fashion is the flotation of signs in all cultures and sign systems, merging them all together until there is no more meaning (*sens*); it is 'the pure speculative stage in the order of signs.' (Baudrillard, 1993 [1976]: 92).

The fact that the fashion sign arbitrarily changes due to the cyclic and unstable nature of fashion, complicates things. Fashion changes, but never evolves. It always uses the same syntax, however, with a different vocabulary every season (Barthes, 1990 [1967]: 15.1). In fashion, writes Baudrillard (1993: 462), the signifier/signified distinction is erased as 'signifieds come unthreaded, and the parades of the signifier no longer lead anywhere'. Fashion is unreasonable and self-sustainable. It makes up its own order and then breaks it, recycling itself and, in a sense, functioning as a museum, where old articles are combined in new ways, to present the 'myth of change'. Fashion is a seductive system, which constructs artificial meaning out of seemingly arbitrary combinations, it makes up meaning out of endless seemingly disparate references and associations.

Lacan insisted on the commutability of the signified (that is functioning in its turn as a signifier for a further signified – Eco called it *unlimited semiosis*, and Derrida *différance*), as it believed that its relationship with the signifier is not stable, but dependent upon discourse, 'as a consequence of displacements along a signifying chain' (2004 [1951]: 221). Lacan's *metaphoricity* suggests that a signifier will always signify another signifier. I will use this ambiguity which manifests in semiotic terms in the metaphoricity of the signifiers. Bogost finds procedural figures to have much in common with literary figures like metaphor, metonymy, and synecdoche (Bogost, 2007: 13). The simplest example is the graphical user interfaces of computer operating systems as 'representations of information groupings and processes in terms of interactions with a physical working space' (Bogost, 2006: 106). He mentions cognitive linguists George Lakoff and Mark Johnson (2003 [1980]), who, influenced by Claude Lévi-Strauss, Clifford Geertz, and Jean Piaget, propose that metaphor is central to human understanding, as our conceptual systems are fundamentally shaped by cultural constructions (for example, "time as a commodity" (*you're running out of time; is that worth the time?*) (Bogost, 2007: 100). As an example of programmatic metaphoricity, Bogost mentions the political game *Tax Invaders* (illustration 92; The Republican

Party, 2004)², which, based on the classic *Space Invaders* (illustration 91; Taito, 1978), 'not only makes its argument from within the conservative frame of taxation, but it also explicitly draws attention to the frame itself', as all of the game's elements stand as symbolic structures, as procedural metaphors driven by verbal metaphors (Bogost, 2007: 108).



91-92: *Space Invaders* and *Tax Invaders*

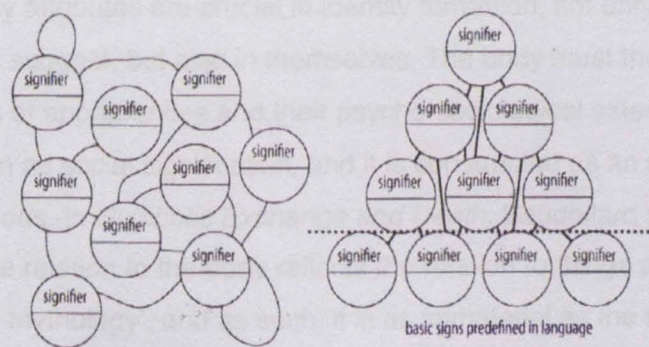
Object-oriented programming has characteristics which make it very similar to the way natural language works: *data abstraction*, *encapsulation*, *messaging*, *modularity*, *polymorphism*, and *inheritance*. Abstraction is a common quality of linguistics and programming. It only allows for the reading of certain attributes while excluding other, unnecessary ones. For example, 'shape' instead of 'circle' and 'triangle'. Modularity and encapsulation are the fundamental philosophies underlying object-oriented programming, i.e. the separation of units of 'being' and 'doing' into objects and classes (collections of objects) and the interaction between them. Message passing is the communication, i.e. exchange of data between methods and objects. Polymorphism is the ability of functions, variables and objects to have more than one form, for example different numerical types. Inheritance means that code can be categorised and reused, as classes can inherit the characteristics of other classes, forming a hierarchy, for example 'plant' > 'flower' > 'lily'. Such characteristics give programming languages a linguistic quality, where phenomena such as the commutability of the signified can be observed (Tanaka-Ishii, 2010: 205). Inheritance (Meyer, 2000) is introduced by use of programming classes:

All shapes are placed under the class named Shape, with features of width and height as well as a function to calculate the area. The ontology according to classes is constructed as class B being the parent of A when the relationship 'A is a B' holds (Meyer, 2000). For example, a circle *is* an ellipse, but 'an ellipse *is not* necessarily a circle'; therefore the class Ellipse

² Launched by the Republican National Committee in order to draw attention to the large tax increases required to pay for John Kerry's promised spending.

is placed as a parent of the class Circle. Similarly, a rectangle *is a* shape, and an ellipse *is a* shape; therefore the class Shape is placed as a parent of the classes Rectangle and Ellipse...it guarantees that classes A and B have the same features and functions, whereas the child can have additional features. For example, a circle has the additional feature of its width equaling its height. (Tanaka-Ishii, 2011: 74)

Classes are forms defining individuals, but individuals can also define classes, as per the ancient Greek problem of universals, Plato pointing to the form and Aristotle to the individual (induction and deduction) (Tanaka-Ishii, 2011: 132-3). Tanaka-Ishii points out that video games allow the user to be involved in the collective instantiation that produces the next phase in the computer game (the next frame), seeing this interaction as the meeting point of two different evaluation functions (2011: 136-8). A structural system, such as a natural language, is naturally formed, without any formal requirements, and made up of signs that interconnect arbitrarily and freely, while a constructive system, such as a computer programming language, is generated from a minimal core of signs constructed in a bottom-up manner (illustration 93). In the latter, connections among signs are made by necessity, ultimately reducing to CPU commands, and so there is no ambiguity involved, as in a natural language (the meanings of signs do not overlap). This lack of ambiguity hinders reflexivity in programming code, and so 'alternative handling of reflexivity in computer systems holds the key to developing a more natural computer environment' (2011: 157). Ambiguity and reflexivity must be artificially introduced through the heterogeneity of man-machine interaction (2011: 196). I will use such programming techniques to signifying arbitrary signifieds, essentially progressively moving from signifier to signifier in an endless chain. *Abstraction, encapsulation, messaging, polymorphism, and inheritance*, will allow this exchange of complex signs between programming objects, or even within the same object.



93. Structural and constructive systems

In *DressCode*, dressing as the personal expression of the player will be a different set of variables to dress as the social parameters within which the former is acceptable. Identification and differentiation will be up to the player, but the overall affordances will be dictated by the game. Objects in *DressCode* will have attributes that will position them in time and will flag them as in or out of fashion. Extendable content derived from external parties, such as websites that offer downloadable content, and through editors that allow the player to create new designs or alter existing designs, will also be in use. Furthermore, some of them may become 'vintage', while others may just be 'old'. There will be a dynamic system of significations produced by computational processes, which will be influenced by the design of the game, as well as the users, and external databases. And this is why there is no winning this game: fashion does not bring change, it is rather the myth of change. Status by consumption is its main preoccupation, however status here is a complete fabrication, a simulacrum of status, which is already simulated in the non-virtual society. Signification through appearance which periodically changes, i.e. within the system of fashion, revolves around identification and differentiation (Simmel, 1904: 130-155). Fashion both unites members of the same group and segregates them from other groups (Simmel, 1904: 130-155; Snyder and Fromkin, 1980). The interplay among cultural categories and the identity of the wearer seem to be the main forces behind fashion (Davis, 1988; Kaiser, 1996: 411), and they are embedded in what Kaiser calls 'culture's collective consciousness'. These are both related to dominance and the hegemony of individuals in social groups over individuals in other groups (Kaiser, 1996: 411). However, in the code of consumption, there is no reality, as this was an axiom of the law of value. Instead, there is hyperreality and simulation. These regulate social life, and as a result, finalities and binaries dissolve: 'we are now engendered by models' (Baudrillard, [1976] 1988: 120). In this structural revolution of value, political economy becomes a second order simulacrum, where the "real" only ever refers to production, signification, consciousness, and the unconscious. There is no ideology, only simulacra. The only hegemony is now the code.

Furthermore, variables such as physical attractiveness, size, proportions, expressions, gestures, posture and movement, all affect how fashion is presented through the medium of the body (Kaiser, 1996: 97). Body attributes are crucial in identity formation, not only because of the fashion choices they impose or suggest, but also in themselves. The body must therefore be incorporated in the semiotic analysis of appearances and their psycho-sociological extensions. The body is involved in consumption as social signification, and it is constructed as an abstract concept through social conventions. In *Symbolic Exchange and Death*, Baudrillard sees the body as a cultural artefact, and the relation to the body reflects the relation to things and social interactions. It is 'instituted by modern mythology', and as such, it is as immaterial as the soul, it is an idea, 'the privileged substrate of objectivisation, the guiding myth of an ethic of consumption'. The body is

intimately involved in consumption. The material of fashion is the body itself, its identity, and sex is its status (Baudrillard, 1993 [1976]: 91):

The play-script of erection and castration is everywhere. It has an absolute variety and an absolute monotony. Ankle boots and thigh boots, a short coat under a long coat, over the elbow gloves and stocking-tops on the thigh, hair over the eyes or the stripper's G-string, but also bracelets, necklaces, rings, belts, jewels and chains – the scenario is the same everywhere: a mark that takes on the force of a sign and thereby even a perverse erotic function, a boundary to figure castration which *parodies* castration as the symbolic articulation of *lack*, under the structural form of a bar articulating two *full* terms (which then on either side play the part of the signifier and the signified in the classical economy of the sign). (Baudrillard, 1993 [1976]: 101)

Erogenous zones become erotic, eroticised zones, fragments of sexuality as a concept, a simple signified. In this fetishisation of the body, castration is also signified, and desire can only be fulfilled at the cost of warding it off:

The image of the stocking top on the thigh derives its erotic potential not from the proximity of the real genital and its *positive* promise (from this naive functionalist perspective, the naked thigh would have to play the same role), but from the apprehension surrounding the genitals (the panic of recognising castration) being *arrested in a staged castration*. The innocuous mark, the line of the stocking above which, instead of lack, ambivalence and the chasm, there is nothing more than a sexual plenitude. The naked thigh and, metonymically, the entire body has become a *phallic effigy* by means of this caesura, a fetishistic object to be contemplated and manipulated, deprived of all its menace. (Baudrillard, 1993 [1976]: 102)

Eroticisation fragments the body and turns it into a signified of sexuality. The subject is recovered as phallus and identifies himself with the fragment of the body 'in the fulfilment of a desire that will for ever misconstrue his proper loss' (Baudrillard, 1993 [1976]: 99-102). Signs of the body and sexuality are important in identity formation through the consumption of fashion products.

In video games, the body is not existent at all without products: only the geometry of the clothes is present. In *DressCode*, however, the "physical" characteristics of the avatar will be an important factor in the production of signs in combination with the dress articles: attractiveness, size, proportions, expressions, gestures, posture and movement will all be used to affect the final message. The body of the avatar will exist in its own right, its clothing only serving as a second layer of signs. These will be separated into signs of 'being' and signs of 'doing', following the distinction between *having a posture* and *making a gesture* (Lamb & Watson, 1979). The interface between the body and the clothing will create new, more complex significations, which will again be controlled by increasingly complex syntactic constructions in the programmatic code. In this sense, the erotic significations of the body will be present both in visual but also in simulational terms. Once more, ambiguity or tension could be exploited between what the players see and what the code dictates.

In the body of this chapter, I have tried to explore the issues leading to poor character dress choices in the video game medium, such as the lack of syndesis and multiplicity. The lack of variety and the alienating representation could be dealt with in the following way: varying and evolving the appearance of the avatar throughout the game in order to reflect the player's choices, tastes, and psychology, may be a wise design choice. The player should have the freedom to alter the avatar's appearance at will, and there should be sufficient opportunities to do so during gameplay. I find that clothes and accessories used as interchangeable entities in addition to a bare character model may be a solution against meaningless stereotypical avatars. Furthermore, dress and other appearance choices should affect gameplay one way or another. I will try to apply the above within the creation of *DressCode: The Fashion Game*. However, as *DressCode* will be created with a view to become an online game, which may be played over the Internet by multiple players, in the next chapter there will be a shift in focus to discussions of online worlds and social identity, to extend the current chapter's examination of the relationship between player and avatar.

Chapter 3 – Social Identity through Dress in Virtual Environments

In this chapter, I will argue that dress, particularly within the fashion system, is a considerable factor of social identity formation in online virtual worlds. I think this is necessary at this point, as *DressCode* is created with a view to becoming a multiplayer online game. I have already examined the construction of self-identity through avatarial dress, so now I will explore the fashion system and its effects on identity. Even though I am mainly employing post-structuralism to consider discourses on fashion and sexuality, I refer back to the interpretation of dress by orthodox Freudian analysts like John Carl Flügel and Edmund Bergler, ultimately arriving at a synthetic approach. I consider this necessary in order to be able to cover the diverging structures of modernity as linear, and of fashion as cyclical (cf. Baudrillard 1993 [1976]: 89-95).

As I discussed in the previous chapters, for Jean Baudrillard, the consumer is not the subject, but the object of consumption (2005 [1968]: 209). He claims that the consumer does not have a specific direction when consuming, but the system of needs is forcefully integrated within the system of products. At this level, the system is 'codified, classified, discontinuous, and relatively integrated' (2005 [1968]: 205). This, for Baudrillard, is a system of signification, and not one of satisfaction. It is a status-oriented *code*, which provides an artificial legibility of social relations, which covers up the real structures of production and the real social relations. Therefore, consumption is an active systematic mode of activity and relations to objects and to the world. The whole cultural system is founded on this notion. In this sense, the objects of consumption are not material goods (these are more relevant to need and satisfaction), but the organisation of the act of consumption itself as signifying substance: '*the virtual totality of all objects and messages presently constituted in a more or less coherent discourse*'. More clearly, '*Consumption...is a systematic act of the manipulation of signs*' (Baudrillard, 2005 [1968]: 218). The object becomes a sign in an arbitrary and non-coherent relation to its original signification (use value) in a new systematic relation to all other object-signs existing in the market. It is now serialised and defined by difference. In this process, subjectivity evaporates in the objectivisation of the consumer, through the illusion of choice.

Starting with his work in the 1980s, French philosopher Gilles Lipovetsky challenges the concept of postmodernity, substituting it with what he calls *hypermodernity*, where the *hyper-consumer* society benefits from the liberating characteristics of fashion, which permeates not only the business of clothing, but all cultural activities and artifacts:

In a society redesigned by mass consumption and communication, fashion has ceased to be tied – as it was for centuries – to the specific sphere of clothing. Instead, it is now an all-embracing process, a cross-border phenomenon which is encroaching upon more and more areas of our lives and is thereby restructuring the whole of society – objects as well as culture, and bodily habits as well as discourses and images. (Lipovetsky, 2006: 71)

Fashion is therefore important for identity, not only through the use of clothes, but extending across most aspects of life. For Lipovetsky, the hyper-modern era coincides with the spread of aesthetic seduction, where our lives are “stage-managed” and “mass-aestheticised”, as the constituent features of fashion – evanescence, minor differences and seduction – are now the organising principles of society as a whole (2006: 72). We consume products based on minor differences that define them as new, or fashionable, and we associate them with notions of credibility and success seductively communicated to us through clever advertising. As part of hypermodernity, fashion encourages ‘new forms of social relationships, self-reflection and emotional expression’ (Lipovetsky, 2006: 88). It is therefore one of the pillars of identity formation through the ‘personalisation’ of the individual through consumption. This, programmatically, marks an identity formation that dismisses previous sociological or psychological motifs in favour of those produced by commodity culture.

Fashion, which was in the past associated with conformity, has now taken the place of modern art as the vehicle for what Lipovetsky calls ‘the second individualist revolution’: ‘the emancipation of individuals from the great collective institutions, their disaffection with eschatological ideologies, the blurring of class cultures, and the rise of self-service living and subjective autonomy’ (2006: 88). The individual is now unbound from absolute categorisations, and stands as a self-invented category, the category of the self-styled person, who mixes images and ideologies promiscuously to construct his or her own image and discourse.

While Lipovetski now sees fashion as increasing the subjectivity, individuality, and freedom of expression of the consumer, Baudrillard regarded it in contrast as the absolute objectification of the consumer. And while I believe that there are indeed merits in the fashion system with regards to the individual freedom of expression of the wearer, I still find that these merits are codified themselves, and belong in the same status-oriented system of signification that is signalled by Baudrillard. In other words, Baudrillard’s notion of the socio-economic code, which permeates all object-signs in the system of objects, also permeates and defines the needs of the consumer,

especially including the need to be different enough, yet fundamentally same enough to everyone else in the system. I find Baudrillard's code to be total and universal. Therefore, it is the concept of the *code* that I will exploit throughout this chapter, as permeating all cultural and economic exchange. Its main characteristics are the lack of agency of the person, and the simulation instead of the representation of reality in the media and arts, which results in a hyperreality, i.e. something which is more real than the real. In this context, the form of the medium becomes more important than its content. In this context, there is also no clear ideology or hegemony, but the status-oriented system of objects and their consumers.

The real value of Baudrillard's work in the context of this research is that it was successful in modelling a medium which had not particularly come of age at the time he formulated his theory of the system of objects (1968; 1970; 1972) and later his development of the concept of simulation (1981; 1983). Even so, his assertions apply in particular to the medium of digital games. The video game is first and foremost a hyper-commodity in a hyper-market. Within it, the wearer of fashion is both the player and the avatar. More to the point, the player consumes the game, the avatar, and its dress. We buy games as fashion commodities on two levels: the game as a fashionable product, and the game as an identity simulator of the ideal, as self-completion. There is, as Baudrillard wrote, a collapse of the medium into the sphere of fashion, where the liquidation of values is at its most radical. The advertising of games and the in-game advertising of products, including fashion items, adheres to the rules of seduction and the simulation of status-oriented values. The system of objects means that *form* defines what the gamer buys (McLuhan, 2003 [1964]; Baudrillard, 1981). As objects are defined in terms of other objects, and commodities in terms of trends, video games are systematically categorised, consecutively published, and marginally differentiated within *genres*. Subjectivity is thereby compromised as the gamer essentially keeps playing the same game, controlling the same avatar, wearing the same avatarial dress. The games industry constantly upgrades the genre by means of technological, thematic and pictorial trends the same way 'fashion continually fabricates the "beautiful" on the basis of a radical denial of beauty, by reducing beauty to the logical equivalent of ugliness' (Baudrillard, 1981: 79). The desirable video game can only be defined in relation to what was previously considered desirable in a game. Games are either in fashion, out of fashion, or retro/vintage. There is also a parallel of the medium with the museum, which, just like fashion, contains (simulated) cultural and intertextual references, including those regarding avatarial dress. Baudrillard's insight of seeing fashion as irrelevant to the present, as some kind of costume, is particularly applicable to the postmodern character dress of Japanese RPGs, for example. However, as part of the technology sector, games 'progress' linearly, not cyclically. The gamer's "needs" are created by technological products: high definition, motion control, 3D display, 30 hours of gameplay, twice the amount of enemies, new realistic shaders, and so on.

The societal order of male and female dress also echoes in the video game. I demonstrated in the previous chapter how male dress is primarily a functional suit of power, while female dress is largely the decorated costume of sexuality. For example, stereotypical sexual symbolisms in fashion items such as suspenders, corsets etc. are typically used in the design of female game characters in certain genres, such as fighting games and RPGs. Such societal reflections are amplified in the hypersociety of the video game. Fashion in online games is ambivalent but status-oriented, and social discourse takes place partly by means of dress. Fashion in the video game operates through psychological primers that become universal signs within a society of consumption and subsequently in a culture industry that is marked by fashion's rhythm (Lipovetsky, 1994). The avatar is so consumed by the display of signs, that it does not even possess a body: its clothes are permanent, they are not its second, but its first skin. The character model has no "skin" as such, other than the clothes s/he wears, which are the only surface layer, while the inside of its geometry is hollow.

The video game is consumed as a closed system, with logical perfection, and self-sufficiency. For Baudrillard (2005 [1968]), what we have in the system of objects are *conceded* freedoms, within which the consumer is permitted to regress, to be a child without being ashamed. The desires of the consumer are projected onto produced goods (articles of fashion, interactive entertainment, and in this case, the combination of the two). The consumer of video games consumes both the games and the included virtual fashion at the same time, in order to satisfy her drives and tame her desires, while at the same time enforcing a repressive societal organisation (Baudrillard, 2005 [1968]: 203). Baudrillard calls this *freedom by default*, and he asserts that it is all done within the notions of being free to enjoy life and to be oneself (Baudrillard, 2005 [1968]: 203).

Every commodity, including the media, merges with models of simulation and the structural play of value, and in this sense they are all haunted by fashion: 'as both the most superficial play and as the most profound social form'. Baudrillard wrote: 'Imagine something beautiful that has absorbed all the energy of the ugly: you have fashion... Imagine truth having absorbed all the energy of the false: you have simulation...' In the video game, you have both. In the programming code we see the play of models and binary oppositions, the commutation of values (in programming classes), their combination and their ambiguity (as derives from their complex combination), all as concrete manifestations of the socio-economic code. This is why the exploration of fashion in a programmatic simulation may be the ultimate stage on which to perform the notion of the hegemony of the autocratic Baudrillardian code. In the body of this chapter, I will explore the inclusion of fashion in online multiplayer worlds as a system of social standing and discuss the

complex relationship between conformity and individualism as a historically contingent driver of behaviour.

Environments

In online multiplayer games, the formation of identity can occur through the interaction and co-existence of the player's avatar with other avatars played by human players. This is reflective of Sutton-Smith's rhetoric of play as social identity (2001 [1997]: 91-108). Through play, we develop an identity within a number of social groups. Sutton-Smith's *rhetoric of play as identity* refers to cultural identity, and emphasises social and cultural roles and structures. The focus here is on communal rather than individual identity, in contrast with the rhetoric of the self. Sutton-Smith connected the rhetoric of identity to cultural power through differentiation from other cultures, which can be cooperative within the culture, and can lead to established boundaries – such as those of family and friends – breaking down, and to a reincorporation within a larger community. Sutton-Smith gives the example of a festival, which can create a strong sense of identity in the participants, but which can also encourage ambiguity and underline the differences between them (2001 [1997]: 91-110). This notion of the rhetoric of play as cultural identity is very relevant to how dress in online worlds works in order to incorporate the person into a community, but also to give the person individuality. Dress is central to this notion, and Baudrillard has described fashion as a festival of exchange of status-oriented signs (1993 [1976]: 90-94).

Emotional investment in online worlds takes place in the sphere of representation mostly, as visual and textual social interaction is more prominent than the world's simulation – what Calleja (2011) defines as *shared involvement*. In virtual worlds we therefore have both real-world emotions of being and game emotions of doing involved in parallel, and so there is an innate opportunity for social realism through meaningful interaction. Representational identity has priority in social virtual environments. Narcissism is at the forefront of psychological processes in such environments, as the player is looking in the mirror and considers herself the centre of the network.

Online social environments are ideal for experimentation with the avatar's appearance. They are full of communication between the users, and dress is used as part of that communication. The user usually has the ability to choose the appearance of the avatar. *Second Life* (illustration 94 and 95; Sulake, 2001) was at its peak of popularity one of the most successful graphical virtual worlds, set in a 2D isometric view. The user could choose the sex, skin tone, race, hairstyle, clothing and accessories of the avatar in the built-in avatar editor. *PlayStation Home* (illustration 97; Sony, 2008) is a virtual world for the owners of PlayStation 3 consoles. The content here is not user-created, but rather created by companies, and so the standard of design is high. There are

Part 1 – Social Identity Through Dress in Virtual Environments

In online multiplayer games, the formation of identity can occur through the interaction and co-existence of the player's avatar with other avatars played by human players. This is reflective of Sutton-Smith's rhetoric of play as social identity (2001 [1997]: 91-106). Through play, we develop an identity within a number of social groups. Sutton-Smith's *rhetoric of play as identity* refers to cultural identity, and emphasises social and cultural roles and structures. The focus here is on communal rather than individual identity, in contrast with the rhetoric of the self. Sutton-Smith connected the rhetoric of identity to cultural power through differentiation from other cultures, which can be cooperative within the culture, and can lead to established boundaries – such as those of family and friends – breaking down, and to a reincorporation within a larger community. Sutton-Smith gives the example of a festival, which can create a strong sense of identity in the participants, but which can also encourage ambiguity and underline the differences between them (2001 [1997]: 91-110). This notion of the rhetoric of play as cultural identity is very relevant to how dress in online worlds works in order to incorporate the person into a community, but also to give that person individuality. Dress is central to this notion, and Baudrillard has described fashion as a festival of exchange of status-oriented signs (1993 [1976]: 90-94).

Emotional investment in online worlds takes place in the sphere of representation mostly, as visual and textual social interaction is more prominent than the world's simulation – what Calleja (2011) defines as *shared involvement*. In virtual worlds we therefore have both real-world emotions of being and game emotions of doing invoked in parallel, and so there is an innate opportunity for social realism through meaningful interaction. Representational identity has priority in social virtual environments. Narcissism is at the forefront of psychological processes in such environments, as the player is looking in the mirror and considers herself the centre of the network.

Online social environments are ideal for experimentation with the avatar's appearance. They are built for communication between the users, and dress is used as part of that communication. The user usually has the ability to choose the appearance of the avatar. *Habbo Hotel* (illustrations 94 and 95; Sulake, 2001) was at its peak of popularity one of the most successful graphical virtual worlds, set in a 2D isometric view. The user could choose the sex, skin tone, face, hairstyle, clothing and accessories of the avatar in the built-in avatar editor. *Playstation Home* (illustration 97; Sony, 2008) is a virtual world for the owners of Playstation 3 consoles. The content here is not user-created, but rather created by companies, and so the standard of design is high. There are

places to visit and other avatars to interact with. More importantly, the avatar can be customised with free, or even purchased branded clothing and accessories. The equivalent of *Home* for Xbox owners with regards to avatar customisation is the *Xbox Live* (illustration 96; Microsoft, 2002) avatar editor. Within this editor, an avatar can be created for every account, and dressed in a variety of clothing articles and accessories.



94-97. Clockwise from top left corner: Subcultures in Habbo Hotel, Habbo Hotel, Xbox.com avatar editor and Playstation Home.

The reasons why players use dress in online worlds are the same as in the 'real' world. For individuality and belonging. Dress is a cue to identity. In research carried out by Kafai et al (2007: 5-6) based on the virtual world *Whyville.net*, teens listed six reasons for creating their avatars the way they did: 'the pure aesthetics of a look, to make it in part like their 'real' self, to affiliate with something or someone, because they can't have it in real life, to align oneself for or against a popular trend, and for disguise.' With avatars of the same sex as the player, the look of the avatar serves the narcissism of the player, as the player embodies the avatar. Making it in part like the real self is again a narcissistic notion. Affiliation and alignment with or against groups and trends are fundamental aspects of identity in the sense of belonging. Having an avatar with characteristics which are not feasible in real life can also be an act of narcissism. Video game theorist Simon Evans asserts that social processes within *Second Life* allow the exploration of aspects of the self not possible in the physical world, thereby affecting how the self is experienced (Evans, 2011: 33). Most decisions for avatarial appearance are based upon considerations of self-identity and social identity, as avatars provide "access points" in the creation of identity and social life (Taylor 2002:

40), and often confer a persistent identity upon regular users (Peachey and Childs, 2011: 2; 22).

Meaning in virtual dress is created through combinatory innovation, just as it does in real life.

Articles are combined in ways that are aesthetically and semiotically meaningful. For Lehdonvirta et al (2009: 15), a large part of what makes people part of a subculture is a common shopping behaviour. Human relations are consumed in and through objects like clothes, which mediate the human relation by means of signs, as it becomes a relation of consumption (Baudrillard, 2005 [1968]: 109). Consumption, in this sense, becomes a constant social activity, as it is not defined by individual satisfaction, but by the relation of the person to others, i.e. relative status (Baudrillard, 1998 [1970]: 64). In other words, fashion consumption in virtual worlds is explicitly symbolic, the ultimate simulacrum of the need, as the use value of the products is completely absent: the player cannot wear the clothes, and the mechanics of the virtual world are usually not experienced any differently with new items.

This symbolism will be explicitly illustrated in *DressCode*, where social interaction and consumption will be central to the gameplay mechanics. The formation of the identity of the avatar will be a derivative of the exchange of signs between the avatars by means of virtual objects. The player will participate in a festival of signs and will perform an identity, thereby investing emotionally in the avatar, both in terms of representation and a simulated identity which will be formulated by means of variables in the software. The two layers will be strongly linked in *syndesis*, in order for meaning to be produced through the appropriate use of visual metaphors.

Experimentation with the avatar's appearance will yield social reaction and interaction, within which the autobiography of the avatar will be affected. The players will interact through avatarial appearance and dialogue, both of which are part of a social performance by means of exchange of signs. Communication will affect the identity of the avatar, especially as the signs exchanged through image and numbers may contradict the signs exchanged through verbal expression. The player may decide to adopt a particular trend, affiliate with a specific look, or go against norms and express an opposition to existing parameters of expression. In the latter case, the player will still be developing the identity of the avatar, albeit through a different path. It is important to bear in mind that avatarial identity is, like in real life, developed over time, and is therefore emergent and progressive, even contradictory as a whole. Meaning in the appearances will be created through combinatory expression, which may be innovative or conformed. The combined articles will produce simulational and representational meaning, which, particularly linked in *syndesis*, will motivate interaction. There will be specific youth subcultures in place by design, which will be simulated by the software as a particular set of variables and/or functions. In addition, the virtual society may invent new subcultures which will be enhanced with connotations and meaning through the emerging history of the community. Such subcultures will have their own styling, as a

range of combinations of defined articles, which may be constructed by the players or external parties and purchased within the world.

In a sense, what *DressCode* will offer is the commodification of virtual identities for the production of a simulated social reality, just as real identities are commodified within present consumer societies. This is the case in most virtual worlds, where residents devote both time and money on their multiple avatars (Taylor, 2002: 41). Taylor finds one of the most interesting forms of socialised play in the now inactive virtual social world *Dreamscape* to be body swapping, which costs money, and tends to be a group event, when users meet and visit the body-change machine to alter their avatars (1999: 48). Taylor describes how rare body sprays in *Dreamscape* are used as objects of desire which have cultural significance, that of the veteran participant, in this case, and how only this group can distinguish these rare sprays from the common sprays (1999: 46). Special heads, which can be added to the avatar, are also rare and quite costly to purchase in the virtual world's shops, and items of status. Since heads can be changed at any time, people often switch heads to fit particular social situations. The players construct the image of the avatar, which is a product of the virtual world's limited subset of fashion. The avatar is created by means of consumption of the appropriate products. Through the consumption of virtual fashion, self-identity is constructed in parallel with social identity. The avatar is a construction of the self which occurs in the process of virtual consumption. It is a symbolic project, like the self is a symbolic project (Thompson, 1995: 209), and symbolic consumption means symbolic self-completion (Wicklund and Gollwitzer, 1982: 51, 214). Online worlds are hyper-consumer societies, mirroring the society of the real world even at the level of identity itself, which becomes a product, a commodity. This is what video games, and in particular virtual worlds are: the market of, and for, identities.

Articles of avatars dress are objects that we consume, which have their own image (symbolic meanings). We construct our identity through this act of consumption and image making in order to compete with other members of the virtual society in consumption. For Baudrillard, consumption is a reason for living (2005 [1968]: 223). We purchase objects to signify our existence and importance. This is why consumption cannot be moderated or contained. It is symbolic and fundamental for our psychological balance. Objects cover up the absence of reality. They are ideal. In this sense, the screen is the store window:

The displays of delicacies, and all the scenes of alimentary and vestimentary festivity, stimulate a magical salivation. Accumulation is more than the sum of its products: the conspicuousness of surplus, the final and magical negation of scarcity, and the maternal and luxurious presumptions of the land of milk and honey. (Baudrillard, 2001 [1970]: 33)

In 'Virtual Consumerism: Case Habbo Hotel', Lehdonvirta et al (2009) presented the findings of their research on virtual world *Habbo Hotel*. They argue that digital representations of goods are not perceived as media surfaces, but as commodities (2009: 8). This is due to *artificial scarcity* (Castronova, 2006: 814-63), that is making specific items rare in virtual worlds, even though the cost of reproducing digital objects is close to zero. What 'were previously media become things' (Lash & Lury, 2007: 8), which have use-value and exchange-value. In *Habbo Hotel*, there is such a 'virtual economy', where items are traded based on supply and demand. And even though the purpose of virtual items in *Habbo Hotel* is aesthetic, they are in practice pieces in a status game (Lehdonvirta et al, 2009: 16). Besides property ownership, status group differences are also established by belonging to exclusive *Habbo Club*, which gives members privileges over regular users, such as jumping queues and having a larger choice of clothes (Lehdonvirta et al, 2009: 18). Members have a 'HC' badge and a clothing style that distinguish them from non-members, whom they routinely discriminate against – "experienced' users claim to be able to recognise new users based on their clothing style alone'. Other status signs are having (in-game) celebrity friends, and being familiar with Habbo culture, such as conversational conventions, popular venues, and the value and history of virtual commodities (Lehdonvirta et al, 2009: 17-19).

There is an inherent status-oriented socio-economic system in virtual worlds, which mimics and symbolises that of the real world. Previously, Edward Castronova also found that the user of virtual worlds faces scarcity, in terms of the development of avatars and obtaining goods and services (2005: 115). Avatars in some worlds must work to develop capital, which invokes 'exactly the same risk and reward structures in the brain that are invoked by personal development in real life'. And as virtual worlds are social and competitive, success is relative (Castronova, 2005: 135).

Castronova asserts that in a post-industrial society, social status is what drives people to work so diligently. In this sense, 'VWs are truly a simulacrum of Earth society.' (Castronova, 2001: 15) They offer the human narrative of challenge, i.e. striving for maturity and success, but you can always start over if things are not working out, and you can chose who you want to be. Virtual worlds are real in that they have a real economy, 'with a labor force, a gross national product, and a floating exchange rate' (2001: 15). In other words, there is opportunity for success, which becomes real, but, because everything is virtual, failure can still be regarded as non-real and it can be fast forgotten. The simulation has been integrated in the symbolic order of the real (non-virtual) world asymmetrically. Winning is real, losing is virtual. This may explain the need for various avatarial identities in order to succeed. Avatarial appearance is crucial in playing for success, as it carries significations of the player's personality, aspirations, experience and status in the virtual world.

Involved in this struggle for success, goods in *DressCode* will be regarded as commodities, and artificial scarcity will be used by design, in order to create a hierarchy of objects in the world, which players may see as an incentive. Status may be established in terms of belonging to exclusive groups and associating with particular avatars. The game's culture, as the progressive emergent tradition and history of the virtual community, will no doubt construct a system of stature based on imagination, experience, acquaintances, and possessions. There will be a limited but functional socio-economic system based on social standing. Even work is something that could be carried out in exchange for in-game currency or objects. However, the purpose of *DressCode* is the production of social realism by means of multiplicity, and syndesis of simulation and representation. These devices are employed in order to increase the game's meaning, and as a result the player's subjectivity in the construction of the identity of the avatar through social performance. Therefore, in *DressCode*, the alternative social system formed by the interaction between the players will not be self-sufficient, but it will be controlled by the implementation of a simulation of the 'real' socio-economic system, particularly with regards to fashion. The in-game social norms will not be formulated independently, as in other online worlds such as *Second Life* and *There*, but they will be dictated by their actual 'real-life' counterparts. Education researcher Christine Liao finds that although the influence of the virtual fashion system of *Second Life* on the users is evident, it is much less "fluid" than the real-world fashion system (Liao, 2011: 106-7). In *DressCode*, the notion of multiplicity will ensure that there will be virtually unlimited opportunities for sartorial combinatory innovation and other choices regarding the image of the avatar, through a cyclical fashion system, which will feed new trends into the game at regular intervals. Syndesis will ensure that the appearance of the avatar will have semiotic and simulational meaning, as its mathematical attributes will align with its visual signs.

In constructing the avatarial image, players may use seductive strategies on their avatars to enhance their own real characteristics, and to conceal their bad characteristics. Seduction, according to Baudrillard, is 'that which extracts meaning from discourse and detracts it from its truth'. It is opposed to interpretation, and it propagates appearances, reduces signs and conceals truth (Baudrillard, 1990 [1979]: 53). The role of seduction in the natural selection process through mating is crucial. We constantly try to conceal the aspects of our mental and physical selves that are thought of as problematic or not interesting, while propagating and exposing our strong aspects. Consumption works on the same principle in virtual worlds. We consume virtual products in order to enhance or conceal our characteristic attributes. At the same time, the promotion of these products is based on seduction. The qualities of the product are exaggerated, while the product is presented not in terms of the product's practical applications, but rather as a projection of our fantasies as consumers of what the product may help us achieve. An advertising campaign for deodorant Lynx in Playstation *Home* (accessed on 9/10/2011), included posters and videos of

female models dressed as angels, and actual avatars dressed as angels falling from the sky, implying of course that the product is so exciting that using it makes angels fall from the sky. The attractive, scantily dressed avatars/models/angels would then ask users to save them in a game played within the virtual world. This is a copy of Lynx's television campaign of the same period (BBH, 2011), and it may be more effective if the viewer has also been exposed to the TV advertisement. However, in *Home*, the player interacts with the advertisement, which dynamically unfolds and develops depending on the player's interactions with the objects in the virtual world associated with it.

In *Second Life* (Linden Lab), there are blogs and on-line advertising, as well as on-line publications (*Second Style*, *Linden Lifestyles*, *Pixel Pinup*), which promote designers. These electronically distributed magazines feature the fashion of *SL*, and mimic the structure and layout of established fashion magazines, like *Vogue* and *Harper's Bazaar*. In such magazines as *Second Style*, *The Best of SL*, and others, as well as on countless blogs, virtual fashion creators advertise their products in editorials and beside articles. Often, the 'photography' featured on the magazine-spreads depicts avatars posed in ways that one can only see in fashion advertising. The designers adopt extravagant names such as Vero Modero, House of Europe, Fellini Couture, Dona Flora, and Kimera Maddison (illustration 98; *The Best of SL*, September 2011). Such attempts are crude simulacra of real-world advertising, which aim to give the virtual products the status of the simulated real products. The mannerisms of the fashion industry are picked up and used in a very referential manner.



98. Spread from *The Best of SL*

As seduction takes place through the consumption of products which conceal or enhance our attributes, the reality of the self is hidden behind the virtuality of the avatar, in terms of appearance and social behaviour, both through aesthetics and social interaction. The player can manipulate other players into believing that she is of a higher social stature, more successful, or more attractive, than she really is. For example, expensive skins and clothing such as jewellery and shoes in *Second Life* can be seen as conspicuous consumption (Boellstorff, 2008: 229), which

marks status. Furthermore, some *Second Life* residents have found employment as a model, helped by an attractive avatar and good walking animations (Llewelyn, 2004). Whether they are equally attractive or successful in real life is irrelevant. They use seduction to simulate the celebrity lifestyle which they cannot afford in real terms, and so they symbolically purchase it.

The avatar often acts as an image that evokes desire and attraction, even if the current graphical systems of online worlds can be limited. Sexuality in avatarial dress is a psychological necessity and a social construct, achieved through contradictory binaries (modesty/immodesty, concealment/exposure), and symbolic significations, just as it is in the non-virtual world. The purpose is to encourage sexual fantasies through connotations and symbolisms in individual articles of clothing, or in overall styles. One of the purposes of having an attractive avatar is to find a sexual partner or even form a relationship. Many residents of online games engage in sexual activity. There is a long history of online sex, both in graphic and text-based worlds (Boellstorff, 2008: 160). Some residents even work as prostitutes, which is the highest-paying job in *Second Life* (Bainbridge, 2006: 14-15). Love, weddings, and cohabiting are also not uncommon (Boellstorff, 2008: 167). For some, *Second Life* romances are *more* real than actual-world romances, as one can meet the person before one can judge their physical appearance (Boellstorff, 2008: 170). I find this is a contradictory statement, because, even though they claim to meet the personality beyond its physical manifestation, they still meet the person through an avatar, which does have a visual appearance. Meeting the person behind the avatar would defy the purpose of the virtual world, and it very rarely happens. In *Second Life*, everyone is attractive, and this is the whole point – Liao points out that most people choose an idealised human form in *Second Life*, even if they do not have to (Liao, 2011). Paul Sermon and Charlotte Gould of The Creative Technology Research Group criticise such trends in visualisations of environments and avatars as incontrovertibly conforming to the conventions of ultra-realism and 'super-humanism', which propagate formulaic Barbie and Ken 'body-beautiful' archetypes, and are adopted by the majority of users, thereby working against democratisation and liberation (Sermon & Gould, 2011: 17).



99. Second Life

Ultra-realism and super-humanism are exchanged for social realism in *DressCode*, where the appearance of the avatars will be entirely up to the players, and apparent in both visual and mathematical cues on the game's interface. However, in their social performance, the players of *DressCode* will be able to use seductive strategies on their avatars by concealing the characteristics of the avatars that may be considered negative. Seduction may be employed by means of dress or by using dialogue options which hide or avoid telling the truth, thereby increasing the subjectivity of the players. There could be scenarios that would demand the player to dress the avatar in order to imitate status by using seductive signs, which could be fortified by spurious verbal communication. The fashion products used to enhance the appearance of the avatar will serve this purpose, particularly as they will be tied to specific simulational attributes and functions. Furthermore, the products may be advertised as carrying associations with specific social groups or having qualities that are associated with status. They may be promoted as tools with which the players can act out their fantasies, and live the desired lifestyle in the game. In-game publications, posters, screen, and other media may be used to promote products, and perhaps even external blogs and websites may operate. It will also be interesting to see how the players will use the sexuality of the avatars to attract other avatars, if at all, and what norms will be formed as a result of this.

As the avatar is a social body, such norms help define it as the vehicle of the player's identity, in the same way the corporeal body is defined by the 'real' society (Goffman, 2009 [1971]). Goffman's central thesis is that physicality is influenced by social systems. In virtual environments, however, "physicality" is an a priori construct of social and cultural systems, often with no direct response from the body that is actually constructed. Instead, the world view and ideas of the player are communicated in a game through the appearance of the avatar, including its dress. The subjective content of the players is exchanged during gameplay, and as they interact, their identities emerge. These identities are the material of virtual fashion, which rewrites their cultural order. The user

unconsciously decides which facets of the offline self will get embodied in a particular avatar, which leads to self-exploration and even self-reconfiguration (Taylor, 1999: 3). Taylor writes: 'the bodies and selves people create in these worlds have some rooting outside of the user, in the social world.' The community may also read the avatar in ways unpredictable for the user. People treat you based on how you present yourself, but you also change depending on how you present yourself (Taylor, 2002: 42). Jason Rutter agrees that in cyberspace identities become fluid and so, the traditional boundary between real and artificial collapses in the performance of different identities (2007: 177). Gamers, even though still restricted by the game code in that they do not have unlimited agency, can give themselves alternative 'characteristics' in a way that mutates their identities (Rutter, 2007: 177). Celia Pearce has also found that play communities and individual identities are emergent, and emerge through a system of social feedback: 'Many players find themselves surprised by who they've become in their alternate personals, and reported having a transformative experience as a result.' (2006: 2) As Chee, Smith and Vieta have discovered, the phenomenological online and offline realities of the gamers are not clearly distinguishable, as online interactions are deeply embedded within offline lives, and vice-versa (2006: 14-15). The offline neglected desires, passions, and pursuits of players are all linked to what the players perceive as *real* engagements with *real* people (Smith & Vieta, 2006: 14-15). Players are affected by their online experiences. Sandra Abrams claims that real identity is affected by games because they contain extensions of reality (2011: 232). I will argue that games are abstract models of reality, simulations where the avatar is often a primordial subset of a real person. It is the player's ideal. Philosopher Slavoj Žižek believes that the value of virtual environments lies in the ways real life is reflected within them. The virtual world is a window to the human psyche:

Symbolic networks are our (social) reality. The imaginary is located at the level of the subject's relation to itself. It is the gaze of the Other in the mirror stage, the illusory mis-recognition, as Lacan concludes: *I is an other*. The imaginary is the fundamental fantasy that is inaccessible to our psychic experience and raises up the phantasmal screen in which we find objects of desire. (Žižek, 2004)

For Goffman, one's image is represented through purposeful enactments, and people employ specific actions to convey image, personality, and status (1959: 16). Identity is performed. This performance of identity in the virtual world includes the player's identity as a virtual character, which implies purposeful adoption of behaviour specific to the character, a performed onscreen identity. The player must see the game through the character's eyes in order for the game's discourses and the gamer's knowledge to be revealed and to interact (Gee, 2008: 258). The player

has to internally simulate the avatar's situation in the game world, and decide on an action. In this sense, the player performs a simulated identity, or the simulacrum of an identity. The projective identity of the player (2004: 54-56), when engaging in a communicational circuit with the game world, is affected by the game's simulation and representation. The player's real identity is affected as a result of the affect on the projective identity during gameplay. A transformative experience takes place within the virtual world, which is reflected – at least to some extent – by genuine real-world transformation of the player's identity. Our real selves are affected and even transformed by our experiences – both real and virtual.

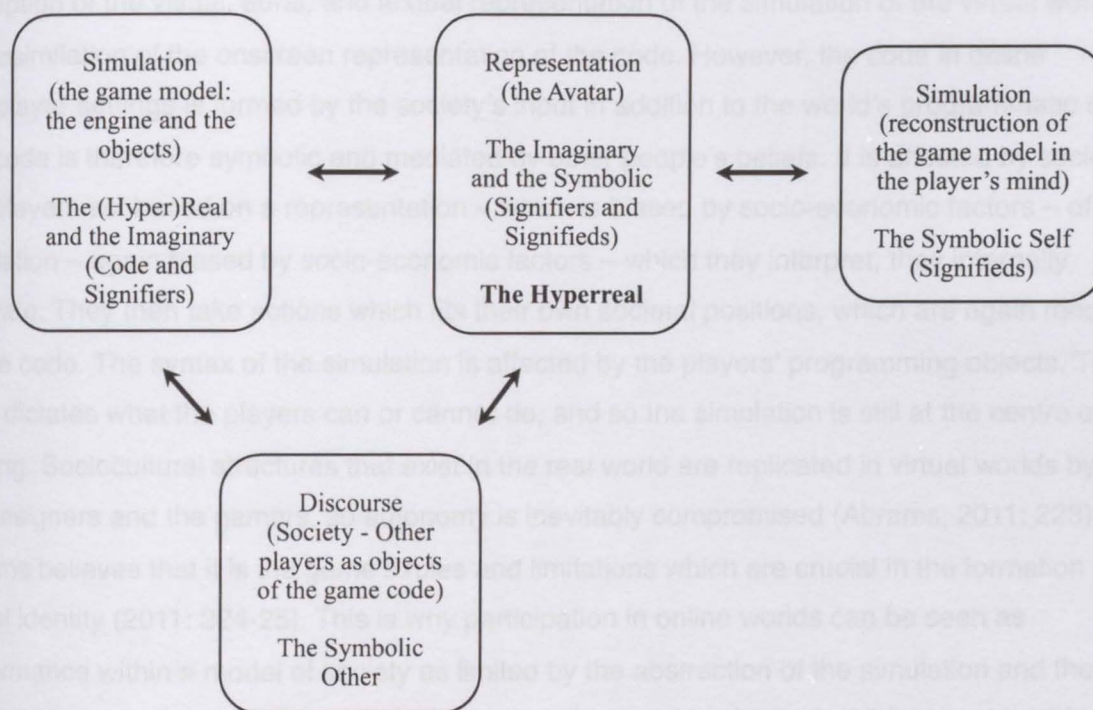
In *DressCode*, the players will have to perform some facets of their real identity. The avatar will act as the vehicle for the construction of the player's emergent identity through social interaction during gameplay. The player may dress the avatar in order to project a particular image, but she may evoke unexpected reactions from the virtual society. It is not clear to what extent players will use aspects of their own identity in the creation and performance of the online identity, and how much they will rely on the emergent aspects of the character they will be building, even though it will almost definitely be a merge of the two. At any rate, *play will transform the identity of the player*. It will be interesting to see how play communities will emerge, and what they will have as their common characteristics with regards to, but also outside, fashion.

On the other hand, the sociocultural structures that will be inherent in the game by design (what Wardrip-Fruin (2011) calls expressive programming and Bogost (2006) procedural rhetorics), as well as the ideologies that gamers will bring with them to the virtual world, will affect how the players will dress their avatars: the code will dictate the degree of freedom that the player will have. In virtual worlds in general, there are issues of designer and player intent with regards to the agency of the player and its constriction. Subjectivity is affected by design considerations and the socio-economic structure, which are reflected both on the design of the world and on the in-world interaction. Manovich asserts:

The communication between the larger social world and software use and design is a two way process. As we work with software and use the operations embedded in it, these operations become part of how we understand ourselves, others and the world. The strategies of working with computer data become our general cognitive strategies. At the same time, the design of software and the human-computer interface reflects a larger social logic, ideology, and imaginary of the contemporary society.

(Manovich, 2001: 118)

The structures of social standing in virtual worlds are abstract models of social standing in the real world. As such, they are partly a result of the virtual worlds' internal fashion systems. When a game is played by more than one player, this triad of player, code, and representation, is augmented by a fourth factor, that of the society. This discourse is communicated to the player as filtered and translated by the game's simulation. It is therefore a simulated discourse.



For cultural theorist Stephen Orr (2007: 45), the impact that the socio-economic code has on virtual worlds is threefold: it nullifies the meaning of any content, as the form of the medium is the only thing of importance; reality is exchanged for hyperreality, as the content and the form do not represent, but simulate, in which case meaning is again absent; subjectivity is sacrificed in the name of the serialisation and typification of consumption in terms of genre: the consumer is the object of the products. In the virtual world, society becomes part of the simulation before it is represented on the screen. The programmatic code of the virtual world, which is a blueprint of the socio-economic code, mediates all relationships:

The most commanding relationship is between the machine and the individual. It is not the content of games that creates this message, but the

system itself. The content is merely accessory to the medium. (Orr, 2007: 45)

Within the consumerist philosophy, our relations with objects substitute human relations, as the "personality" of the product interacts with the personality of the individual (Baudrillard, 2005 [1968]: 204). Products have become so differentiated and individualised that we consider our relation to them as important as our relationship to humans. The player's identity is produced by the player's perception of the visual, aural, and textual representation of the simulation of the virtual world. It is the assimilation of the onscreen representation of the code. However, the code in online multiplayer settings is formed by the society's input in addition to the world's programmatic rules. The code is therefore symbolic and mediated by other people's beliefs. It is affected by society. The players act based on a representation – which is biased by socio-economic factors – of a simulation – again biased by socio-economic factors – which they interpret, they internally simulate. They then take actions which fits their own societal positions, which are again mediated by the code. The syntax of the simulation is affected by the players' programming objects. The code dictates what the players can or cannot do, and so the simulation is still at the centre of social gaming. Sociocultural structures that exist in the real world are replicated in virtual worlds by both the designers and the gamers, so autonomy is inevitably compromised (Abrams, 2011: 223). But Abrams believes that it is the game's rules and limitations which are crucial in the formation of virtual identity (2011: 224-25). This is why participation in online worlds can be seen as performance within a model of society as limited by the abstraction of the simulation and the symbolic boundaries of society, the societal norms imposed by the code. Virtual worlds abide by a socio-economic system which is real. They inherit the symbolism of the logic of exchange in the 'real' world. Identities in such a context are real, in the sense that they are a construct of the virtual world's socio-economic forces. In this sense, as Boellstorff writes, 'the virtual is the anthropological' (2008: 237). Education researcher Anna Peachey also sees virtual worlds as social laboratories for identity study (Peachey, 2010: 37). In particular, virtual fashion sums up the objectification of the consumer through the use of status and sexuality.

The player of *DressCode* will have to perform an identity, while balancing between personal expression and social imposition. This imposition will be forced to a certain extent by the design of the game, willingly, as this is one of the main factors of the goal-oriented missions of the game, and it will be used as a set of obstacles that will challenge the player's progress. However, the fact that the game has a designer will inevitably bring in the game the designer's personal outlook, even if this is largely done unconsciously. At the same time, the players will affect the virtual society by bringing with them their own beliefs, which will be mediated by the game's code.

Expression, in other words, will be distorted, and this is an expected outcome of the simulation of social realism. The meaning of social interaction will be of great importance. The content of the game will be made to communicate meaningful messages.

However, as Childs points out, technological, design and financial constraints stand in the way of making an avatar's appearance just as one would wish (Childs, 2011: 18). In most games that feature virtual fashion, the design of the worlds restricts the player's choice, impacting on her subjectivity. Accessories, colours, objects, distinct heads and bodies, are all used to 'anchor identity' (Taylor, 2002: 46). However, in most worlds, there are simply not enough options for the creation of unlimited unique identities. Inevitably, there is mass reproduction of styles. Articles and styles are categorised in rough groups and stereotyped: there are limited heads, faces, hairstyles, tops, trousers, shoes, and so on. The inclusion of virtual iterations of branded products could increase multiplicity and subjectivity, as they offer an appropriate framework for meaning, deriving from the signification of their objecthood in existing consumer societies, although this might not be necessary for the modelling of social realism. Fashion companies have repeatedly tried to enter this domain without success, and today there is very limited presence of clothing brands in virtual worlds. Past, unsuccessful attempts include the now closed American Apparel in *Second Life* (illustration 100), moderately successful attempts include H&M in *The Sims 2* (illustration 101), and a recent example, which it is too soon to evaluate, is Diesel on *Playstation Home* (illustration 102). Early versions of the virtual world *There* (Makena Technologies, 2003) were also planned to include virtual versions of Levi's jeans and Nike shoes, for both promotional and research purposes, which were not included in the later incarnations, when it became apparent that real brands were not as popular as exclusive in-world independent virtual products. (Bogost, 2007: 224).



100-102. American Apparel, H&M, and Diesel

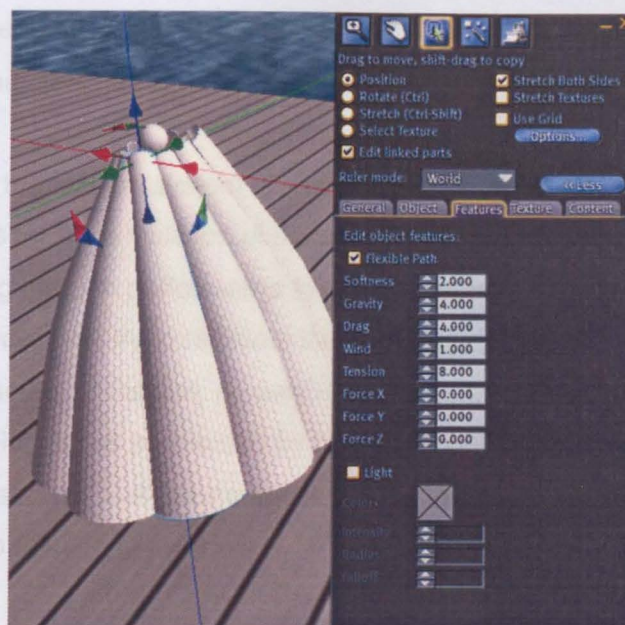
And there appears to be a reason for this. Carman Neustaedter and Elena Fedorovskaya found that avatar appearances in *Second Life* are affected by the social environment (1999: 7). There are societal norms in place, which are evident in the appearance of the avatars. There are shops selling specific typified items, and avatar interaction, i.e. approval or disapproval, define what is accepted and what is not. A refusal to update the appearance of the avatar carries social stigma. There is a clash, therefore, between projecting a specific identity and obeying the rules of the social environment:

Our results outline the importance of appearance in the VW for identity construction. People construct their appearance to follow social norms in *SL*, dictated by the constraints of avatar creation, the pressures of others to update one's appearance, and the marketing pressures by store owners and companies to purchase appearance items. (Neustaedter & Fedorovskaya, 1999: 7)

The fashion system has historically demanded certain conformity, and in online virtual environments, the conformity and the constrictions in dress come from their designers as well as the players. The players are allowed to express themselves via avatarial dress, but only insofar as

such expressions are supported by the world's affordances. Virtual worlds involve *hypersocieties*, as social discourse within them is free, exploratory, exaggerated, and without real consequences. These are *hyper-consumer* societies (Lipovetsky, 2006) where identity and expression through consumption are exaggerated and multifaceted. The avatarial self is built through the avatar's image, through virtual consumption. This is why having so many consumers hungering for individuality and originality, but not having a fashion system in place, however limited, which will accommodate for such a desire, is disappointing. It is a missed opportunity for the enhancement of the worlds, for the user experience, and for the fashion industry.

Furthermore, Neustaedter & Fedorovskaya have found that the tools available in virtual worlds are not appropriate for the construction of avatars that represent any of these identity types (1999: 7). Neustaedter and Fedorovskaya have identified two kinds of players: 'roleplayers', i.e. people who create multiple identities that change frequently, and users who present a single virtual identity based on the real self, the ideal self, or a fantastical self. They find that the existing tools produce a very specific kind of look, and as a result, people are challenged when attempting to construct their appearance, and ultimately they compromise for less than ideal avatar designs. The creation of virtual clothing for *Second Life* avatars is not a straightforward process. The designer has to start by creating simple, primitive objects with the aid of a building system that is internal to the world's 3D engine (illustration 103). Those objects are then manipulated and sculpted with the aid of an array of tools, so that they gradually become more complex and refined shapes. The final shapes are then combined to form the final design, and textures are painted in a 2D program such as Adobe *Photoshop*, to decorate the 3D geometry. This process has many limitations: some knowledge of 3D modelling is required; there are no tools specifically for garment design (the tools for the creation of 3D content are the same, whether this content is garments, buildings, or vehicles); the designs cannot be used anywhere except within *Second Life*; and there is no support for bump maps or normal maps (textures that create minute details on surfaces, such as wrinkles or as in woven fabrics). The tools, and consequently the outcomes, are usually crude.



103. Second Life prim editor

The main concern in creating *DressCode* will be to give the player as much agency as possible over the game, without restricting or directly prohibiting any actions. This will be done by keeping everything relative, by offering the player different paths. Every single object and option will affect the direction of the game differently. The garments and accessories will be separated in categories, but there will be an expanding array of items offered to the player, depending on the scenario or stage of free play, which the player could earn or "purchase". Consumption in *DressCode* will be symbolic, however the possibility of commercial ventures is not ruled out. There could be external parties, such as fashion brands, producing items. This, apart from an increased revenue, could be useful for the companies as an economical testing environment for designs, before the physical products are released in the marketplace. The players could also create objects and sell their creations in the game, or through external websites. The main purpose of the game is to explore the nature of identity formation through fashion in a social context for academic experimentation, and any such attempts would be welcome as a means to explore the complications of the inclusion of actual monetary exchanges within the world. Perhaps there may even be a market of completed avatars, created to specification. I am not convinced, however, that such inclusions would be necessary, or even beneficial to the philosophical agenda of the software in its current form. In any case, the affordances of the game will be multiplied by each player, who may create and use or exchange their own designs, which may be customisations of existing objects, or completely new items. However, the largest contribution will come from a cyclical fashion system, which will introduce new trends every season, which could be six-monthly, and even following actual fashion trends of the time. Complete subjectivity is of course unobtainable, as the player will inevitably have to belong in a social system and market, but I will try to minimise constriction and

objectification by the specificity of the styles and tools offered to the player. This way, any idea of identity will be able to manifest through the avatar.

The virtual modelling of the fashion system is seen here as a response to the problems of multiplicity and synthesis for the simulation of social realism, and consequently for the increase of subjectivity and meaning through performative identity construction in virtual world. Therefore, in the creation of *DressCode*, I will try to replicate the semiology of fashion in a social environment by considering the prime factors of fashion, namely narcissism, the objectification of the body, and the measure of social standing, all as permeated by the hegemony of the socio-economic code. For this reason, in the next section, I will give a detailed account of how the fashion system dictates the dress of the individual in relation to the society.

Narcissism

In order to establish how dress affects identity, first an account of what constitutes fashion must be given. Dress is about social identity, but before it becomes a social phenomenon, it starts with self-assertion. It is a process of completing an identity, and it is very relevant to gender and sexuality. The most important aspect of fashion, therefore, and the reason why we need to dress before we even any social interaction takes place, is narcissism. Narcissism is based on the Greek myth of Narcissus, who fell in love with his own reflection in a pool. The term was first used in psychology in Freud's work *On Narcissism* in 1914. Narcissism in fashion is used in the sense of Freud's primary narcissism, that is one's sexual energy reflected onto oneself, as self-interest. I will give here an account of narcissism in dress psychology, particularly with regards to gender, as this appears to be an important difference in the manifestation of narcissism through dress.

In the book *The Psychology of Clothes*, first published in 1930, Flügel applied Freudian psychology to dress and fashion. The book is rooted in Freudian orthodoxy and it would take another decade before Lacan began to reassess the language of its analyses and thereby investigate the discursive structure of psychoanalytical texts. Flügel's is the first full study of clothing from a psychological perspective, and as such, it has influenced a wide range of fashion literature, including that produced by structuralist and post-structuralist fashion theorists. One of the main arguments in Flügel's *The Psychology of Clothes* is that the manifestation of narcissism is much more apparent and approved among women than it is among men (Flügel, 1930 [1975], 146). Subsequent neo-Freudian psychologists and psychoanalysts, such as Karen Horney, identified social and cultural factors as the determinants of narcissism, and asserted that narcissistic

Part 2 – Fashion as Social Realism

In the following analysis, I will be looking at gender constitution in fashion theory explicitly involved in the context of the video game. In this particular context, gender is usually perceived and perpetuated stereotypically by developers and consumers alike. The actual contemporary fashion system has of course become much more complex and open with regards to gender and sexual orientation, making orthodox psychoanalytical theories only tangentially relevant. However, such concrete methodological templates, dating as far back as 1930, are still very relevant to the analysis of dress in video games. Perhaps this fact betrays how anachronistic the medium currently is and how much catching up it has to do with regards to representation.

Narcissism

In order to establish how dress affects identity, first an account of what constitutes fashion must be given. Dress is about social identity, but before it becomes a social phenomenon, it starts with self-adoration. It is a process of completing an identity, and it is very relevant to gender and sexuality. The most important aspect of fashion, therefore, and the reason why we need to dress before even any social interaction takes place, is narcissism. Narcissism is based on the Greek myth of Narcissus, who fell in love with his own reflection in a pool. The term was first used in psychology in Freud's work *On Narcissism* in 1914. Narcissism in fashion is used in the sense of Freud's primary narcissism, that is one's sexual energy reflected onto oneself, as self-interest. I will give here an account of narcissism in dress psychology, particularly with regards to gender, as this appears to be an important difference in the manifestation of narcissism through dress.

In his book *The Psychology of Clothes*, first published in 1930, Flügel applied Freudian psychology to dress and fashion. The book is rooted in Freudian orthodoxy and it would take another decade before Lacan began to reassess the language of its analyses and thereby investigate the discursive structure of psychoanalytical texts. Flügel's is the first full study of clothing from a psychological perspective, and as such, it has influenced a wide range of fashion literature, including that produced by structuralist and post-structuralist fashion theorists. One of the main arguments in Flügel's *The Psychology of Clothes* is that the manifestation of narcissism is much more apparent and approved among women than it is among men (Flügel, 1930 [1976]: 145). Subsequent neo-Freudian psychologists and psychoanalysts, such as Karen Horney, identified social and cultural factors as the determinants of narcissism, and assumed that narcissistic

behaviour is situated in socialisation and peer pressure (Horney, 2002 [1950]: 194). Fashion is still today more openly appreciated by women, who are regarded as fashionable while men are not, as they deny that fashion is for anything else than comfort, or that they care for clothes (Craik, 1994: 176). It is socially easier and more acceptable for females to be appreciative of fashion, and they can consume appearances in a much more open manner compared to males, who still veil their discourse under the context of functionality, confidence, and practicality. Even though the actual patterns of consumption are not too different between the sexes – something which becomes apparent in the following paragraphs – the discourse on men's fashion is often distinct from that on women, and this leads back to Butler's notion of performativity (1990).

The feminine body is an objectified and sexualised body. Women are seen as located in the body, whereas men are seen as transcending the body: 'a woman brings to her dress the baggage of sexual meanings which are entrenched within the culturally established definitions of "femininity".' (Entwistle, 2000: 54) The libido for looking, writes fashion theorist Joanne Entwistle, explains the development of our gendered identities and 'the potency of dress in terms of sexual desire'. The drives that children have for voyeurism and exhibition in time acquire a gender, so that 'boys develop a desire for looking and girls a desire to be looked at' (2000: 184). As adornment is close to the body, it is also close to sexuality. This may be the reason why narcissism is more prominent among women: they are conditioned to be looked at. The development of fashion has been gendered, and fashion is often still seen as 'feminine' or 'not masculine' (Edwards, 1997: 2-3). Menswear is seen primarily in terms of utility, something which is epitomised with the suit. For example, the homogeneity among men that was brought on with the French Revolution, meant that men were part of the Revolution and part of society. Decoration was dropped for the sake of clothing and styling in ways that denoted uniformity and brotherhood; hence the suit, which is in a way a uniform.

Industrialism and capitalism brought with them fashion as mass production and consumption of goods for adornment, while men's dress was indicative of the production that affords the female conspicuous consumption (Edwards, 1997: 27). This means that men dressed in strict, serious suits to implicitly symbolise the power of production, while women explicitly displayed the outcomes of production. Male narcissism in this case is displaced onto the women's appearance, as male dress does not appear to exhibit any narcissistic tendencies. In general, the man's 'uniform', the suit, throughout its variants, has been a symbol of success, virility and maturity (Edwards, 1997: 22). Its sexiness comes from its 'containment and expression, concealment and exposure of the male body' (1997: 22). This continuity is retained regardless of the variations in design. It may be that the suit – at least some variations – carries elements of narcissism, even if it is in different ways to female dress. Or it may just be that the manifestation of narcissism among

men is not as widespread or approved. Dress has always been used to reinforce gender difference, but changes in men's dress have been slower, fewer, and mostly driven by technological advancements. Men's clothes have been used mostly to display status or rank. Male dress is about power, while female dress is about self-adoration, but also about men's power. Self-adoration is excluded from most versions of the suit, except small indications of being fashionable in the detailing or in the slight variations of the lines. Power, which is the main preoccupation of the suit, is exhibited through masculinity, which varies only slightly and slowly.

The only cyclical factor in men's fashion, according to Tim Edwards, has been an oscillation between dandy and puritan tendencies (for example, from the Renaissance and Romanticism to the industrial nineteenth century) (1997: 15). Edwards also asserts that the greatest advances in men's clothing have occurred in the twentieth century, in a move towards casualness and informality (sweaters, t-shirts, jeans, and sportswear). Of course, casual clothing has less to do with narcissism and more to do with comfort and utility. Power, in the form of physical strength, may be another thing that is revealed through sportswear, and in this sense, sportswear which reveals or tightly surrounds parts of the body, may be seen as narcissistic. But casual dress, as the name reveals, is the ignorance of narcissism.

Of recent decades, the 80s were the one that made a difference with regards to male clothing and narcissism. After researching men's magazines in the 80s, such as *Arena* and *The Face*, Frank Mort found that the majority of the fashion sequences in these were hardly clothes' advertisements, but narratives to be read, put together by a team of experts in this sort of visual narrative, with the fashion stylist as leader (1996: 47). There was a specific visual language used cleverly by talented teams. Stylist Ray Petri's images, for example, were based around his vision of urban masculinity by mixing *haute couture* with street fashion. Meanwhile, the magazines functioned as consumer manuals for selecting products as 'emblems of fashionability'. There were two main socio-economic groups identified for such publications, namely conservative professionals, such as lawyers and accountants, and contemporary professionals, such as architects and designers. All was built around consumer culture. The readers' identities were defined in terms of commodities which were seen as decisions made about identity. Being able to build an identity through consuming was presented as some form of freedom. Goods, in this context, had totemic status. Consumption practices were reordered in the 1980s for some populations, something that 'generated intensified representations of individualism', and allowed the increase of social identities offered to the consumer (Mort, 1996: 205). By this point, the code had engulfed male dress. This move was forced by the industry, and it has since arguably declined. Nevertheless, the mainstream male consumer started buying into fashion as a result of this excitement of male narcissism. Admittedly, the image of the male presented in such publications may be categorised

as metrosexual, or even in some cases homosexual. However, this attention to male consumption was what made fashion for men a narcissistic occupation, in the same way fashion for women had always been. Therefore, fashion today may be regarded as an exercise in narcissism for all genders.

But for Baudrillard (1993 [1976]: 111-116), narcissism means social control. Baudrillard does not speak of the secondary Freudian narcissism, however, i.e. the ideal ego, or the projection of the narcissistic perfection of childhood. He starts there, but arrives at a planned 'neo-narcissism'. This 'tertiary' and 'synthetic' narcissism rewrites the body as a 'personalised' Eros, as the site of the industrial production of signs (1993 [1976]: 111-116). There are norms of body management that have to be followed, and investment in the body that must pay off. Autoeroticism is not about enjoyment, but about carefully staging the body by means of technique, as an object by means of objects, in the name of prestige. The body is manipulated as value via commodities and messages, and so a political economy of the body transpires (1993 [1976]: 111-116). Femininity and the female body are the primary objects of this third-order narcissism. The fashion system revolves around the female sexual body and caters primarily for it. As the expression of sexuality is mostly linked to the female gender and since fashion is, among other things, the expression of sexuality through clothing, it follows that beauty and fashion are mainly female preoccupations.

Femininity and the female body are the primary objects of this third-order narcissism. The fashion system revolves around the female sexual body and caters primarily for it. As the expression of sexuality is mostly linked to the female gender (see Flugel, 1930; Bergler, 1953; Foucault, 1976; Baudrillard, 1993; Butler, 1999; Entwistle, 2001) and since fashion is, among other things, the expression of sexuality through clothing (see Flugel, 1930; Bergler, 1953; Baudrillard, 1993; Entwistle, 2001), it follows that beauty and fashion are mainly female preoccupations. Evolutionary psychological theories, such as the one by Matt Ridley (1995), assert that men focus on the lines of the clothes and how they reform the body, and on what parts of the body are revealed or concealed, thereby causing excitement. Colour may be important insofar as it enhances or clashes with the wearer's characteristics, such as eye and hair colour, and skin tone. So men are less likely to be interested in fashion as the quick succession of styles, the invention of new trends, and the specific elements and features such as surface decoration and colour, and more likely to be interested in constant aesthetic considerations that revolve around the female body, i.e. how fashion affects it and enhances it. The male gender transcends the body as a spectator and admirer of the female body, whereas the female gender is situated in the body, exhibition being one of its characteristic functions. Females identify with warmth, texture, and coziness, whereas males see dress in terms of shapes, lines, and colours. It is obvious that for women, the main sense involved in their experience of fashion is touch, whereas men rely primarily on vision. This

may be attributed to evolutionary reasons, as the men evolved to hunt, while women evolved to breed. This may also be why men situate narcissism in technology, which they use to dominate the environment (and indeed there is the notion of the male consumption of technology as fashion) and women situate narcissism on their body, being the source of life. Of course, it could also be argued that this is a remnant of industrialism, and it derives from the aforementioned elements of display of production on the female, while the male dressed to represent the producing force.

Regardless of the perspective, Mary Lou Rosencranz (1972: 45) confirms this discrepancy in *Clothing Concepts*: In an experiment that J. Eddy carried out, which had informants observe a series of pictures of high fashions and make comments regarding the same, which revealed the following: women would mostly comment on "fashion", whereas men were more interested in the overall appearance or the pose of the wearer. Fashion theorist Stella Bruzzi (1997: 24) also believes that fashion is not appreciated under the active male gaze, and for men, looking at garments in the media is not connected to sexual desire. In such cases, commodity fetishism works against eroticism, and garments work against scopophilia, as the overall look of the woman dressed in what is perceived by the typical male gaze as generic clothing, is overpowered by the specificity of the individual garments. It is this fashion specificity that is a female characteristic, and which most men cannot identify with. Instead, men tend to perceive clothing in terms of generalised lines, shapes and colours, failing to appreciate the value of garments as fetishes. Fashion specificity and emotional attachment with garments are not male characteristics.

Bearing this fundamental difference in mind, *DressCode* will feature a number of scenarios that will offer possibilities for enjoyable gameplay for both men and women, as the outlook of the game may change depending on the gender of the avatar. The appreciation of fashion by women as opposed to the male preference for comfort, will be played with, in an attempt to explore whether the feminine avatar has sexuality as its prime sign, while the male avatar transcends its geometry and is more regarded as functional agency over the environment. For example, are female avatars more self-adorned, narcissistic, and gazed at than male avatars, and if they are, are they so even when played by a male player? Does a female avatar automatically imply femininity while a male masculinity? Or do their interactivity and actions define such roles more precisely? *DressCode* will of course offer equal affordances to all genders. Its fashion will be both functional (as a means to progress gameplay) and decorative (as a means to establish embodiment and to satisfy the narcissism of the player) through syndesis. As such, it may be seen as having both masculine and feminine connotations. It would be interesting to see, in this light, how different genres approach the same goal-oriented scenario, and how they approach free play. Will narcissism be apparent as a factor in their thinking and methods?

As the game revolves around social rise, there are questions regarding competition among players in order to accomplish the same task, or to gain a particular finite or even unique object. For example, there may be one job position to be filled in one of the scenarios, where the interviewees are many. Or, there may be one garment or accessory in a shop, which is desired by more than one players. This notion of competitions becomes even more complex when it is centred on another avatar, i.e. "sexual" attraction and flirting. Once more, the appearance of the avatar will be crucial in earning someone's attention over a number of contestants. The approach that every gender will use remains to be observed. Status in the game will reflect the affordances of the player, and vice versa: the more you have, the more you can do. Status will have to be displayed explicitly on specific occasions, for example at a job interview, or public speech, as a means towards more success, and therefore higher status. The suit will be central in this notion, and it may be used as a symbol of conformity or individuality and flamboyance. Again, the different ways that players of different genders would approach this, especially while controlling avatars of different genders, would be very interesting to witness. There will be items varying from puritan to dandy, and from everyday casual designs to strict formal attire. The player will have to decide what the right balance is between these ends, in order to present the avatar to the society. For example, does she dress the avatar in casual clothes to exhibit a relaxed, easy-going image, or does she prefer to use chic but formal clothing to project assertiveness and femininity?

At any rate, it would be interesting to see to what extent the player conforms to the social system of the game, and how much they dress according to their own preferences. The game will treat dress as a means to complete the identity of the avatar, in combination with the avatar's sexuality. But this has narcissistic connotations for the player who by extension 'wears' the avatar's dress. Is the avatar styled as the player would like to be styled? The avatar as ideal self is freed from the social discourse taking place in the actual, non-virtual world of the player. The avatar can therefore be dressed as the player would like to dress in an ideal situation. Perhaps the body of the player does not allow such clothing, or perhaps the player cannot afford such items in his or her non-virtual world. Such limitations do not exist in the virtual world, and so the player can dress the avatar ideally. The way that the avatars combine the different articles with the body of the avatar, i.e. the colours of the skin, hair, and the facial features, the figure of the body, which parts are concealed or revealed, may also be approached differently by players, particularly of different genders. It is likely that female players will be more specific about fashion items and styles, and will seek the items themselves as a collection of signs that creates the fashioned body, whereas male players will dress the avatar in terms of more generic aesthetic considerations, i.e. whether the overall image of the avatar is aesthetically pleasing or conveys a certain meaning or intention. It also remains to be seen whether male players will use dress on female avatars in order to satisfy their gaze.

Reshaping the Body

The notion of gaze is an important factor in dress. Early anthropological research on the role of dress has shown contradictory results, and there are theories that support clothing as a means to modesty, and theories that support quite the opposite, i.e. that clothes are used to attract attention to the sexual organs or that they enhance the body according to the ideals of each era, therefore encouraging sexual intercourse. Flügel, spotting this contradictory nature of clothing, focused on the concept of *ambivalence*, i.e. opposing tendencies such as displaying as well as covering the body at the same time, tendencies which allow for multiple readings of each article or style (1950 [1930]: 22). In particular, modesty and immodesty can be displayed simultaneously and for various reasons, but for Flügel and Edmund Bergler, the other prominent psychologist of the era who wrote on clothing, the main psychological reason for man to cover the female body is his fear of castration: man's fear of the genitally "castrated" woman revives his phallic anxieties and the earliest infantile fears, which he wards off by forcing woman to cover her body, and declaring her "cruel", as real women do not correspond to 'man's infantile fantasies of a pretty doll' (Bergler, 1987 [1953]: 73). Flügel's and Bergler's Freudian psychoanalytic approach to clothing revolves around sexual urges and anxieties. Within this theory of modesty – modesty having been primarily propagated by the male sex – man regresses to the very early stages of his life and is afraid of the sight of the "castrated" female naked body (Bergler, 1987 [1953]: 72). In a pragmatic sense, the modesty theory can be connected to notions of control and possession in extreme patriarchal societies, and Baudrillard (1993 [1976]: 97) agrees that the body always had strong sexual potential when it was repressed, as a 'captivating demand'.

It is modesty, according to Bergler (1987 [1953]: 38), which must be advantageous for the attraction of men to women, as it does not seem to have any natural benefits (it 'gives to love the aid of imagination'). It is taught to little girls by their mothers early on in their lives. In this sense, covering the body with clothes serves as an aphrodisiac in a sadistic manner: it causes excitement by prohibition. In this light, modesty seems to be a preoccupation propagated by the patriarchal society as a means to excite the male and to encourage sexual intercourse. Of course in postmodernity we have exactly the opposite, complete immodesty, as the values of pornography and its practices have extended to fashion. In the USA, following the sex industry's rapid expansion during the Clinton administration era, conservative critics proclaimed a "pornographisation" of culture: 'The sex industry sells clothes and the fashion industry sells prostitution and pornography' (Jeffreys, 2005: 75). Still, this is played as a contradiction within the madonna/whore complex (see Ridley, 1995; Wright, 1995), fundamental for the psychology of the male gaze of both men and women as formed by the code. This theory of excitement by prohibition

is consistent with claims of evolutionary psychology with regards to sexual attraction and natural selection (Ridley, 1995; Wright, 1995).

Another theme offered by Flügel and Bergler is the division of the female body into distinct parts and the cyclical play between the asynchronous emphasis on, and understatement of, these parts. Bergler (1987 [1953]: 117) goes so far as to perceive the phenomenon of fashion merely as a 'series of permutations of seven given themes' based on parts of the female body: 'the breasts (neckline), waist (abdomen), hips, buttocks, legs, arms, and the length (or circumference) of the body itself':

Organs "appear" and "disappear" as the theme of fashion changes, and one and then another part of the body is emphasized by succeeding styles. Thus breasts and legs are "opposites" in fashion; if, in one season, the neckline plunges and breasts consequently become the center of attraction, one can be sure that in subsequent seasons breasts will be covered and the spotlight will be on legs. And so on, in endless variations. (Bergler, 1987 [1953]: 117)

What is evident from both Flügel's and Bergler's observations, is that, in fashion, the body is not only divided, its parts oscillating between important and unimportant, central and trivial, but that there is juxtaposition between the over and under-emphasised parts, which creates aesthetic and sexual tension, and which formulates the look for the season. The length of the cycles during which these changes take place depends on the era. In previous centuries, fashion cycles could last anything from years to decades, and in the last century they progressively shortened to eventually conclude to six-monthly seasons. Historically, the mood of each period dictated which part of the female body will be emphasised. In an era of modesty, sexualised parts of the female body that would in other eras be celebrated by fashion, are concealed or understated. As an example, Flügel mentions the Middle Ages, when feminine fashion was ascetic, and the corset was used to conceal the contour of the breasts (1950 [1930]: 160). This changed with the Renaissance, when the shape of the corset was instead used to reveal the breasts (1950 [1930]: 160). Fashion, in the historical sense of the word, is a system which revolves around the emphasis on body parts or the concealment of body parts. Depending on the era, different parts are exposed or hidden, underlined or neutralised. As I have already mentioned, Flügel attributed this cyclical selective concealment to man's fear of castration (1950 [1930]: 105). Today, of course, there are trends that take turns in the fashion system in six-monthly succession, and today's fashion uses appositional or constrictive elements as references to past cultures and traditions. The psychoanalytical

principle still holds to a certain extent, reviving the castration anxiety with each new, revealing trend in women's clothing, although the references, within post-modernity, now fetishise the notion of femininity and the system of fashion itself more than the female body.

Baudrillard (1993 [1976]: 89-95) notes that modernity set up a linear technical progress, production and history, but a cyclical fashion. In this cycle, the ancient and the 'modern', the 'neo' and the 'retro', alternate. This system is held together by 'shifters, effectors, dispatchers, the media of fashion', through which fashion is indefinitely reproduced: 'The model is never produced, but always reproduced' (Baudrillard, 1993 [1976]: 89-95):

Against the ethics of production stands the aesthetics of manipulation, of the reduplication and convergence of the single mirror of the model...With simulation, signs merely disguise the real and the system of reference as a sartorial supersign. The real is dead, long live the realistic sign! This paradox of the modern sign induces a radical split between it and the magical or ritual sign, the same one as is exchanged in the mask, the tattoo or the feast...Even if fashion is an enchantment, it remains the enchantment of the commodity, and, still further, the enchantment of simulation, the code and the law. (Baudrillard, 1993 [1976]: 95)

In late capitalism, the reshaping of women by fashion has become part of the code, and as such, it is not so directly dependant on male hegemony, but it is part of the socio-economic system, particular within the psychological notion of the male gaze. This socio-economic system is however still essentially patriarchal. This reshaping is evident in the material structures of the fashion industry, and the tendency to magnify fashion trends on the catwalk in an experimental manner with regards to form, which can create impositions on the female body. The constriction of the female body by fashion, which is relative to the hyperreal stylisation comic book artists apply to their female characters, i.e. tiny waist, breasts that defy gravity, impossibly long legs, and so on, could be seen as derivative of Flügel's aforementioned theory of psychological comfort by segmenting, mutilating, and bricolaging the female body as a set of idealised, hyperreal, sexualised features. The human body, and particularly the female body as the main medium of fashion, becomes a fetishised commodity in the code. Baudrillard, following Foucault's inquiries into historical significations of sexuality, asserts that the history of the body is the history of its demarcation, as the signs that have divided and covered it, in order to structure it as a network of signs. In this process, the body becomes an object (1993 [1976]: 101). Sexuality is henceforth

taken as a determining agency organised around the fetishisation of the phallus, as derived from political economics (Baudrillard, 1993 [1976]: 101).

Desire, according to Freud's 1927 essay on fetishism, is either displaced onto a fetishised part of the body or adjunct to it. In relation to dress, the word 'fetish' is used to describe articles of clothing that transmit sexual connotations about the wearer. Fashion is usually not about pathological fetishism – i.e. the substitution of the penis with various symbols – but about erotic symbolism for both men and women (Watt, 1999: 170). Erotic symbolism is very prominent in fashion product development and advertising, and in the cyclic fashion system altogether. Women buy new garments because current trends demand that eroticism in each period lies within a specific context or concept. They want to be liked within this contemporary setting, and so they consume the new ideal. However, there are designs and items that are constant in being perceived as carrying sexual or erotic connotations, such as the corset or suspender stockings. Many items of dress, as well as complete appearances, or images, can be fetishised. The female body can also be fetishised – and usually is, particularly in the media. However, it is the combination of concealment and revelation that mostly turns dress (which includes the body) into fetish (Bergler, 1991 [1953]: 289). Clothing is one of the artificial stimulants that humans invented to recapture some of the initial excitement of the nude, which Bergler attributes to unconscious fears. This idea of overcoming obstacles to reach the forbidden, i.e. unclothing, signals placement of aggression (Bergler, 1991 [1953]: 292). Thus, for Bergler, clothes are a counter-measure against a 'passive-masochism' caused by neurotic fears, they are 'the last refuge of diminishing sex', and 'aphrodisiacs for man's vanishing potency' (1991 [1953]: 295).

Adornment is closest to attraction (i.e. sexuality). Discounting clothing's basic qualities for protection from the environment, etc. it is thus very often perceived as essentially erotic. Clothes, accessories, jewellery, and bodily decorations, embellish the body and 'infuse it with sexuality' (Entwistle, 2001: 181). Fetishism, in this sense, endows the article of dress with special powers and transforms it into an object of desire. Fashion theorist Valerie Steele also sees fashion as 'a symbolic system linked to the expression of sexuality – both sexual behaviour and gender identity' (Steele, 1996: 182). Fashion is the expression of sexuality. For Entwistle, the modern fashion system commodifies the body and sexuality by 'playing at the boundaries of contemporary mainstream ideas about sexuality', particularly through advertising (2000: 187). The media affect and alter sexuality and clothing choices by mixing signifiers of gender and cultural decadence. Cross-dressing and the look of the anorexic drug addict model are two examples of this phenomenon. The sexuality that the wearer seeks to adopt is therefore constructed and propagated by the media. This can also be seen in Frank Mort's research in 1980s fashion magazines, and it is all done through the suggestion of patterns of consumption.

However, for Baudrillard, the sexuality that comes into play at the level of fashion is a modified sexuality, which has nothing to do with sex. In its attempt to signify the body, dress is eaten away by the body's signifieds, by this 'transparence' of the body as sexuality and nature (1993 [1976]: 95). The body is equally neutralised and loses the power of disguise: 'It no longer plays with anything save its proper truth, which is also its borderline: its nudity'. Fashion partitions the body, climaxing in the simulation of nudity as the model of the simulation of the body. In fashion, 'the body is sexually disenchanted, it becomes a mannequin, a term whose lack of sexual discrimination suits its meaning well':

The mannequin is sex in its entirety, but sex without qualities. Fashion is its sex. Or rather, it is in fashion that sex is lost as difference but is generalised as reference (as simulation). Nothing is sexed any longer, everything is sexualised. (Baudrillard, 1993 [1976]: 97)

Fashion in this sense is about the notion of femininity and not about women (Baudrillard, 1993 [1976]: 97). The female body becomes the mannequin, which is sexualised, but only in reference to fashion, that is, as mentioned before, through a sadistic *and* masochistic combination of modesty and immodesty, of chastity and lust. Without fashion, it has no sexual value, it does not prohibit, or tease – and therefore excite. Body and dress are interlinked in an interdependent manner, so that the signs of the two interface. Specifically, dress and body are both neutralised (both lose their force as disguise, the former also loses its ceremonial character), as dress signifies the body: 'the signs of the body, mixed openly with the signs of the non-body, play.' (Baudrillard, 1993 [1976]: 470) The body is a blank canvas which can be painted with fashion. In this process, woman is divided from herself and her body, and objectified 'under the signs of beauty' (Baudrillard 1993 [1976]: 97-98). Fashion signifiers alter people's perception of what is desirable and what is not, and eventually become the norm, commonplace actors that eventually fade into obscurity for the next wave of signifiers to substitute them. There are always sexual connotations and symbolisms in individual articles of clothing, and in overall styles. It appears that one of the motivations of dress is sexual, particularly in relation to constructing identity. Sexuality, in this sense, is a commodity.

DressCode will use the ambivalence of fashion in order to create ambiguous readings of a style. Since the representation of the items as 3D models will only be connected to their simulational attributes only by semiotic convention (syndesis), this connection can be tested against the player's perception of an item, or of a whole style. For example, a black cotton shirt may be seen

as a formal item, or it may be seen as a casual item, depending on the outlook of the player. Or a short skirt may be too short for some, but not short enough for some others. There is no telling how players will fit the game's affordances around their playing style and personal outlook. Some clothes may be seen as conservative and some as too revealing, but the attributes of all articles will be seen differently in each different context. They may be appropriate for some occasions and inappropriate for others, fitting for some avatars but "out of character" for other avatars. It will be interesting to see where the virtual society sets its limits regarding exposure of the body, and how it will react to it. For example, will avatars that fail to conform to codes of modesty be ridiculed for satisfying the male gaze so freely? Notions of sexuality will of course derive from the body and the dress combined. The fetishised parts of the avatar may be the same or completely different to the ones of the real body. I await to see to what extent players will conform to the ideals of beauty and sexuality set by the game's design in the first instance, and by the subjectivity of the society – which will turn to the objectivity of the player – in the second. Perhaps we will see new kinds of – and new signs for – masculinity and femininity. Objectification under the signs of beauty may gain a new meaning, particularly as the commodification of sexuality of the avatar is a literal notion, i.e. the player will actively change the appearance of the avatar within the context of the game.

In order to introduce ever-increasing multiplicity, some elements of *DressCode* will be based on an updatable, cyclical fashion system, driven by an external database which could take information on actual fashion trends and reproduce them in the virtual world. This, in turn, can create systems of the 'modern' and the 'retro'. It could even produce a specific kind of player that would dress the avatar in vintage clothing. The body of the avatar will be figuratively divided into parts, and each category of dress will address one of these parts. There will be articles for the top or the bottom half of the body, as well as articles that will apply to the whole body. A blouse, for example, will apply to the top half, a pair of trousers to the bottom half, and a dress to both. This means that some are synthetic codes for the body, while others remain singular and particular. There will also be accessories such as shoes, hats, bags, and scarves. The player will be able to combine the different items in any way she likes in order to produce looks with both specific semiotic and mathematical sums of attributes, and therefore unique meanings. However, the game will not dictate which items are in fashion; it will let the virtual society reflect the available affordances and formulate its own rules. This way, the simulation may point out something useful about the nature of fashion or dress in general in a social context. Or perhaps in specific scenarios, there could be a concrete fashion system which may be in accordance to 'real-life' trends or it may not (it may even be completely nonsensical by ordinary standards). This could then be used to create further tension between personal preference and societal impositions. Perhaps the virtual society will even formulate its own parallel ideals with regards to beauty and fashion. It could modify or exaggerate

parts of the male or female body based on an internal idiomatic tradition and history. Could this, in turn, produce new kinds of impositions on the dress of the avatars?

A System of Social Standing

As part of a socio-economic system, fashion is akin to video games in that it has a functional purpose. The system of fashion revolves around the production of clothes and accessories, which are necessary for our well-being, protection from the environment, and for making us feel safe.

Similarly to video games, fashion also has a socio-psychological dimension, within which messages are communicated for the wearer's inclusion in, or exclusion from, cultural groups, as well as for the wearer's formulation of personal identity. For video game theorist James Newman (2008), there is an inherent sociability and productivity in video game player activity. Games are not played in a solitary "vacuum", on the contrary they are social even when played individually, and so gaming culture infiltrates the social, in a similar way fashion does. The discussions about games amongst the gaming community, and other practices of play video game players give rise to and record, are of a highly social nature. By scrutinising these practices and activities, Newman has examined the creativity that emerges from video gameplay, which sustains the longevity of the products beyond those of other media (Newman, 2008: vi). This performative creativity, which manifests as 'cosplay' (short for costume play as a type of performance art), 'modding' (user modifications of games, usually aesthetic), and other practices, exposes the use of the medium as an indicator of the player's lifestyle and social position as a gamer and a fan, often of particular genres or even titles. Crawford (2003) also mentions that the magic circle of the video game must couple with the outside world. Bogost asserts:

The idea of simulation fever insinuates seriousness back into play and suggests that games help us expose and explore complicated human conditions, rather than offering mere interruption and diversion. (Bogost, 2006: 136)

As an economic system the market for fashion is of course far more powerful than the market for video games. Today, fashion is one of the world's most important creative industries, with annual U.S. sales of more than \$200 billion – larger than those of books, movies, and music combined (Hemphil & Suk, 2009: 102).

But what is it that drives fashion in a commercial capacity? Hemphil & Suk wrote a paper on copyright infringement in fashion in 2009. It is a paper on copyright law, but it accounts (constitutes?) (for) a very succinct cultural analysis of the market and industry of fashion. For Hemphil & Suk, 'the fashion trend is a particularly vivid manifestation of a general innovation pattern wherein those engaged in innovation continually seek after the new and different while, at the same time, converging with others on similar ideas. Fashion conspicuously exhibits the challenge of providing incentives for individuals to innovate while preserving the benefits to innovation of moving in a direction with others.' 'The symbolic function of fashion depends on the interplay of individual and social meanings' (Hemphil & Suk, 2009: 113). It creates tension between the desire to be a distinct individual and the desire to connect with the collective. It imposes social parameters within which the individual expresses and communicates by differentiating while at the same time identifying with a social group: 'Fashion is simultaneously characterized by differentiation and flocking' (Hemphil & Suk, 2009: 118). This notion of belonging, while at the same time being an individual, is central to many theories of identity (Jenkins, 1996; Butler, 1999; Lawler, 2008; Kehily, 2009).

One of the two most influential fashion theories is based on this notion. The 'status' theory, as it is known, posits fashion as a part of a struggle over social status, and was proposed by the German sociologist Georg Simmel (1962 [1904]: 130). According to this view, fashion is used by social elites as a means of demarcating their group from the lower classes, who try to emulate the upper classes. The upper classes then move on to a new fashion in order to set themselves apart. This concept is updated as the *trickle-down* process, where external class markers are imitated by the lower classes (McCracken, 1990: 94). The lifestyles presented in the media are those of the social elite i.e. the wealthy and the famous. However, these images are aimed at the aspiring middle-class consumer as much as they are aimed at the affluent upper-middle class and upper-class consumer (Hemphil & Suk, 2009: 110). In this case, the lower classes aspire to belong to a particular social group, which they identify with, that of a higher class than the one they belong to, and they dress so that they look as part of this group. Paradoxically, fashion in this case is ultimately *not* a measure of class or status, as the signs of class and status are circulated among and consumed by most members of society. In this sense, objects of fashion are not so much signs of real status or belonging, but rather simulacra of these. The consumer mainly engages with the system of objects and builds the self via choice of products.

The second major fashion theory opposes this view. It is known as the "collective selection" theory, or *Zeitgeist*, according to which, fashion emerges from a collective process of consumers gradually forming collective tastes that are ultimately expressed in fashion trends (Blumer, 1969: 275). The trends reflect the spirit of the times within each season they are launched, such as current affairs in

politics, economics, and entertainment. Contrary to the trickle-down theory, here people follow fashion because they want to associate themselves with the new and the fashionable, independent of status. However, for Baudrillard (1993 [1976]: 87), fashion imposes the rupture of an imaginary order. It is full of reference and devoid of reason and meaning. Signs are arbitrarily exchanged, as 'under the sign of fashion, all cultures play like simulacra in total promiscuity'. Cultural references are degenerated and used in an endless abolition and resurrection of styles and forms. Structures return instead of becoming. Fashion 'commutes all signs and causes an absolute play amongst them' (Baudrillard, 1993 [1976]: 87). In this case, the system of fashion is a system of newness, which simulates culture rather than representing it. Being in fashion is simply having conformed with the current command of style. Here too, there is no subjectivity, and no cultural meaning or content whatsoever. The content is arbitrary.

In both theories, social standing is the fundamental principle that drives fashion. People want to associate themselves with fashion and the new, from both a sociological and anthropological perspectives (Ridley, 1995; Wright, 1995). However, this is an emulated social standing measured by the mediated and limited agency of the person as consumer. Status, in this consumerist sense, is achieved in simulation, through the consumption of signs behind which we hide real relations and societal positions. We 'want what the others do not have' (Baudrillard, 1968 [2005]: 199). We compete for personalisation by means of a precarious form of freedom. Products, in the code, are defined by marginal differences, and they in turn define the individual (Baudrillard, 1968 [2005]: 152-3). The media form sexualities through presenting desirable images that the viewer has to consume products in order to adopt. 'The construction of the image is, at the same time, the construction of the body', writes Calefato (2004: 74). The myth of the fashion model is different to the myth of the film star, in that the model can be transformed into a thing with interchangeable meanings and values, a typically post-modernist value. The model in this sense is an automaton, an empty canvas that can be painted with various meanings and significations. The image is constructed with the use of clothes and styling on the otherwise "blank" body. Even though the female body is the sign and object of desire for the consumer, dress is an important part of it, without which, the body would only communicate nudity as the lack of a commercial message. Body image is the product of fashion. We all want to look desirable, to enhance our good and conceal our bad characteristics through seductive practices, and to present a complete version of ourselves which will make sense to us and to others. We want to take disparate pieces that have their own stories and meanings, and combine them to create the individual.

There are both modernist and postmodernist aspects to this. Modernity – as in the historic yet continuous development of consumerism, individualism, leisure lifestyles, mass production, and the media – provided the conceptual and temporal space for the development of modern fashion

(Wilson, 1985: 63). In high capitalism, people consume rather than produce, so this is what is seen as central to the construction of their individual and group identities. In many later (often 'post') discourses of modernity, the Marxist notion of commodification is exchanged for a semiotic system of marginally different categories of objects. For Baudrillard, fashion is thus the perfect example of the 'commodity sign', where commodification and signification are combined (Baudrillard, 1981; 1983). Consumption in postmodernity has become extremely promiscuous as the meaning of identity has changed to denote a plastic, segmented formation. Elliott and Wattanasuwan assert that 'the search for self-identity is a key determinant of postmodern consumption', as in the fragmented postmodern society, the consumer must negotiate lifestyle choices (1998: 17-20). The symbolic meanings of products construct the social world (social symbolism) and our self-identity (self-symbolism) (Elliott, 1997: 285-96). The self is constructed gradually, partially through consumption (Dittmar, 1992; Gabriel and Lang, 1995; Giddens, 1993; Glover, 1988; Solomon, 1996; Tyler, 1978). The self, in this light, is seen as a construction, which does not occur outside of consumptions. The self *is* the act of consumption. It transpires through the personal patterns and choices of consumption of symbolic products. For Elliot, the self is a symbolic project, actively constructed out of the available symbolic materials in society, through a narrative of self-identity, which accounts 'for both spatial (situational) and temporal malleability of the self and its continuity and stability' (Elliott, 1997: 17-20). The continuity and stability of the self, then, is dependant upon consumption. A man who dresses exclusively in casual clothing, for example, is not expected, by himself or anyone else, to buy an expensive tie. It would not make sense as part of the consumption narrative of the person to do so, it would be out of character – or in this case, out of identity. The same is the case in virtual worlds: for education researcher Mark Childs, the user reveals the avatar's identity according to her preference, and there is a suggestion that this identity is actually a closer reflection of the self than many identities performed within the physical world (Childs, 2011: 20), as she can adopt new identities without physical constraints, treating her avatar as an idealised "body project" (Childs, 2011: 18). In *DressCode*, the self is consumption, as the setting out of the dress codes conducts the subsequent discourses on individual and social identity. At the start of the game, the avatar has a very limited set of possessions, and as a result, it is relatively neutral and disassociated from the symbolisms that come with products. As the game progresses, the act of consumption assigns an accumulation of symbolic associations to the avatar, and this exponentially affects social interaction.

However, buying patterns are not this easy to predict. Identity is multi-faceted. In reality, the consumer possesses multiple actual selves (roles) and multiple possible or ideal selves. We are different depending on the occasion, and we aspire to be several different things, all of which constitute negotiations between the personal and the social. Self-identity (personal) is constructed in parallel with social identity (collective) (Jenkins, 1996: 34). This is known as the 'internal-

external' dialectic of identification (Jenkins, 1996: 142), and it means that symbolic consumption helps the placement of the individual in society, transitions through life, continuity, and preparation for death (Belk, 1988: 139). It is symbolic self-completion (Wicklund and Gollwitzer, 1982). Fashion is part of this symbolic consumption which helps in the negotiation between the individual and the social, and most importantly, with our coming to terms with life and death. Baudrillard writes in *Symbolic Exchange and Death*:

The end of labor. The end of production. The end of political economy. The end of the signifier/signified dialectic which facilitates the accumulation of knowledge and of meaning, the linear syntagm of cumulative discourse. And at the same time, the end simultaneously of the exchange value/use value dialectic which is the only thing that makes accumulation and social production possible. The end of linear dimension of discourse. The end of the linear dimension of the commodity. The end of the classical era of the sign. The end of the era of production. (1976: 8)

We do not produce anymore, we consume. Equally, the Marxist notions of exchange and use value are of no use anymore, as all objects are defined in terms of other objects, and commodities in terms of trends. Postmodern exchange is of simulational nature. It fakes representation and symbolism, it deceives the imaginary and the symbolic order. In *For a Critique of the Political Economy of the Sign*, Baudrillard confirms the empirical object as a myth (1981: 63). The object is the focal point where sets of various kinds of relations and significations meet and contradict each other. It does not define its meaning in relation to the subject (the Object) or to the world (object-as-implement), but in relation to other objects. In this sense, 'fashion continually fabricates the "beautiful" on the basis of a radical denial of beauty, by reducing beauty to the logical equivalent of ugliness' (Baudrillard, 1981: 79). What is fashionable today, is out of fashion tomorrow. The idea of the desirable object can only be defined in relation to other objects, previously desirable. This commodification is a perverse desire related to the systematic nature of signs (Baudrillard, 1981: 92). Fashion products are used to rewrite the cultural order (or today's beauty) on the body. As commodity fetishism, fashion re-inscribes the erogenous (the different) in a homogeneous system of signs (the body). In this light, fashion is closure, logical perfection, and self-sufficiency. Appearance is strongly connected to identity, and every style says: "I am *this*." (Bovone, 1998: 75). Fashion is a non-verbal language through which we communicate our identity and we signal to others what we are about. But as people are not about one thing, but multi-faceted and complex, they mix their clothes in a way that avoids singular significations (Bovone, 1998: 78). Bovone sees style as an identity badge, as a symbol of change and progress in modernity, and as an infinitely

generative signification system in postmodernity. As such, fashion is more about semiotics than aesthetics, and the market of fashion is not only one of production and consumption, but also one of communication and spectacle (Bovone, 1998: 79). What started as a tool for the prediction of consumer choice, became a tool for the manipulation of the consumer through what appears as infinite choice within socially safe parameters. Bovone writes: 'The display windows of shops, labels of the designers, and runway presentations are nothing more than the visible tip of an iceberg, an enormous piece of a greater machinery, comprising organisations and events whose role it is to channel the exceedingly varied supply of products with short life cycles, while also keeping those products in line with the decisions of consumers.' (1998: 86) Surplus is created by developing new manufacturing processes and products, but also through marketing and promotion (Bovone, 1998: 75). Fashion consists of 'texts in which the semiotic material is made up of different languages' (Calefato, 2004: 16). Fashion advertising and photography 'reinterpret, reformulate and exacerbate' clothing signs to create an inter-semiotic and inter-textual translation (Calefato, 2004: 20).

For Baudrillard (2005 [1968]: 212-4), the function of advertising is to convert everyone to the code. The code is universal, i.e. accepted by everyone, and as such it is a totalitarian moral code. Non-believers, in this sense, are fakers, as to claim to be outside the code is to acknowledge its existence and its power. The need is produced and then matched to a range of products: 'the psyche of the consumer is merely a display window or a catalogue' (Baudrillard, 1998 [1970]: 117). This reduces man and his needs to a psychological reflection of empirical objects: '*the system of needs is the product of the system of production*' (Baudrillard, 1998 [1970]: 42). And by "needs", Baudrillard means the total force of consumption, and not one need at a time in relation to an object. He means the system of needs as derives from the adoption of consumption in place of production on the individual level. And this is not a moral revolution, the true freedom of the consumer, but rather a reinforcement of puritan ideology. Puritan ethics, i.e. sublimation, transcendence, and repression, fuel the compulsive character of consumption as social integration and control.

Fashion has a strong social dimension. Individuals are free to express themselves within the system of fashion, but they are also bound to strict social codes which affect their social interactions. But the political dimension of fashion, partly kick-started during the social movements of the 1960s and 1970s with regards to identity, is not very specific anymore. The political agenda of fashion has historically been based on a system of difference in appearances, or an appearance of differences, where actual differences between groups, such as class, age, gender, race, sexual orientation, are reinforced or even invented (Edwards, 1997: 100-1). However, as Foucault (1998 [1976]) has demonstrated, types of persons are largely an artificial construction. Baudrillard was

the first to argue that in postmodernity consumption does not structure the personality but rather designates and classifies it (2005 [1968]: 212). Social relations are also demarcated hierarchically. Everything is held in place within a universal system of 'recognition of social statuses: a code of "social standing"' (Baudrillard, 2005 [1968]: 89).

Fashion trends in *DressCode* may be constructed by the virtual society, or by the design of the game, in the form of specific scenarios and an externally updatable system. However, it will be interesting to see whether trends in the virtual society emerge in the same way they do in the non-virtual society, i.e. by the accumulation or build-up of a particular expression, which is copied from one avatar to the other, or in order to associate an avatar with particular groups and statuses. No doubt, there would be innovators and followers, imaginative people who will try to be original – perhaps in danger of being alienating to the society – and people who will suffice with "borrowing" elements. The symbolic function of clothing may clash with the individual expression and the overall fashion system in this context, and there will most definitely be tension between individuality and flocking. It also remains to be seen whether the virtual society will gradually become stratified. Status may become the prime factor in the enjoyment of the virtual world, through a system of classification based on the demarcation and the possessions of the avatar. However, the signs of dress will not be concrete, but positioned in relation to the overall context of a style, environment, and event, both in mathematical/simulational and visual/semiotic terms. There may be a play with cultural and ethnic references, the resurrection of styles and forms, and the return of previous trends – trends may even exchange in cycles of various frequencies. Players may even be punished for not being fashionable enough by the design of the game or by the virtual society. It will also be important to establish whether the content of the style, or its newness, will be the definitive factor in the avatar's societal appreciation.

Products may be purchased at shops during free play or missions, so that the player may expand the original affordances of the game, and progress either in the terms of a game scenario, or in her own terms. The body of the avatar will be the medium of communication: it can say anything the player wants, as long as the right articles are chosen. The body works like a key, a puzzle which the player has to complete in order to achieve progress. The avatar is the commodity sign, combining commodification and signification. The identity of the avatar in this sense is emergent, flexible, even segmented. The player will construct an identity by choice of products, combinations of dress, and dialogue. The avatar is a symbolic project, which will formulate an identity through the accumulation of the player's choices, which will become the avatar's autobiography, the narrative of the player's projective Self. The player may choose to take a definite path to the construction of one kind of one-dimensional, stable identity, or to make choices based on trivial factors and so to produce a more indecisive history, and thereby a multi-faceted identity.

Regardless of the preferred style of play, the numerous variables included in the game will produce myriads of unique identities. Even if the player relies on aesthetics rather than semiology to dress the avatar, the chosen combinations will produce meaning in the simulation through syndesis, which will be communicated to all players.

Advertising may be used in order to shape the players' needs and to conform them to the code of the virtual society. This could be fictional, 'make-believe' advertising placed in the game by design, or it could be real advertising placed in the game by an internal designer or an external company. Bogost believes that all three kinds of advertising, namely demonstrative (the presentation of a product in gameplay), illustrative (the beneficial use of a product in gameplay), and associative (correlating a product with an activity or lifestyle represented in a game), can be placed in video games (Bogost, 2007: 158), particularly as many online games now use player tracking to identify player choices and reactions to products and advertising (Bogost, 2007: 169). In all of these techniques, it will be interesting to see how advertising affects the choices of the players of *DressCode*. Perhaps the hierarchy produced by the system of in-game objects will structure a whole categorisation of persons, and the advertising of products may contribute to this. After all, *DressCode* is a game of social standing. However, Bogost identifies a lack of syndesis in objects used in games for advertising purposes. There is a tendency to 'inscribe every surface in our world with advertising', but this represents a move towards illustrative and associative techniques. Advertising usually manifests as two-dimensional texturing, or even as three-dimensional objects, however these have no behaviours attached to them, and therefore do not bare any simulational meaning in the game environment, no affect on gameplay (Bogost, 2007: 171):

It is not enough for products merely to appear in the game...Rather, they must be simulated and integrated into the gameplay. (Bogost, 2007: 197)

Such issues will be rectified in *DressCode* through the use of syndesis, as all objects will have both visual and mathematical attributes, and will therefore produce meaning in the virtual world. For example, a pair of shoes having a specific colour, style, and branding, will affect the avatar's overall simulational attributes if worn, thereby affecting subsequent gameplay both between player and game model (programmatic layer) and between players (semiotic layer). Furthermore, the conventional associations of the product, such as connotations and denotations of wealth, status, youth, virility, femininity, and so on, will also be mathematically modeled in order to affect the simulation.

The Hegemony of the Code

Dress, for Entwistle, is an 'important link between individual identity and social belonging' (2001: 47). The sense of self is threatened if the individual fails to conform to the standards of a social situation through dress. Dress allows the individual to blend within his or her environment, standing between the body and the other, identity and the social world. In this respect, dress is the *body boundary* between the Self and the Other (Kaiser, 1996: 106). The concept of 'body boundary' is 'a person's tendency to distinguish the space of the body from surrounding space' (Kaiser, 1996: 107). In Erving Goffman's *Relations in Public: Microstudies of the Public Order*, the body is the vehicle of identity, which however has to be fitted into definitions set by social situations (2009 [1971]). The body, according to Goffman, is therefore both the property of the individual and the social world. Subjectivity through dress within the fashion system is only possible within the objectification imposed to the consumer. Fashion, writes Entwistle, is both a discursive and practical phenomenon (2001: 35). There are two bodies, the physical and the social, and perception of the former is constrained by the latter. This means that 'the body is a highly restricted medium of expression since it is heavily mediated by culture and expresses the social pressure brought to bear on it' (Entwistle, 2001: 37). Entwistle draws upon Foucault's theories on fashion and power, as a means to mark out class divisions and to police the boundaries of sexual difference.

Ultimately, it is society that defines the standards of beauty, and therefore the dimensions of the woman's physical freedom and sexuality (Dworkin, 1974: 112). All parts of the female body are now subject to modification (Dworkin, 1974: 113), and as the female parts and functions are reduced and separated from the rest of the woman's personality, she is objectified, and so becomes alienated from her own body (Dworkin, 1974: 20). The "fashion-beauty complex", which pretends to promote narcissism while in fact it causes insecurities, has become the main producer and regulator of femininity (Bartky, 1990: 39). This system revolves around the notion of gaze, the fact that women are there to be looked at as objects, as well as the reshaping of women to conform to the code. Women must look impressive, ideal, even hyperreal, and selectively reshaped. Women, like men, are controlled by their relation to objects. But for Baudrillard, critical theory is banal: to embrace emancipatory gender theory would mean to comply with a saturation of the theme through an immoderate production of agency and identity (Diederik, 2010). Judith Butler's definition of performativity in her book *Gender Trouble* suggests that beauty and fashion can be seen as play, as gender is the repeated stylisation of the body in order to meet social expectations (1990: 33). Butler argues that gender is a simulacrum, a construct that is not embodied in anyone in its totality. Masculinity and femininity are rather ideal models of behaviour, and as such, they do not exist in the real world but only in hyperreality. There is only one

hegemony, and that is the code: the system of social standing, which has rendered all criteria of social discrimination obsolete (Baudrillard, 2005 [1968]). There is no class or caste, but instead a universal system of signs and interpretation based on commodified status (Baudrillard, 2005 [1968]).

Part 1 – Design Document / Description of the Game

The player of *DressCode* will have to conform to a certain extent to the rules of the game posed by design and/or by the virtual society. The extent to which she will do so, will define the identity of the avatar, as well as the progress within the game. This does not mean that failure to conform will signal punishment for the player, but rather that the game will take a different path in each case.

One prime factor in deciding success, however, will be how appropriately the avatar is dressed for each event and environment. The body of the avatar will inevitably be objectified in the game, but it is this tension between subjectivity and objectivity which is of utmost interest, and which I am exploring here. There may be categories of persons defined by the society, but it remains to be seen whether dress will be the sole factor in determining such categorisation, or whether there will be equality between male and female avatars or a hegemonic system which will favour a particular group. I am reasonably convinced, however, that there will not be clear, binary distinctions between avatars, but instead a whole spectrum of performance of identities, which will itself be as ambiguous as fashion.

In order to test these speculations, and also as to explore identity in virtual environments by means of constructing the experience, i.e. being the player *and* the designer, I will describe in the next chapter the design and production of the *DressCode* game prototype, which will have an internal fashion system. Importantly, this fashion system will affect gameplay and how the text of the game unfolds, implicitly in free play, and explicitly in goal-oriented scenarios. I hope that in the creation of *DressCode* I will be able to use the video game medium as social realism, i.e. modelling a system (in this case that of fashion) by considering all of its positive and negative factors even abstractly. In order to achieve this, I am employing the notions of syndesis (link between representation and simulation) and multiplicity (ever-increasing affordances) for the effect of subjectivity and meaning in the projective performance of the player within the in-game society.

Chapter 4 – *DressCode: The Fashion Game*

Part 1 – Design Document / Description of the Game

Creating a Model of Social Realism

In this research, the fashion system is used as a way to connect the simulational and representational aspects of virtual dress with video gameplay mechanics. I am not proposing visual realism or verisimilitude, but rather multiple meaningful dress options, which affects the simulation, and enhances the game experience by bringing *syndesis* between simulation and representation. *DressCode: The Fashion Game* is a simulation of the semiological system of fashion. For Galloway (2006: 70-84), gaming is an expressionistic medium, and any attempt at “realistic-ness” (accurately recreating the real world) is futile. Wardrip-Fruin argues that our ability to identify with human characters is not so much tied to their graphical representation, or to how compelling the things they say are, as to the underlying models driving these characters. The development of more expressive faces accentuates the gap ‘between the surface and the underlying model, between the appearance of response and the actual ability to respond’ (Wardrip-Fruin, 2011: 414-5). What I am attempting here instead, is a representation of everyday social life including its positive and negative aspects, and at the same time a critical reflection of them, as much as this is possible within the medium of the computer simulation. Realism in *DressCode* is realism in action, i.e. dependent mainly on the mathematics of the simulation as affected by the player’s subjectivity, as per Galloway’s suggestion for appropriate realistic techniques in the medium (2004). The code of dress and consumption is used in *DressCode* as a simulation and a representation of dress items as systems of signs and products, the same way they are in the non-virtual world. This offers a solution for almost unlimited personalisation through a system of multiplicity, as a practical negotiation between self-identity and the socioeconomic code, in which fashion belongs, all powered by a dynamic fashion system. These are of course simulated by means of programmatic code, which offers an abstract model of the actual system. *DressCode* is a study in designing and producing a game that utilises dress and social performance as gameplay factors. Play progresses through multiple choices of dress, and dialogue-tree choices through a system that combines a graphical user interface, text, and three-dimensional graphics. In an attempt to question whether the inclusion of a limited fashion system in virtual experiences can have an effect on identity construction, this prototype serves as a case study which poses this question: *Can choice of the avatar’s clothing sustain satisfactory gameplay?* The name of the game derives from its ambition

to act as a fashion simulation system. This system resides in both the programming code, and the socio-economic code to which fashion abides. In other words, I have tried to replicate the signs of real-world dress that derive from the semiotics of 'being' and 'doing', i.e. from self-identity and social identity, or the narcissistic state of self-perception and self-representation, and the goal-oriented simulation (as the internal processing of social situations). The game therefore deals with the code of dress.

Change of avatar appearance is constant and necessary for the progression of gameplay. Customisation needs to not be limited to the outset of the game, but to act as a constant preoccupation for the player. The player must have the ability to alter the avatar's appearance at any point, and the choices of such an opportunity should be near-infinite in order to support the uniqueness of the avatar. This happens by means of body choices such as skin, body, and facial shape, colour, and individual characteristics, but more importantly to this research, by means of dress, accessories, and bodily decorations. These are explored to great length by having the whole mechanics of the game revolve around avatar customisation choices and the formation of a unique in-game identity. The game is a structured framework for play consisting of the following goals: to make appropriate choices with regards to clothing in order to be liked by non-player characters, access new places, and be invited to social events; to make appropriate dialogue choices in order to be liked by specific characters so that the right events are unlocked depending on the player's personal preferences; to develop a unique identity and history for the avatar. The obstacles that prevent the player from achieving the above are: the lack of availability of specific clothing articles; the availability of limited clothes, and therefore clothing combinations and styles, at least in the early stages of the game; the availability of limited dialogue choices; the limited availability of funds (in-game currency); the lack of a job; the lack of appropriate acquaintances; the availability of limited places to visit, at least originally. The penalties imposed on the player are the same as the obstacles due to the nature of the game's mechanics. There are no other penalties involved, and the player's success is relative and subjective.

The game has elements of adventure games like *The Secret of Monkey Island* (discussed in Chapter 1), as the avatar's body works like a key, a puzzle which the player has to complete in order to achieve progress; RPGs like *Final Fantasy X-2* (also presented in Chapter 1), as dress items are used for the expansion of the attributes of the avatar; dress-up games like *Barbie Fashion Designer* (examined in Chapter 2); social worlds like *Second Life* and *Playstation Home* (discussed in Chapter 3), and even puzzle games like *Tetris* (analysed in Chapter 1), as dress articles are combined in various ways to offer different results. However, strictly speaking, *DressCode* belongs in the genre of the ludic simulation that represents a social system (Ian Bogost, 2006; 2007), questioning the socio-economic framework it is part of, akin to the 'sim' genre

(*SimCity*, *The Sims*), and the political games *Tax Invaders* and *Vigilance 1.0*, mentioned in Chapter 2. In *DressCode*, the system in question is the fashion system, and so a fashion system formed independently by the players of the game would not be sufficient for the correct representation of its real-world counterpart. Instead, I have decided to implement a simulation of the actual fashion system, which is imposed on the players. The game inevitably reflects my personal views, as I have made choices with regards to what to keep in the model and what to discard, as well as how to use abstraction. Wardrip-Fruin stresses the subjectivity of programming as the expression of the author:

Any simulation is actually an encoding of a set of choices. These choices can be made based on current beliefs in cognitive science. Or they can be authorial choices, made for purposes of shaping audience experience and authoring opportunities. (Wardrip-Fruin, 2011: 304)

After looking at political simulations, such as the one created by Robert Abelson and his students, Wardrip-Fruin concludes that even when system processes are intended to be ideologically neutral by representing different ideologies only as data, the operational logics also necessarily include an ideological preference (Wardrip-Fruin, 2001: 423). In Ian Bogost's work, the concept of programming as 'unit operations' also betrays a certain subjectivity:

The relationship or feedback loop between the simulation game and its player are bound up with a set of values; no simulation can escape some ideological context. (Bogost, 2006: 99)

The same is true for video games that are modelled after real-world systems. *The Sims*, for example, has an internal structural bias for commodity capitalism. The game has been extensively criticised for its procedural rhetoric of consumer capitalism, which 'privileges the acquisition of material goods as a primary factor in sim success and happiness' (Bogost, 2007: 159). Frasca, for example, states:

...the consumerist ideology that drives the simulation is nothing short of disturbing: the amount of friends that you have literally depends on the number of goods that you own and the size of your house. (Frasca, 2004: 91)

Bogost argues that whether the game propagates or parodies consumption is not as important as the fact that the game invites the player to engage with the logic of consumption and form an opinion for herself (2007: 159). Influenced by this position, Wardrip-Fruin proposes critical engagement with the actual logics of a work and the relationships between them, as a solution to making simulations expressively appropriate, whether they are meant to be politically biased or neutral (Wardrip-Fruin, 2011: 417). While *DressCode* does not make an explicit statement about the nature of the fashion system as part of a wider socio-economic system, the player has the opportunity to engage with the simulated system of fashion and make informed decisions regarding its operations and affect on social and personal identity. Capitalism, with all its positive and negative extensions, is neither praised nor demonised.

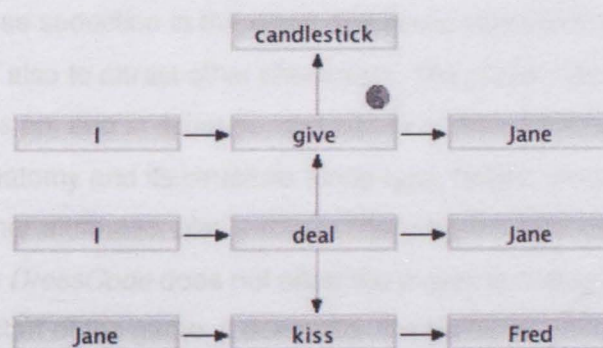
Based on the model of *The Sims*, in-game currency and time in *DressCode* are prime resources, which can be used and exchanged for other resources, such as objects and acquaintances, mainly related to status. The management of these valuable resources is dependent on the player's choices and performance. The focus of the game, however, is on expressive social performance, to which the attire of the avatar contributes, as do body language and verbal communication. A unique identity and lifestyle have to be developed for the avatar through social interaction and consumption. Money is exchanged for clothing, accessories, and other items, but also other lifestyle commodities, and artificial scarcity is used to encourage social stratification. *DressCode* involves consumption, and so there are advertisements for products which infuse them with associations with specific social groups or statuses. This can be fictional or real branding based on demonstrative (the presentation of a product in gameplay), illustrative (the beneficial use of a product in gameplay), or associative (correlating a product with an activity or lifestyle represented in a game) techniques, which can be tracked for consumer behaviour data. Advertising is included not only as the two-dimensional texturing of surfaces, but also as three-dimensional objects with attached simulational behaviours. This helps establish status dynamics by affecting the attributes of the characters, which are intensified further by group belonging and the association with other characters, whose attributes and behaviours are also partly a result of using advertised products. The game revolves around social rise, and the notion of competition is inherent, in terms of possessions, profession, friends, acquaintances, partners, and lifestyle in general. As such, affordances naturally expand when the avatar gains higher status (the more you have, the more you can do), and the display of status itself on social or professional occasions constitutes a gameplay mechanic.

The avatar socialises with other player avatars or AI-controlled characters through avatarial appearance and dialogue, as part of a social performance. As the interaction with characters is

central to the game, a model for verbal interaction must be arranged. In an analysis of expressive computation in his 2011 book, Wardrip-Fruin mentions Phoebe Senger's *The Expressivator* (Sengers, 2003: 272), a program which 'organises character action around authorial intentions for how it is interpreted', and which works with signifiers and signs instead of goals, behaviours, and actions:

Since character actions take time for the audience to interpret, signifiers and signs are "posted" when the audience is likely to have seen them. Then these are part of the world history, available for use in deciding on the next signifiers and signs. (Wardrip-Fruin, 2011: 327-8)

After *The Expressivator*, Wardrip-Fruin analyses *Façade* (Mateas & Stern, 2005), where dialogue behaviours are sets of up to five lines of dialogue between Grace and Trip, the two non-player characters. These consist of recordings joined together by code that determines dialogue depending on affinity game, character self-realisation, overall tension, and other elements of story and character state (Wardrip-Fruin, 2011: 335). In this way, *Façade* maps player statements to limited sets of 'discourse acts' (agreement, thanking, referring to a topic, etc), which are handled differently depending on context (Wardrip-Fruin, 2001: 337). In yet another example, he mentions *Deikto*, a language for interactive storytelling created by Chris Crawford (2008; illustration 104). *Deikto* attempts to solve the problem of the very limited number of "verbs" existing in the semiology of most interactive experiences ('move', 'attack', and the such), by allowing the player to express herself using complex, nuanced verbs (Wardrip-Fruin, 2011: 402).



104. Deikto map

While the above examples differ significantly, they are all complex communication systems based on the programmatic execution of rich semiological expression. In *DressCode*, as the goal is to produce such a semiotic/mathematic system, the dialogue is controlled by two similar primary programmatic devices. The first is the use of prescribed dialogue "trees", where recordings join

together, as in *Façade*, but here the code affects the dialogue on the basis of the combination of factors such as the proximity of the player avatar to the other characters, the avatar's body language (speed and kind of movement), the avatar's appearance, and whether the characters recognise the avatar as an acquaintance they are happy to see or wish to avoid, or as a friend. The dialogues further depend on the context of the situation, such as the time, place, and social circumstances like the presence of other characters. The second device is the use of sets of emoticon icons and sliders that appear when the avatar engages in dialogue with a character, in order for the player to state the feelings she has about the other character's appearance, their comments on the avatar's appearance, and the relationship between the two in general. This device facilitates complex subjective dialogue based on relative extents of sympathy or antipathy, hence avoiding a limited number of verbal expressions, similarly to *Deikto*. In addition to these two devices, the player is able to communicate explicitly and immediately with other players through the use of a 'chat' window positioned at the bottom of the screen, which adds another layer of communication, this time not mediated by the game. A parser can be used on the inputted text, which will analyse sentences and produce meaning and actions from the player's intentions and expressions, thereby also allowing for communication with computer-controlled agents through the 'chat' window.

Such techniques help determine social performance, particularly as the players are able to use seductive strategies both on the dress and the verbal expression of the avatar. The avatar has positive and negative physical as well as social attributes, which the player has to accommodate for through the use of clothes and accessories. The results reflect on the dialogue, and manipulation through lying as a dialogue option can be employed for strategic social reasons, so that the player can convince other characters of untrue claims on the avatar's characteristics and status. The player may use seduction in the dress and social interaction of the avatar, in order to accomplish set tasks but also to attract other characters. The player has to choose which parts of the avatar's body to focus on, and in doing so, she has to consider the personal characteristics of the avatar, such as its anatomy and its structure. Body type, height, weight, skin tone, colour of eyes and hair, among other attributes, play a role in choosing the right articles, as well as verbal expression. Even though *DressCode* does not allow the player to change the avatar's body characteristics after the start of the game, it does offer the facility to allow the player to choose to emphasise or de-emphasise those physical characteristics.

Articles of clothing can transmit sexual connotations about the avatar, and erotic symbolism has its place in the game. The erotic aspect of clothing, and its role in the expression of sexuality, by means of modesty and provocation. The player is able to select the sex and the age of the avatar, as well as other characteristics such as height, body type, skin colour, eye colour, and hair colour

and style. There is an avatar editor in place at the beginning of the game, which allows the player to create an avatar as personalised as possible. Female and male players have the same variety of fashion to choose from and are bound by the same rules of social engagement, however, dialogues and scenarios are adjusted to work with gender. The assertion that the feminine body is a sexual body, whereas male nature transcends the body (Entwistle, 2001: 54), is an important factor that affects the choice of the player's avatar's gender, as it has repercussions in gameplay. The difference between the sexes with regards to perceiving and appreciating fashion is explored, and this asymmetry manifests mainly through dress and dialogue choices. The rules change according to the sex and sexual orientation of the avatar – lesbian, gay, and bisexual avatars having appropriate clothing and dialogue choices. In choosing an avatar that differs in sex and/or sexual orientation from the player, there can be role-playing involved, or an effort to empathise with an avatar different to the player, due to curiosity or for testing and experiencing new hypothetical settings and scenarios. An heterosexual male player, for example, would interact with female characters and possibly be attracted to some of them, something which would transpire through the dialogue options offered by the game.

Performativity of sexuality and beauty norms are part of the gameplay, especially as the avatar and the characters have multiple layers: in contrast to standard video game characters, which are created as flat sculpted surfaces of polygons, these characters have a nude body, on which clothing articles are placed as separate entities with physical properties and other attributes. The "physical" characteristics of the avatar (attractiveness, size, proportions, expressions, gestures, posture and movement) affect the gameplay, and the body of the avatar is divided into parts on which articles such as underwear, clothes, coats, shoes, scarves, and handbags can be placed. The code establishes which parts of the body are covered, what they are covered with, and in what manner, and different combinations produce different semiotic and mathematical attributes for the avatar.

Body movement and character proximity also matter. The player is able to control the movement of the avatar by using the keyboard or the mouse of the computer. The arrow keys on the keyboard can be used to direct the avatar directly, or alternatively the player can point and click on a location, object, or character, for directing or interacting with people and things. In this sense, the avatar acts as the simulational agent of the player, as the player's position in the environment. There is a variety of different walks for the avatar, as avatar body movement is also a factor in determining social interaction and ultimately success or failure in the context of the game's goals. Body movement is another layer of signs which affect how the other characters react to the avatar. Professor of social psychology Alan Radley points out that the body participates in a complex

signalling system based on spoken language, expanding the body's use as tool of communication through gestures and expressions:

The attempt to understand nonverbal behavior as a coded system has meant that comparisons have been drawn, simultaneously, between gesture and language, and differences have been noted between the two (Argyle, 1975; Hall, 1963; Leach, 1972). Language and bodily communication have been seen as familiar, in that they can be understood in terms of the same kind of analysis. (Radley, 1991: 83-4)

This has the implication that body movement can be examined in terms of units in the structuralist methodology (Birdwhistell, 1968), and by extension in what Bogost calls unit operations, in the case of the computer game, the functional programmatic units that deal with the expression and interpretation of the author's intentions (2007: 3). As such, body movement can be described in the game as a series of textual and numeric attributes, which combine to form the overall movement of the characters. For example, binaries such as 'feminine/masculine' and 'serious/lighthearted' are measured in a scale of 1 to 10, and gestures are described with text strings like "wave", "applaud", and "tilt_head". Collectively, these attributes produce unique body behaviours in their combination in equations.

DressCode stresses the tension between the personal and the social, i.e. the individual utterance and the cultural ruling (see Barthes, 1990 [1967]: 9). The avatar is a project of constant renovation and reflexion of the player, but at the same time subject to the fashion system and the overarching social system of the game, and so dress has to be contextual, i.e. appropriate for the environment and the occasion, both of which have their own significations. The player's subjectivity is challenged by the game's rules, at least in goal-oriented play. In programmatic terms, the personal expression of the player through dressing is a different set of variables to dress as the social parameters within which individual dressing is acceptable. The extent to which the player abides by the game's fashion system affects the player's progress in the game, but this is always relative and always produces viable paths in the game's narrative progress.

Employed Devices for the Accomplishment of the Effect of Social Realism

Dress and other appearance choices affect the gameplay through the simulation of the semiological system of fashion. Barthes (2006 [1967]) describes the semiology of clothing as

syntactic rather than lexical, as the meaning of clothing is not found in isolated items, but rather in oppositions and distinctions. Clothing in the fashion game is evaluated both as combinations of articles and for the use of individual articles. Fashion in this game is seen mainly in terms of words and numbers, as code. Here, the structure of programming conflates with the structuralist interpretation of the dissemination and consumption of fashion in late modern society; the code implies both a concrete language of construction and a discourse that embeds fashion into a socio-economic, and perhaps ideological, system. The latter is, as we have seen, coded as simulation, as the representation and mediation of something that has not originally been written. The simulation of the game is a syntactic mathematical system, and so is the simulation of dress within the game. As I argued in the second chapter, computer programming, by use of strings of text and numbers, among other kinds, which are stored in the computer memory within variable "containers", can be considered expressive processes (Wardrip-Fruin, 2011). Commands such as functions and variables are given to the computer in the order of execution, and in object-oriented programming, as made widespread through the use of languages such as C++, C#, and JavaScript, every entity (avatar, character, garment, accessory, fabric etc) can have its own attributes and behaviours. This mathematical quality that virtual objects can be given by means of object-oriented code makes dress and fashion a matter of mathematical and textual descriptions.

The syntax of the code calculates textual and numeric signs to produce the resulting text, and representation and simulation work hand in hand: colour, fabric, material and other attributes, are both simulated and represented, e.g. the colour red both looks red on screen and is associated with a "red" text string in the code. In other words, the simulation and the representation of avatarial dress work in *syndesis*: the one corresponds to the changes of the other, so that the player feels both elements of real-world simulated emotions and win-lose game emotions, and thereby construct her simulational and representational identity ('doing' and 'being') simultaneously. This has a positive effect on the production of meaning and on overall subjectivity, while altering the body schema of the player.

What happens in the game largely depends on five main factors, namely *the position of the avatar; the movement of the avatar; the avatar's attire; the critique of the other characters; and the choice of things to say*. Attributes are attached to the items of clothing. Clothes in this sense can be described as sets of variables (words or numbers) in the programmatic code. Clothing objects have their own independent attributes, such as 'colour', 'material', 'fashion trends', 'comfort', 'subculture' and so on, affecting the characters' attributes when worn, but also accumulatively, as a consequence of having been worn in public, therefore changing the other characters' perception of the character, but also her own. Conventional associations of the items with wealth, status, youth, virility, femininity, etc., are also mathematically modeled. Simulational signs are produced every

time the player gives the computer a combination of clothes, or when the player answers a character's question in a certain way. The characters' simulational objects consist of attributes such as 'fashion', 'subculture', 'comfort', 'casual/formal', 'style', and 'match', expressed either as text strings or as numbers. In this way, the "compatibility" between the characters can be measured and their interactions generated. The different environments and social occasions also have their own attributes, further affecting the attributes of the characters involved. There is, in other words, an invisible underlying point system that helps establish the position and state of the avatar in the game, and ensure balanced gameplay.

Dress articles are used in combination in order to produce specific significations. The features of the articles can also be used in different ways, for example, open/closed collar, hat straight or slightly to the side, and so on. Binary contradictory terms such as modesty/immodesty and exposure/concealment, which are fundamental to fashion, transpire through play and can be evaluated through dialogue and the game's underlying "scoring" system. The avatar's body is separated into parts, as for example in "top/bottom" and "chest/waist", and clothes can be used to enhance or conceal those parts according to the game's scenarios, real-life fashion trends which transpire through additional downloadable content, and the avatar's body type and social status. These can be used on both simulational and representational levels, i.e. in terms of the code's variables and the onscreen visual and textual cues. At the same time, the game acts as an experiment in the aesthetic qualities of dress, both figural and semantic, through lines, shapes, textures, colours and the such. The expressive and referential characteristics of dress are observed within a model defined by the form of clothing, the viewer, and the context of viewing. The viewer in this case is the player, or the viewers can be the other characters that inhabit the game and interact with the avatar. Non-player characters are dressed as real evolving persons, not as generic extras, to enhance social realism. Specifically, NPC dress automatically updates according to newly imported trends (see following paragraphs), which are adopted or ignored depending on the existing attributes of the characters and their association with groups and styles. Both player and AI-controlled characters have choice of dress.

The game's model is abstract, and as Wardrip-Fruin asserts, 'any simulation requires simplifying assumptions', and 'successful play requires understanding how expectation differs from system operation, incrementally building a model of the system's internal processes based on experimentation' (2011: 302):

Most players don't end up with a sufficiently detailed understanding to allow them to reimplement the *SimCity* system, but to get far with the game they

must develop a working understanding of the underlying model of city operations. (Wardrip-Fruin, 2011: 302)

The point is not to include every single attribute of each individual fashion object, but to position them in relativity to each other in the particular abstract system, thereby giving them semiotic meaning by difference. In his analysis of *The Sims*, Wardrip-Fruin mentions how most of the little people's actions are determined by eight measures of their state at any time, eight simple numerical attributes that must be continually maintained, namely 'hunger', 'comfort', 'hygiene', 'bladder', 'energy', 'fun', 'social', and 'room'. Measures of the Sim's personality are also calculated and presented in similarly simple values such as 'neat', 'outgoing', 'active', 'playful', and 'nice' (Wardrip-Fruin, 2011: 312). This is an approach which, although simplistic, has 'produced a remarkably successful media experience' (Wardrip-Fruin, 2011: 313). All the objects in *The Sims* are simple, but it is the great number of combinations and configurations which gradually creates complexity. Meaningful expression in the game therefore derives from what Chris Crawford calls 'high process intensity', i.e. the emphasis of processes instead of data (Crawford, 2003: 89). This attribute of 'open-endedness' is further accentuated by the differing attributes of the objects affecting the progress of the player without dictating an absolute winning or losing state (Wardrip-Fruin, 2011: 313). Furthermore, part of the concept of syndesis is strong in *The Sims*, as the "physical" possessions located in the homes of the Sims (television sets, toilets, beds, ovens, etc) are defined by both a physical and a graphical appearance, and a textual description (Wardrip-Fruin, 2011: 313). I use this approach in *DressCode* to connect visual representations to sets of attributes, however, I develop this paradigm further in my game, giving objects behaviours, and allowing them to affect gameplay explicitly, but at the same time relatively. Ambiguity and relativity are employed to produce subjectivity similar to the one in 'real' life. Increasing numbers of programming objects with textual and numeric attributes such as: "skirt", "silk", "white", comfort=3, casual/formal=7, and so on, are combined within complex *expressive processing* (Wardrip-Fruin, 2011: 3-6). Everything is kept relative, offering the player unlimited paths through the game. Articles and styles are ambivalent, particularly as 3D models are only connected to simulational attributes by metaphoric convention (syndesis): binaries such as formal/casual, short/long, revealing/conservative and so on, are to a large extent subject to the player's interpretation, and so nothing is deemed categorically appropriate or inappropriate for a particular occasion. Instead, the relative evaluation of combinations occurs in relation to the involved characters, environment, and attributes of the avatar. The simulation accumulates increasing numbers signs and eventually produce meaning, in a similar fashion to *chaos theory* (Lorenz, 1998 [1961]), where small perturbations in the initial conditions give rise to massive macroscopic changes in a process called 'emergence'. Individual articles bearing their own significations combine into complete appearances

that gain new significations through a syntax of 'functions, oppositions, distinctions and congruences' (Barthes, 2006 [1967]: 28).

Multiplicity is mainly achieved in the game by use of a cyclical, trend-based fashion system, and extended customisation of the avatar's body – colour, body type, body characteristics, and decorations – and clothing. Players, as well as external parties, can be involved in the production of items. The game includes both designer and high street items separated in categories, i.e. skirts, trousers, t-shirts, shirts, coats and jackets, shoes, bags, hats, and other accessories, as well as hair styles and make up. More items can be downloaded from the online database, and also a user-created library of clothes that the user is able to create using the in-game garment editor. Furthermore, the inclusion of links within the game by means of buttons allows the player to download content off commercial Internet fashion sites such as net-a-porter.com and asos.com. The introduction of new fashions and trends is possible in the game through a system that updates the game's stores and non-player characters' clothes via an online database, and objects are positioned as in or out of fashion, 'new', 'vintage', or 'old'. The arbitrary nature of real, every-day fashion and casual clothing has to be accounted for as well. The items are designed by someone with a fashion background, and not by video game artists, thus avoiding the stereotypical looks currently expected in the medium.

From Subjectivity to Identity

Baudrillard (2005 [1968]: 209) claims that the consumer is the object of consumption rather than the subject, because she is driven to buy specific products that address the particular groups she belongs in, thereby limiting her subjectivity. However, for Lipovetsky the fashion system offers such personalisation and customisation (2006: 88) that is not currently possible in simulations. This is why, in *DressCode*, I am moving away from the concept of agency as video game theorists use it in its strict mechanical sense, (Murray, 1999; Mateas et al, 2009), and towards true subjectivity, at least with regards to social performance. The avatar can navigate the Cartesian space, interacting with other avatars depending on appearance, proximity, orientation, and movement. However, the game disregards the negotiation of power over the environment, favouring instead the power to perform "socially". The conflict is shifted from environmental to internal and interpersonal: personal expression is accomplished through subjective performance of body and dress. Affordances gradually expand with the introduction of more garments, accessories, jewellery, characters, environments, and events. The consumption of articles and interaction with people and places in turn expand the avatar's social affordances, acting as "keys" to further gameplay. However, there are no right or wrong choices, but better or worse choices for particular situations, which are

formed by the accumulation of a large number of factors, and therefore unpredictable. Furthermore, the gameplay offers both goal-oriented and free ("sandbox") play. Juul (2002) argues that emergent games yield higher replayability than progressive games, as they exhibit a preference for strategic tactics rather than sequential challenges. Bogost, on the other hand, critiques Juul in that he privileges the formal qualities of games over their expressive potential, and in that respect both kinds can be equally expressive or non-expressive (Bogost, 2006: 121). This is why I have decided to include both sequential and strategic gameplay in *DressCode*.

In 'free play' mode, there is no predefined overarching story: the game is open-ended, and the avatar is an open, malleable avatar. Emotions are produced exactly because of the customisation and reconfiguration of the avatar. The representation is in harmony with the simulation by default, as every dress item comprises both a "physical" visual object and an array of characteristics, such as numerical and textual descriptions, maybe even functions. As Jesper Juul has demonstrated (2007), the imposition of goals in a game may pose a problem, as it may 'force players into optimizing their strategy rather than doing something else that they would rather do'. He mentions an array of games that have no goals, such as *Sims 2*, and *SimCity* (Brøderbund, 1989), and a few games that do have goals but which do not put pressure on the player to pursue them, such as *Grand Theft Auto III* (Rockstar, 2001), *Elite* (Firebird Software, 1985), *Pirates!* (Microprose Software, 1987), and *Super Mario 64* (Nintendo, 1996). Juul asserts that games with optional goals can accommodate more playing styles and player types, so that players can choose how to play the game. This may prove to be a challenge, as players enjoy working towards goals, however the term 'expression' is key here: games can be seen as expressive devices, made of a lexicon and a syntax, which allow players to combine elements in order to express themselves (Juul, 2007). And this is exactly what I have set out to achieve with *DressCode*: the game has a syntax and a lexicon of fashion, a language of dress and social interaction, a semiotic code, which allows the player to express herself and perform an identity in a virtual social environment. The game offers goal-oriented play, but the player has a choice as to when to engage with it, otherwise opting to freely express herself through 'paidia' (Caillois, 2001 [1958]). In this attempt, I am hoping that the interface dissolves the sometimes contradicting bi-modality of representation and simulation by putting immediate 'agency' in the strict terminology of game design aside, and looking instead for different kinds of subjectivity. I am in search of a meaningful simulation of 'being'.

In goal-oriented gameplay, the game's affordances are gradually expanded in a pragmatic sense, so that the player can negotiate increasingly difficult challenges, as thresholds of the sums of the involved variables determine progress. Among the rewards that can be gained during gameplay are: more funding so that the player can spend money in order to acquire more clothes and other items, as well as to access social events; increasingly rewarding jobs, both financially and socially;

more key friends and acquaintances; more places to visit; the ability to acquire and trade rare or even iconic pieces of clothing.

In free play, points in this instance are not an indicator of the success of the player or the avatar in the game, but an underlying structure that affects the control and the translation of player choices into avatar development in subsequent gameplay. In goal-oriented play, the resulting signs in the game are produced based on pre-scripted scenarios, but become progressively complex, so that the player experiences different, unique gameplay every time she starts a new game. In this sense, the game is based on linear texts and actors, but it is non-linear. The representational semiotic events occurring in the game, such as the descriptions of social events, are presented to the player in the avatar's diary before the player has to make dress choices for the avatar. For example, there are written descriptions of individual articles in the game, and the scenarios ask the player to choose combinations of clothing again through written descriptions. Other prefabricated events are triggered from the dialogues presented to the player during the events, and depend on the player's dialogue choices. The completed simulational events, i.e. the player's actions, are the combinations of clothing and dialogue options that the player has favoured during gameplay. In other words, player actions produce simulational textual elements that affect subsequent gameplay, which has the game program produce both simulational and representational textual elements in response to those produced by the player. As dress is the main feature of the fashion game, combinations of dress articles offer different underlying scores on different occasions, therefore comprising an 'area key' and 'social rise' system. In other words, the player can access more areas, scenarios, and non-player characters by means of dress choices.

In both kinds of play, one kind of progress hinders another kind as the game takes a unique path, similarly to RPG games such as *Fable* (Lionhead Studios, 2004) and *Deus Ex* (Eidos, 2000). The emergent identity of the avatar is produced by identification with specific groups and characters, through commodification and signification. The avatar is a symbolic project, gaining an autobiography and eventually identity from the accumulation of the player's choices, which may be one-dimensional and stable, or ambiguous and multi-faceted. A personal avatar history is gradually formed during the game, which describes the avatar's tastes and lists the player's choices. This is the game's memory of dress choices that the player has made for the avatar. This is the simulational identity of the avatar as it has formed through choices of dress and dialogue, which directly reflect on the representation of the avatar. The avatar therefore becomes a character due to the narrative offered by the player's choices and develops its own history. This is based on both frequency and repetition, and on 'accepted' and 'controversial' choices. All of the numeric and textual attributes of the selected items are part of this history. The resulting narrative of the game consists of the chain of social events that take place during the avatar's day as well as the actions

of the avatar during those events; and the existents – the settings the avatar visits, such as restaurants, bars, theatres, friend's places, and the characters the avatar socialises with. The social discourse of the game is the way the narrative unfolds by means of the player(s) choices and dialogue. There is a journal, which contains all dress, dialogue, and other choices that the player has made to the current day. There is also a status screen where the player can see the non-player characters that are the avatar's friends, job related information such as level of income, relationship status, and a popularity meter for each social 'scene'. Each social scene can be described as a cluster of a number of clubs and other social places, and a number of key non-player characters.

The game uses abstract time to focus on events of importance, while excluding trivial events from the day of the avatar. Juul describes the representation of time in *SimCity* and the connection between play time and event time:

...what *happens* in the game – investing in infrastructure, building houses – happens faster than we would expect it to, were these real-life events. The event time depends on either explicit marks such as dates or on cultural assumptions about the duration of the game events. *SimCity* has both: we know that building a power plant takes more than a few seconds, and the interface displays the current date in the event time. Playing for two minutes makes a year pass in the event time/game world. (Juul, 2004: 134)

In *DressCode*, there is a similar compression of represented time in order to focus on the important for the particular model events, such as social performance and interaction. As such, the game selectively models a social world, making specific features prominent, and downplaying other features, which are not regarded as important for the author's statement and the player's expected experience, a natural narrative technique.

The avatar's autobiography is produced by the sum of the interactive experience, i.e. the sequence of agency, action, feedback, and reflection. There are four environments/stages in the game prototype, starting with the stage where the player must choose how to dress the avatar. The player has to internalise the event parameters given to her by the game and to predict how social events will play out, considering the involved characters and the environment. She must calculate how to present the avatar in order to evoke specific reactions, and then dress the avatar accordingly, while being challenged by the (originally) limited wardrobe. This first level is the avatar's bedroom, which is where the game begins, and it represents the first level of construction

of identity, the *subjective identity*, i.e. identity through subjectivity. The 'bedroom', where most of the choices that concern dress and appearance are made, consists of a representation of walls, doors and windows, furniture that can be used – such as a bed, a desk, and a wardrobe – and decorative objects such as paintings and vases.

In the next stage of the game's plot, the avatar socialises with other player avatars or AI-controlled characters, and this brings about a negotiation of the image of the avatar between the player's choice and the societal pressure to conform. This causes character interaction and facilitates one kind of progress while hindering another. The game takes a unique path, which creates a specific set of future parameters and possibilities. In essence, the identity of the avatar is produced by identification with specific social groups and/or other characters. This mimetic social performance of the imagined identity of the avatar becomes part of the autobiography of the avatar, thereby forming an emergent identity. This second stage of *DressCode* is the 'café', which the avatar visits immediately after leaving the bedroom in the following sample scenario, representing the second level of construction of identity, which occurs through social interaction and peer group evaluation. This develops the avatar's *social identity*.

The third stage of the game is the reflective stage, where the avatar may enter an evaluation of the recent events through discussion with a friend or family member in a familiar environment, such as her home. This evaluation offers the player an analysis of how she fared with the game's challenges and actors, as well as information on consequent play. The 'living room', which is where the avatar mentions to his or her flatmate/friend the social interactions that have taken place, is the reflective space of the avatar. This is where the *reflective identity* is developed.

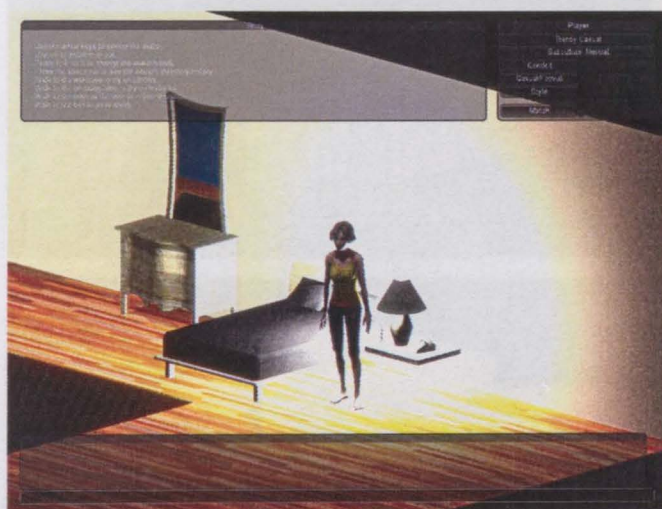
Finally, the 'office' represents the formation of what I'll call *professional identity*, which is the identity of the person/avatar as develops by means of a career and direction in the market. This is where job interviews, meetings, and other business may be carried out, comprising a large part of the daily routine of the avatar, provided that she has a job, or jobs.

Example Use Cases

A typical play-through may be as follows:

The alarm clock rings and the avatar wakes up and gets out of bed. After some introductory text regarding the day, time, and other information depending on which day it is, the avatar, still in her underwear, pyjamas, or dressing gown (illustration 105), has to choose a combination of items

from the wardrobe, as she is ready to go and have breakfast. She sits at the dressing table and checks her diary. The 'events window' appears and tells the avatar that she has three choices: she can go out with a group of friends and have breakfast at a café, she can go to another friend's place and have breakfast with her, or she can stay in and have breakfast at home with her flatmate (illustration 106). Let us say that the player chooses the first option. The player is then given a brief, which presents the profiles of the friends the avatar is going out for breakfast with. The characters' names, ages, tastes, styles, and other information, are displayed along with an indicator, which represents the level of the avatar's popularity and recognition status with each character. The player is able to check the avatar's acquaintances at will, as well as the status of the places she can visit. In this example, a screen of the café is presented to the player, offering information on the location, the clientele, and the social scene the place is part of. Let us say that this particular café is a place where young trendy people socialise, dressed mostly in generic trendy high street or lower-end designer clothes.



105. The avatar in her pyjamas



106. Choice of events

The player has to walk to the wardrobe and choose garments and accessories accordingly (illustration 107): too neutral would not do any harm but would also not help the avatar to be noticed and make new friends or even keep the interest levels of her existing friends high; too extravagant can alienate some characters and lose the avatar reputation with existing friends, but may earn reputation with new people; too much of a specific style would alienate characters of other styles and neutrally dressed characters, but would attract characters of the same or similar style.



107. Selecting the right outfit

During the event, the player can approach characters and interact with them (illustration 108). The path the conversation takes affects the underlying system that makes up the autobiography of the avatar, combining the dialogue choices with the avatar's clothes, the place, and the other characters.



108. Character interaction at the café

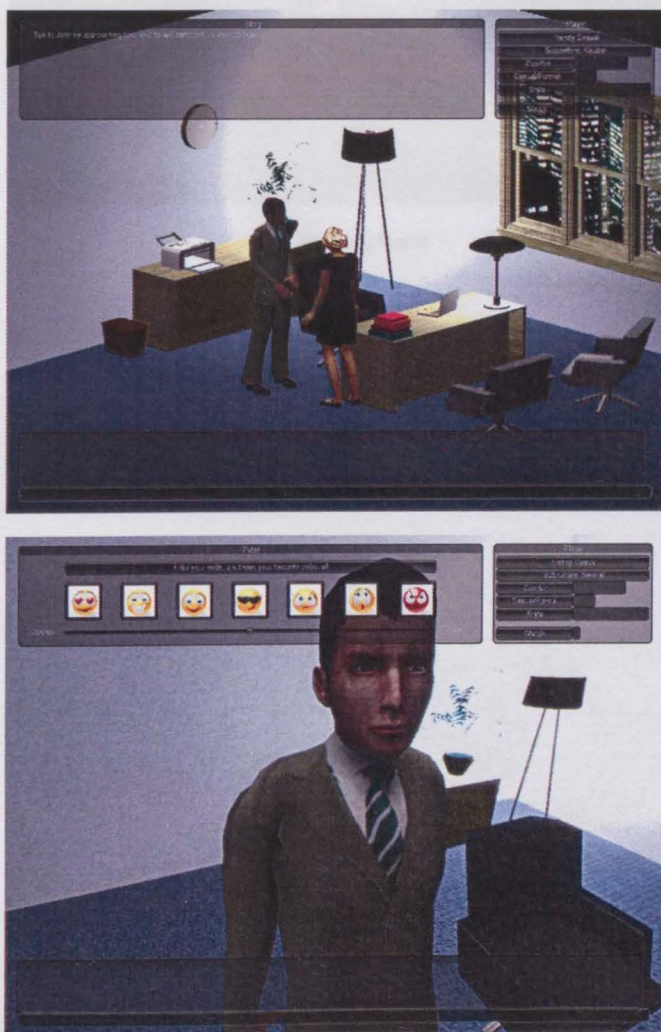
After the event, the avatar returns to her home, where a dialogue with her flatmate offers an evaluation of the happenings at the café (illustration 109). The player is thereby given information regarding the construction of the avatar's identity up to this point, as well as how much the other characters at the café liked or disliked the avatar.





109. Dialogue with the flatmate

The avatar then leaves home to go to work, where she will interact with more people, thereby further forming her autobiography (illustration 110). Her appearance and dialogue choices again combine with the specific place of work as well as the individual characters to develop her unique identity.



110. Character interaction at the office

Part 2 – The Construction of the Game

After work, the avatar goes back to her home and makes plans for lunch. Again, there will be several choices; for example: a) to stay in and have lunch at home with her flatmate; b) to go to a friend's place and have lunch there; c) to accept a lunch invitation at a restaurant; or d) to invite a few friends out to another restaurant (illustration 111). Once more, dress choices have to be made, depending on the event, the place, and the characters involved. These choices combine with the dialogue choices during the event, further affecting the avatar's history and attributes. The day continues to unfold similarly: new events appear in the diary, and the player may accept or decline attending them.



111. Leaving home

Part 2 – The Construction of the Game

Costume Design Tools

Cliché typologies of avatarial dress are not only perpetuated by the games industry and its perceived markets, but also by the technology involved in games development. The industry and market of special effects and other relevant software are also involved in the production of games, which essentially depends on the capabilities of the software for its success. However, as this software is created to facilitate very generic tasks, it can make the creation of specific content like clothing difficult. Furthermore, such generic 3D content creation tools are geared particularly toward real-time rendering, and up until the arrival of current-generation platforms (PS3 and Xbox 360), the dynamics of clothing and malleable surfaces presented a real challenge in real-time contexts. Even if there were a desire to create such clothing-specific software, it would present incredible technical challenges. This is now possible to a certain extent, but all the capacity of the graphics processing unit (GPU) is currently used for lighting, surface shaders, rigid body physics, particle effects, etc. Consequently, now that there is that opportunity for realistic clothing, there is no particular toolset which allows it. As I have to create both the body and the clothes for *DressCode* using existing tools, in the next section I will look at pre-rendered output systems which are dedicated to garment creation for the fashion industry as a possible guide for future real-time interfaces.

Wardrip-Fruin comments that 'most digital media creation takes place within systems specially designed to support particular types of authoring tasks'. These systems are in turn 'supported by layers of further systems'. Everything in a game can be regarded as data in this sense, as system processes on one level become data on another. This fact causes the creation of special-purpose authoring environments, such as game engines and animation software, which are built to make some tasks easier and others impossible (2009: 233). The creation of avatarial dress is carried out without any specialised tools. There are, of course, generic, all-purpose packages, such as Autodesk's *Maya* and *3D Studio*, and numerous cloth simulation plug-ins, which can accommodate for most uses, and combined with the cloth simulation capabilities of the graphics engines of the games, they can be used for such content. And this is what the game studios use. Such software, which is primarily addressed at the digital design sector, demands from the user advanced technical skills which are not relevant to the skill set of the fashion or costume expert. There is no software available to date that facilitates the creation of garments to be incorporated in real-time environments, which can be used by non-technically-savvy artists. Cloth simulation in real-time

environments is in general a challenge, as there are difficulties in calculating the interactions of soft with rigid bodies. What is more, the interfaces of the generic digital effects packages are designed to cope with all content creation applications of the packages, and as a result, dress creation and visualisation therein can become time-consuming and cumbersome.

Maya (illustration 112) and *3ds Max* (illustration 113) currently have cloth simulation functionality. Plug-ins like *Syflex* (illustration 114; Syflex Software) offer additional cloth functionality to such packages. *Maya* supports cloth creation from modelled polygon meshes. Brushes can be used directly on the garment to apply attributes such as mass, stretch, and drape. Garments can collide with the mannequin and with other garments. The garments can be altered to be tight or loose fitted, and buttons and other items can be attached to the cloth. *3ds Max* also has an integrated cloth simulation engine, and it can create clothing out of polygon meshes or 2D panels. Cloth can be draped in real time on the mannequin to establish the initial state of the simulation. There is a library of fabrics that can be used in combination, even on the same garment. Seams can be manipulated and darts can be used to create the desired shapes.



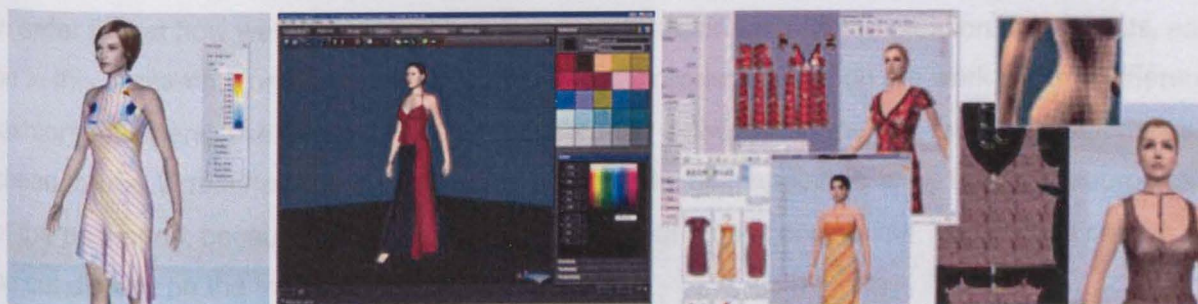
112-114. Cloth simulation in Maya 2008, 3ds Max and Syflex

However, the aforementioned packages require considerable knowledge of techniques related to the digital design, special effects, and animation sectors. Even the few artists who have knowledge of both costume design and special effects software, are limited by the interface and the options they have. Granted, Autodesk's software is modular, and as such, it can be expanded by third-party plug-ins, nevertheless, I have yet to see a satisfactory solution. Crucially, the interface and functions of each piece of software affects the design of the character and can ultimately produce styles which are associated with the particular software, regardless of the expertise of the artist.

In order to introduce fashion methodologies to the game design pipeline, I decided to use off-the-shelf fashion-specific software in order to produce the 3D models for *DressCode*. I present an overview of some of the prominent available software, in search of the right tools for my game prototype. Industrial fashion design software packages such as *Lectra Modaris 3D Fit* (illustration 115), *Gerber AccuMark V-Stitcher* (illustration 116), and *Optitex 3D Runway Designer* (illustration

117), take 2D information from pattern creation software and translate it into 3D, allowing for changes on the 3D garments that affect the 2D patterns. These packages have libraries of materials, which they associate with 2D patterns to produce cloth simulations on 3D mannequins. The comfort and fit of the garments can be evaluated with the aid of 3D analysis tools, and materials, colours and prints can change in real time. The physical attributes of the panels and stitching, such as weight, stretch, shearing, and bending, can be altered. Anthropometric data can be used straight from a body scanner and patterns and logos can be scanned in, edited, and placed on the garments. Crucially, standard 3D formats, common to all industries (such as '3ds', 'obj', 'fbx', 'mb', 'xml', 'blend', and 'dxf') can be used to export the 3D data so that it can be imported into special effects packages. But although these packages are made with fashion design in mind, they have several limitations, for which they are regarded as unsuitable for character design. Most notably, they do not focus on real-time engine economy, and they assume that the user has pattern-cutting expertise.

The first issue, which regards economics and hardware limitations, is already partly solved by the ever-expanding capabilities of home gaming hardware. Personal computers and gaming consoles become increasingly powerful with every new generation, and so the gap between modelling for pre-rendered and real-time applications becomes narrower. Another possible solution for this problem is optimisation, i.e. converting the high-definition geometries and textures originally created for pre-rendered applications to low-polygon-count versions with more heavily compressed textures. This can take place manually, i.e. with the designer remodelling the garment with more economical geometry based on the original, after importing it to standard 3D design software. However, things could become easier with third-party plug-ins, which can reduce the polygon count of the models automatically. Perhaps, if this technique were used more widely, more plug-ins would be produced to facilitate such tasks.



115-117. Modaris 3D Fit, 3D Runway Designer, AccuMark V-Stitcher

The second issue, however, is more concerning, as pattern-cutting expertise is not something many character designers possess at the moment. Of course, if the industry decided to allow different methodologies to be employed, and thereby hired people of different skill sets, then this

would not be a problem. As things stand today, this is not likely to change soon. The most obvious immediate solution to this would be to use existing sets of patterns, categorised in a database. This way, the designer would only have to customise the garment on the model, instead of engaging with 2D pattern creation and adjustment. After all, pattern cutting follows a very similar logic to texture design for 3D models, i.e. converting two-dimensional surfaces into three-dimensional objects, and it would probably not take too long for artists to master the technique. However, there is currently off-the-shelf fashion software which bypasses this problem. *Virtual Fashion* by Reyes Infografica (illustration 118) is a piece of software, which, unlike the aforementioned fashion packages, does not deal with pattern creation, but lets the user drape and cut pieces of cloth on a mannequin, using basic forms as bases. Unlike the other software, it is also relatively inexpensive. I use *Virtual Fashion* as the central piece of software in the following case study, which revolves around the production of 3D models out of existing fashion designs. I also make limited use of other software, such as *Poser* (SmithMicro), *BodyStudio* (Reiss Studio), and *Maya*, in order to complete the pipeline I have chosen.



118. Virtual Fashion

The Catwalk Experiment

In order to test how well current fashion design software copes with the creation of garments, early on in this research, I produced an animation and still renders based on the work of three different fashion designers. The designs were chosen for their individual shape and fabric characteristics. I chose to use *Virtual Fashion* to construct the garments, as it appeared to be the most appropriate of the packages, because it does not require the use of panels or patterns, and clothes can instead be cut directly on the mannequin.

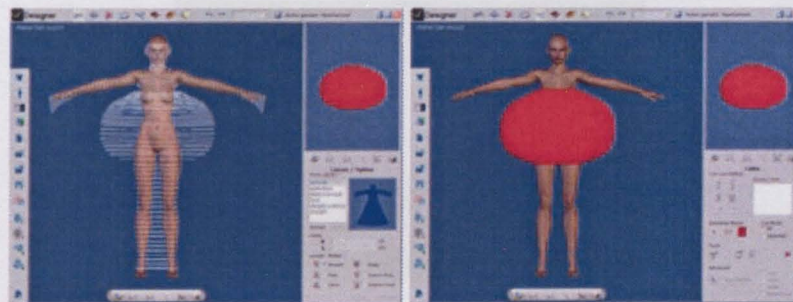
The first design is a Giles Deacon dress (illustration 119; Spring 2007). It is made from heavy silk and there is a black print on the white fabric. What was interesting about this design is its shape, as, in its initial state, it resembles a ball. The pattern is circular, very loose in the middle and gradually narrowing towards the top and bottom of the dress, effectively making use of a basic

geometric shape, and folding into itself. I use the same geometric principles to reproduce the garment digitally.



119. The first design (Giles, Spring 2007)

I used *Virtual Fashion Pro v1.5* to make the garments and started off by forming the shape of the dress with Virtual Fashion's 'slices'. Then, I discarded the rest of the mould (top and bottom ends) and refined the cuts with the Bezier curve cutting tools (illustration 120). A heavy silk material found in the *Virtual Fashion's* material library was applied to the dress temporarily, as a new material with the print would be applied later to it inside *Maya*.



120. Creating the form in Virtual Fashion

A quick cloth simulation and a still render of the dress were done in Virtual Fashion as a test, before the undraped garment was exported for further editing (illustration 121).



121. Still render of the first design in Virtual Fashion

The dress was imported into *Poser 7*, where the same mannequin was used for compatibility reasons. A walk cycle animation was applied to the mannequin so that there were 15 frames from the original 'da Vinci' pose, where the character fully extends her arms horizontally while standing up, to the point where the first frame of the walk was. The 'da Vinci' pose is conventionally used as the default original pose in biped animation software, as it simplifies the setting up of animation. The walk cycle lasted another 30 frames. The first 15 frames are needed so that, when the cloth is simulated and draped on the body, it has enough time to settle to its initial state for the animation. The vertices at the very top and bottom of the dress had to be constrained to the mannequin, so that the dress would not drop to the floor during the simulation (illustration 122).



122. Simulation of the Giles dress in Poser

A plug-in called *BodyStudio*, by Reiss Studio, was used to host the *Poser* animations – including the mannequin, the garments, the shoes, and the hair – in *Maya*. I used *Maya 8* and *BodyStudio 2.7*. I chose not to create the animations and the cloth simulations in *Maya* for the catwalk, instead opting for a single walk cycle created in *Poser* and indefinitely repeating in *Maya*, where the mannequins would simply be moving forward. This primary animation created in *Maya* (simple translation of the model) combined with the secondary animation (*Poser* walk cycle), provides the complete final animation, giving the illusion of a continuous walk across the catwalk (illustration 123). A Blinn (shiny) shader was applied to the dress in *Maya* to simulate silk, and I drew the print by hand based on the photograph of the dress, scanned it in, edited it, and applied it onto the dress.



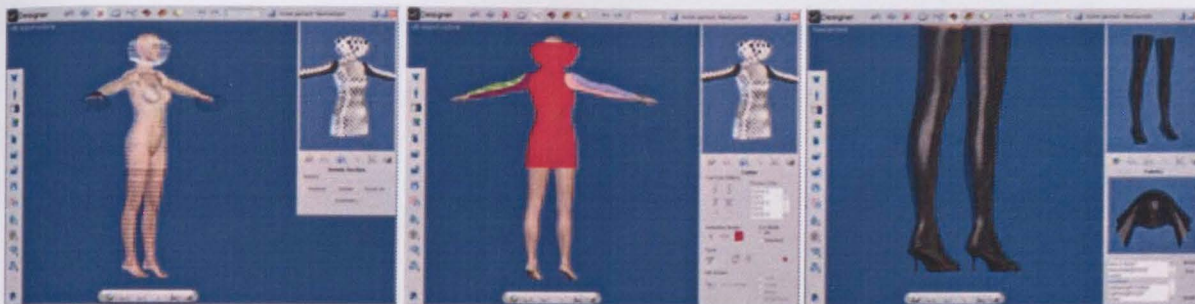
123. Catwalk rendered in Maya

The second design is by Gareth Pugh (Spring 2007, illustration 124). It is a tight fitted dress, contrary to the Giles design, which was extremely loosely fitted. It is also made of black and white leather loops, which makes it heavy and quite stiff, again in contrast to the Giles dress, which is soft and bouncy. The hooks were created with the application of a bump map on the final material for the dress inside *Maya*.



124. Second design (Gareth Pugh, Spring 2007)

Once more, I started off by forming the dress in *Virtual Fashion*. I deleted the slices covering the legs and cut out the excessive fabric covering the hands, leaving enough length at the top for the fabric to surround the head. After cutting and separating the pieces of the dress, I applied a temporary checkered leather material to it and black cotton for the arms (illustrations 125 and 126). I used a new high heel mould for the boots, defined the height, and applied black leather as the boots' material (illustration 127).



125-127. Creating the dress and the boots in Virtual Fashion



128. Still render of the dress in Virtual Fashion

After running a simulation to see how the garment drapes on the body, and therefore whether the interpretation was successful (illustration 128), I exported the dress into *Poser* (illustration 129) together with the boots, to repeat the process I underwent with the first garment, however in this case animating the character and running two cloth simulations, one for the dress and one for the boots.



129. Poser walk cycle and simulation of the dress

The result was once more imported into *Maya*, where the mannequin was put to walk on a catwalk, and an animation was produced by rendering and putting together a few hundred frames (illustration 130). The dress's checkered leather had to be re-applied in *Maya*, this time with an added bump map, which gave the illusion of the loops on the dress. Ray-tracing was also applied to the renders, so that reflections, refractions, and shadows, were achieved for a realistic look.



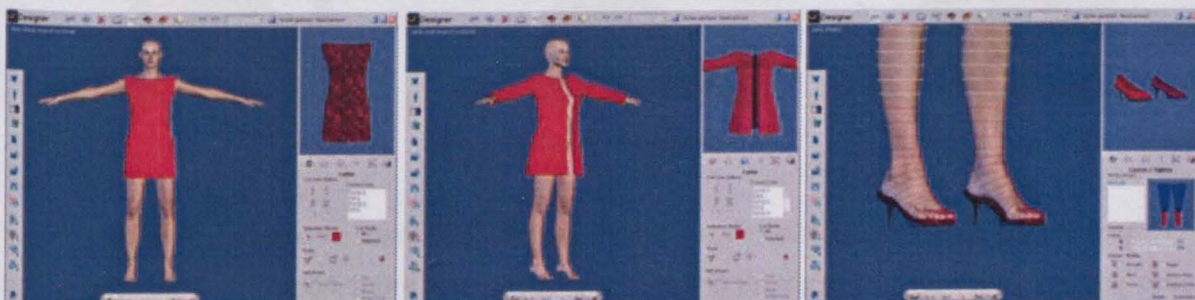
130. Catwalk rendered in Maya

The third and final design is by Zara (Winter 2007, illustration 131). I liked the idea of not having only designer clothes as a subject, but instead include a high street sample. So, as the first garment was very loose and lively, and the second tight-fitted and theatrical, this third ensemble is a relatively normal short dress under a typically cut coat. It made sense to try to simulate something more casual along with the extravagant designs. Furthermore, the Giles dress was made from silk and the Gareth Pugh dress from leather, while the Zara design consisted of two separates, which gave me the opportunity to also test heavy and light wool.



131. Third design (Zara, Winter 2007)

The process was similar to that of creating the other two designs, however, in this instance, the challenge was in combining the dress and the coat in a believable way. The dress, the coat, and the shoes, were modelled separately, with techniques mentioned earlier (illustration 132).



132. Designing the dress, coat and shoes in Virtual Fashion

Inside *Virtual Fashion* the coat draped very successfully over the dress (illustration 133). Another



133. Still render of Zara dress and coat in Virtual Fashion

In *Poser*, three different simulations had to be calculated, each with different attributes for the three different materials (heavy and light wool, and leather for the shoes). In the end, all three simulations were played back on top of the animating body (illustration 134), and the results were exported to *Maya*, where the catwalk animation was rendered with the aid of several cameras positioned at different angles and distances (illustration 135).



134. Creating the walk cycle and the cloth simulation in Poser



135. Final catwalk animation in Maya

There were several problems identified with the tools I used to build the catwalk animations. Starting with *Virtual Fashion*, there was difficulty in creating the right form for the Giles 'ball' dress, as the rings or slices that *Virtual Fashion* uses would expand almost entirely in one dimension, even though, according to the developer, they should be expanding in both. I had to individually

manipulate points on each of the rings of the mould, in order to achieve the desired shape. Another difficulty in *Virtual Fashion* was in cutting out the excessive 'fabric' at the top and bottom of the moulds and at the end of the sleeves, as well as separating the pieces of the garment. *VF* uses Bezier curves with control points that can be re-adjusted, in order to create cuts on the fabric. However, as those curves and lines are planar and parallel to the current view, and as the garment is in three dimensions, there is currently no way to create perfectly symmetrical cuts, or cuts that match on the front and the back. Problems when creating cuts in *VF* are also caused when two cuts are parallel and too close to each other, or when two or more cuts are intersecting. In the first case, the garment does not perform correctly when exported into other packages, and in the second case, more pieces than originally intended are created, making the application of materials and the behaviour of the garment during cloth simulations unpredictable. However, the greatest drawbacks of *Virtual Fashion* would have to be the lack of support for buttons, zips, and seams, and the fact that all designs are based on moulds – there is a mould for dresses, a mould for trousers, and so on – which restricts creativity, as innovation can only occur in the manipulation and stylising the existing shapes, rather than in creating new shapes altogether.

Garment creation in *Poser* is not possible, as the package was always intended as a biped animation solution. However, *Poser* is good at creating cloth objects out of existing geometries, as well as adding realistic hair and animation, such as walk cycles, to the mannequin. *Poser 8* has several modules, which are called 'rooms', and they are the following: *pose*; *material*; *face*; *hair*; *cloth*; *setup*; and *content*. The cloth room is the only module that was used during the production of the catwalk animations. The main difficulty in using it was the complexity of its interface. There are simply too many buttons and sliders, and the pipeline feels somewhat peculiar. Furthermore, the cloth attribute dial positions cannot be saved, and as a result, every setup for each piece of clothing has to be recreated manually for every single simulation. A library that would hold sets of attributes for specific materials would be desirable. Hard decorative objects such as buttons are supported, but they are almost impossible to implement, and there are display problems with the back faces of the cloth polygons. However, the major issue with *Poser* was that the collision between cloth and mannequin was occasionally problematic, particularly when the mannequin's hands interfered with the cloth, which led to interpenetrations and undesired pulls.

There were no problematic issues with *Maya* during the production of these animations, as it was only used as a rendering solution. Although *Maya* is a very good modelling, animation and effects package, it was not my software of choice for modelling and simulating garments, due to its generic tools and interface.

Regardless of a few issues, the production of the 'catwalk experiment' animation proves that the realistic calculation and depiction of clothing as separate simulations of physical entities on the bare polygon body is possible with the use of fashion-specific software. More importantly, it proves that such a pipeline is both faster than existing pipelines, and that it can be used by artists of various backgrounds. This is why I use software made for the fashion market, for the creation of *DressCode*'s avatars and fashion items.

The Interface

The aforementioned software packages were used for the creation of *DressCode*'s content: *Virtual Fashion*, *Poser*, *Daz Studio* and *Motionbuilder* were used for the creation and animation of the avatars, clothes and accessories, *Sketchup* was used for the creation of the environments, and *Maya* was used for additional modelling, texturing, and animation tasks, on both avatars and environments. A typical pipeline would be creating an avatar model in *Poser*, importing it into *Daz Studio*, where I would use a plugin to export the file in *fbx* format, which is the native format of *Motionbuilder*. In the latter, I would edit the animation and save the file for use in *Unity*. Another typical process would be modelling a room in *Sketchup*, importing it into *Maya*, and then, after some additional texturing and detailed editing, saving the file in *Maya*'s native format for use in *Unity*. *Unity* supports both *Motionbuilder* and *Maya* files, among other file formats. Adobe *Photoshop* was used for the creation of the textures for the 3D models and the graphics for the buttons of graphical user interface (GUI). Apple *Logic* and *Soundtrack* were used for the sound design and editing.

The GUI (illustration 136) displays important information such as the date and time of day, and allow for functions such as pausing the game. It displays all the necessary information to the player, such as various variable score bars, icons representing items of clothing and non-player characters, as well as buttons that may be pressed to progress gameplay, such as dialogue and dress choices. There are non-player character statistics, descriptions of places, as well as briefs on the scenarios before gameplay. Avatar history, a journal of all dialogue that has taken place, and a 'diary' of the player's choices, are also available. The game features a number of scenarios that unfold in a diary, throughout the representation of a daily system (each hour of actual gameplay represents a day in the life of the avatar). An in-game clock and diary are present in the graphical user interface, which let the player know the day and time of the day.



136. The GUI

The visual style is kept fairly minimal so that it does not abstract from the game's focus, which is of course the articles of clothing and decorating the avatar, and realistic enough to ensure the precise depiction of avatars, garments and accessories. The game is presented in an isometric three-dimensional view with a zoom function. The third-person isometric camera is utilised to display the avatar in the most comprehensible way, eliminating perspective distortion. This involves entity autobiography (Calleja, 2009). The game features an inner dialogue in the avatar's mind, a 'film noir'-style 'stream of thought' monologue for the avatar as a means to give away important information as an introduction to future events and challenges and as an evaluation of the player's previous efforts (illustration 137). This is to enhance emotions of being, and to construct the representational identity of the player. Music, ambient sounds, and voice-overs for the dialogues are also featured in order to amplify affective involvement (Calleja, 2011) and to offer aural stimulus as well as visual. Furthermore, dramatic scripting that resembles that of soap operas should be employed in order for the game to be more enjoyable, and to fit in with the concept of fashion as theatrical drama, as discussed by Baudrillard (1976 [1993]: 94).



137. The avatar's speech and thought bubble

Programming Tools

The choice of the middleware solution (game creation engine/environment) for the production of the game prototype was made mainly based on compatibility factors with the previous prototypes, and on financial issues. The considered technologies were the *Unity* authoring tool and the *Virtools* prototyping system. At the same time I was setting out to create this prototype, *Unity* announced the release of *Unity 2.6*, of which a fully functional version – bar a few features addressed at high-end professional game development – was offered for free. *Unity* offers object-oriented programming, and it also supports a variety of languages, among which C# and JavaScript. These are languages widely used in the production of commercial games and applications, which guarantees the easier expansion and re-evaluation of the prototype should it be scaled up and used for commercial purposes.

Unity is also a multi-platform environment, which means that, apart from the fact that a prototype can be produced under a number of operating systems at the same time – I used both Windows XP and Mac OSX to produce this prototype – products designed in *Unity* can be used on most personal computers as well as Android phones, iPhones, and iPads. In addition, applications made with *Unity* can be presented on most Internet browsers, after a free plug-in is downloaded and installed. This maximises distribution options and consequently the game's audience. Even though some features offered in the full-priced version of *Unity*, such as dynamic shadows and mirrors, cannot be utilised here, the features given with the *Unity* engine as well as the integrated editor, direct asset import from packages such as *Maya*, and very good documentation and support, made *Unity* my tool of choice.

The game prototype is a vertical slice of how the final game will look and play, a cross-section that demonstrates progress across all components of the project, succinctly emphasising the final qualities of the product and high production values. This means that most main features should be in place, and the gameplay mechanics should be almost final. In the following sections, I present segments of the code that drive the game, as I find it important for the reader to understand how this code works, both in relation to practical issues and solutions for the design of the game, and as regards the theoretical speculations in this thesis. In other words, I describe and justify the simulational and representational design choices I made. The purpose of this section is to describe the programming routines involved and to place them in the context of this research. It is mainly to prove that the semiosis of games is primarily a semiosis of simulation, and that this is what dictates everything in the game, as enhanced by strong *syndesis* with the representation, or hindered by its lack. It is beyond the scope of this research to describe every single command and technique, as it is not an instructional text. Therefore, I comment on the included code and explain my logic in creating it, only insofar as it helps the reader understand the connection between the intentions, which derive from the design document of the game and the relevant theoretical notions, and the result. The ellipsis symbol (...) is used to denote excluded code when it is considered self-explanatory or repetitive.

The Bedroom

I will start by presenting the script that controls the avatar's movement. It is a modified version of a script included in *Unity's* standard assets, which come with every new project created. I started out by defining the necessary variables, such as the speed and direction of the avatar as a floating point real number and as a vector respectively. The movement of the body is defined by a vector (*moveDirection*) and a speed (*speed*). The rest of the variables deal with acceleration in order to make the movement smoother.

```
var speed = 3.0;
var smoothSpeed = 10.0;
var smoothDirection = 10.0;
var moveDirection = Vector3.zero;
var moveSpeed = 0.0;
var targetAngle = 0.0;
```

I then attached a "character controller" component, which is a collision capsule, i.e. a capsule that surrounds the avatar's position in the world and lets the avatar interact with the environment by

means of collision with other objects. This way, events such as dialogues can be triggered. This also makes sure that the avatar will not walk through walls or other objects and characters.

```
@script RequireComponent(CharacterController)
```

The following functions deal with the calculation of speed and direction when the player is controlling the avatar through the computer keyboard. The routine is based on the variables listed above. This part also contains the settings for the isometric camera of the game, and it positions and directs it to always have a line of sight parallel to the original position at the outset of the game, when it moves to follow the avatar. As the camera is isometric, that position is at 45 degrees from both facing walls of the environment.

```
function Awake ()
{
    moveDirection = transform.TransformDirection(Vector3.forward);
}

function UpdateSmoothedMovementDirection ()
{
    if (DialoguesOnOff.zoom == false) {
        var cameraTransform = Camera.main.transform;
        var forward = cameraTransform.TransformDirection(Vector3.forward);
        forward.y = 0;
        forward = forward.normalized;
        var right = Vector3(forward.z, 0, -forward.x);
        var targetDirection = Input.GetAxis("Horizontal") * right + Input.GetAxis("Vertical") *
forward;
        if (targetDirection != Vector3.zero)
        {
            moveDirection = Vector3.Lerp(moveDirection, targetDirection, smoothDirection *
Time.deltaTime);
            moveDirection = moveDirection.normalized;
        }
        var curSmooth = smoothSpeed * Time.deltaTime;
        moveSpeed = Mathf.Lerp(moveSpeed, targetDirection.magnitude * speed, curSmooth);
    }
}

function Update() {
    if (DialoguesOnOff.zoom == false) {
        UpdateSmoothedMovementDirection();
        verticalSpeed = 0.0;
    }
    var movement = moveDirection * moveSpeed + Vector3 (0, verticalSpeed, 0);
    movement *= Time.deltaTime;
    var controller : CharacterController = GetComponent(CharacterController);
```



```

    var flags = controller.Move(movement);
    transform.rotation = Quaternion.LookRotation(moveDirection);
}
function GetSpeed () {
    return moveSpeed;
}
function GetDirection () {
    return moveDirection;
}

```

Here follows the chat window code, which begins with the declaration of arrays that deal with the storing and display of the text that the player inputs. The `maxLines` variable denoted how many lines will be visible in the text window at the same time, in this case 5. `myStyle` is the specific visual style of window that I used. This script is a modified version of a script written for a tutorial at unity-tutorials.com:

```

var stringArray : String[];
var writeString : String;
var maxLines : int = 5;
var curLine : int = 0;
var tempLine : float = 0;
var windowRect : Rect;
var myStyle : GUIStyle;

```

The following function operates only once as soon as the code is run, setting up the dimensions of the chat window in proportion to the screen dimensions, so that if the size of the screen or game window changes, the size of the chat window changes accordingly.

```

function Start() {
    windowRect.x = windowRect.x * Screen.width;
    windowRect.y = windowRect.y * Screen.height;
    windowRect.width = windowRect.width * Screen.width;
    windowRect.height = windowRect.height * Screen.height;
}

```

The next function updates the window every frame, that is every time the code is executed, multiple times per second. It checks whether the string typed exceeds the size of the window, and if it does not, it adds the typed character to the text array which was declared previously.

```

function Update()
{
    if (writeString.length > 0 && Input.GetKey(KeyCode.Return)) {
        var tempArray : String[] = new String[stringArray.length + 1];
        var temp : int = 0;
    }
}

```



```

        while (temp < stringArray.length) {
            tempArray[temp] = stringArray[temp];
            temp += 1;
        }
        tempArray[tempArray.length - 1] = writeString;
        writeString = "";
        stringArray = tempArray;
    }
}

```

And the next function runs multiple times per frame and handles the graphical user interface (GUI) code, as in the actual graphic creation of the window, including a scroll bar, which becomes visible as soon as the text input exceeds the maximum number of lines that the window can display at the same time.

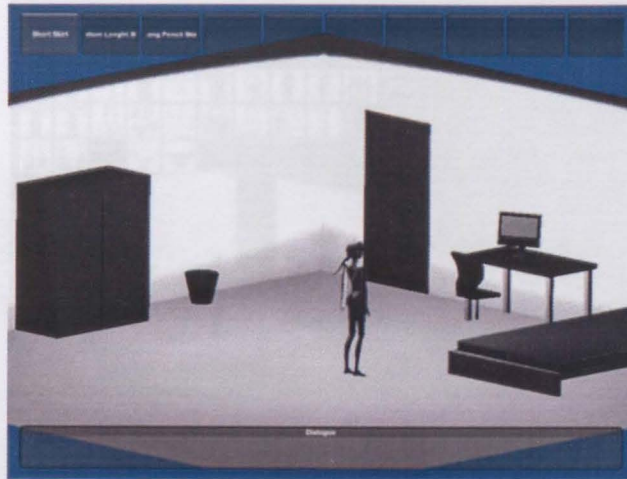
```

function OnGUI() {
    GUI.Window(3, windowRect, ChatWindow, "");
    writeString = GUI.TextField(Rect(windowRect.x, windowRect.y + windowRect.height,
    windowRect.width + 15, 25), writeString, 50);
    if (stringArray.length > 5) {
        tempLine = GUI.VerticalScrollbar(Rect(windowRect.x + windowRect.width, windowRect.y,
        25, windowRect.height), tempLine, 1, 0, stringArray.length - 4);
        curLine =
        tempLine;
    }
}

function ChatWindow(windowID : int) {
    var temp : int = 0;
    while (temp < maxLines && temp + curLine < stringArray.length)
    {
        GUI.Label(Rect(5, 5 + temp * 20, windowRect.width - 10, 20),
        stringArray[temp + curLine], myStyle);
        temp += 1;
    }
}

```

The following screen capture (illustration 138) shows what the prototype looked like at an early stage. The environment is basic and untextured, the avatar is not yet animated and is equally untextured, and the array of buttons at the top of the screen does not contain icons for the clothes offered and it is not integrated in a window frame. However, the isometric camera is already in place – even if it does not move to follow the movement of the avatar yet – the controls are operational, and an early version of the chat window, which hypothetically allows the player to communicate with other players over a network, is present.



138. The first version of the bedroom

I decided to use buttons for the player to dress the avatar with the available articles. The following is the code for the garment and accessories buttons. It declares a string variable where the garment which is to become visible (turned on) is stored. It then checks for button clicks on the garments' and accessories' icons in order to establish which items to start rendering, and which to stop rendering if they are turned off. This is a typical *if-else* conditional statement which is contained in a function (`onMouseUp`) which anticipates a mouse click on the buttons.

```
var garmentToRender : String;

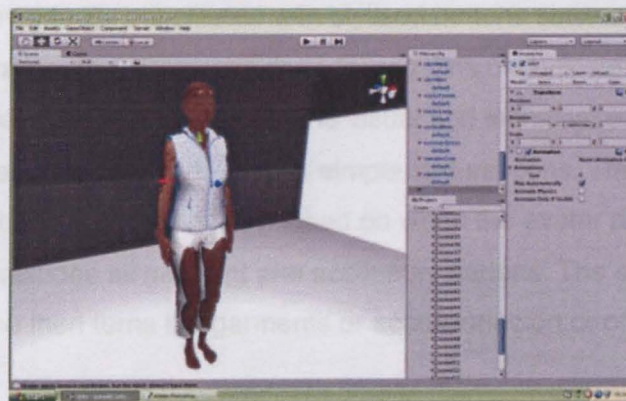
function onMouseUp () {
    if (GameObject.Find(garmentToRender).renderer.enabled == false) {
        GameObject.Find(garmentToRender).renderer.enabled = true;
    }
    else {
        GameObject.Find(garmentToRender).renderer.enabled = false;
    }
}
```

This code is used to control the garment and accessory buttons at the top of the display, as displayed in the following screen (illustration 139). The mouse pointer can be positioned on any of these icons, and a button click will cause a garment which is invisible to become visible and vice versa. This is possible because all of the clothes and accessories are already on the avatar model but have been set invisible. This makes the process easier, as an item does not have to be separately positioned, animated and scaled in order to fit on the avatar.



139. The addition of the clothes and garments icons

Even though the clothes are separate entities with their own attributes such as scale, position, rotation, texture information and the such, they have been parented to the avatar prior to their import into *Unity*, so that they animate synchronised with the avatar model, and so that they inherit the position and direction of the avatar model (illustration 140).



140. The clothes on the avatar

Another script is needed, which turns a menu on when the avatar approaches and faces specific 'hot points' in the scenery, such as the wardrobe, the desk, or the bed. The following does exactly that for the desk, so that the events menu is switched on. This is the section that deals with the desk, however there are similar sections in this particular script that deal with the rest of the hotspots, which I am excluding as they are very similar to this:

```
static var hitObject : boolean = false;

function Update() {
    var hit : RaycastHit;
    if (Physics.Raycast (transform.position, transform.forward, hit, 3)) {
        if(hit.collider.gameObject.tag=="deskCollider"){
            DeskMenu.deskMenuOn = true;
            WardrobeMenu.wardrobeMenuOn = false;
        }
    }
}
```



```

        BedMenu.bedMenuOn = false;
        MakeUpMenu.makeUpMenuOn = false;
        StoryText.storyTextOn = false;
    }
}

```

The script concludes with the following, which checks whether the avatar is close enough to the room's door, and if it is, the next level, in this case the café, is loaded.

```

if(hit.collider.gameObject.tag=="doorCollider") {
    Application.LoadLevel ("cafe");
}
if (!DeskMenu.deskMenuOn && !WardrobeMenu.wardrobeMenuOn && !MakeUpMenu.makeUpMenuOn) {
    StoryText.storyTextOn = true;
}
}

```

The separate garment icons that were placed at the top of the screen, so that the player could dress the avatar, were eventually substituted with stylised buttons surrounded by a window of the same visual style (illustration 141). This was done for reasons of consistency in the aesthetics of the interface, and in order to take advantage of the visual and technical superiority of the proper *Unity* GUI (graphical user interface) buttons over simple texture icons. The following is the script that creates the 'wardrobe' menu, which is switched on when the avatar approaches the wardrobe in the room, and which includes all garment and accessory buttons. The script checks for mouse clicks on the buttons, and then turns the garments or accessories on or off.

```

static var wardrobeMenuOn : boolean = false;
static var sendMessageForExit : boolean = false;
var wardrobeWindowRect : Rect;
var garmentTexture1 : Texture;
...
var undergarmentTexture1 : Texture;
...
var exitTexture : Texture;
var garmentToRender1 : String;
...
var accessoryToRender1 : String;
...
var undergarmentToRender1 : String;
...

function Start() {
    wardrobeWindowRect.x = wardrobeWindowRect.x * Screen.width;
    wardrobeWindowRect.y = wardrobeWindowRect.y * Screen.height;
    wardrobeWindowRect.width = wardrobeWindowRect.width * Screen.width;

```



```

        wardrobeWindowRect.height = wardrobeWindowRect.height * Screen.height;
    }

    function OnGUI () {
        if(wardrobeMenuOn){
            windowRect = GUI.Window(2, wardrobeWindowRect, WardrobeWindowFunc,
"Wardrobe");
        }
    }

    function WardrobeWindowFunc(windowID : int) {
        if (GUI.Button (Rect (wardrobeWindowRect.width * 0.01, wardrobeWindowRect.height * 0.15,
wardrobeWindowRect.width * 0.08, wardrobeWindowRect.width * 0.08), garmentTexture1))
            if (GameObject.Find(garmentToRender1).renderer.enabled == false) {
                GameObject.Find(garmentToRender1).renderer.enabled = true;
            }
            else {
                GameObject.Find(garmentToRender1).renderer.enabled = false;
            }
        if (GUI.Button (Rect (wardrobeWindowRect.width * 0.09, wardrobeWindowRect.height * 0.15,
wardrobeWindowRect.width * 0.08, wardrobeWindowRect.width * 0.08), garmentTexture2))
            if (GameObject.Find(garmentToRender2).renderer.enabled == false) {
                GameObject.Find(garmentToRender2).renderer.enabled = true;
            }
            else {
                GameObject.Find(garmentToRender2).renderer.enabled = false;
            }
        ...
        if (GUI.Button (Rect (wardrobeWindowRect.width * 0.89, wardrobeWindowRect.height * 0.65,
wardrobeWindowRect.width * 0.08, wardrobeWindowRect.width * 0.08), "Exit")) {
            sendMessageForExit = true;
        }
    }
}

```

As attributes ranging from simple characteristics, such as "colour" and 'material', to factors such as 'fashion trends' and 'comfort', are needed to be attached to the clothes and accessories, the following script was compiled. It includes variables/containers for the *kind* of item (trousers, coat, etc), the *fashion* (which is an indicator mainly of the market, such as high street formal), and the *subculture* (such as music/youth-oriented cultures). These are string variables, which means that they are defined by words. The *casual/formal* and *comfort scale* attributes are numerical scales ranging from 1 to 10. The *colour* variable is a string, and therefore defined by a word, such as 'black' or 'red', however, it can be modified to hold numerical values such as industry-specific Pantone colour values. The pattern and print attributes are Boolean values, meaning that a garment or accessory may have, or not have, a pattern or a print. At this point, this variable does not hold any more than a 'yes or no' descriptor, even though this can be changed so that the actual

fabric texture, or a written description of it, can be used. The *material* variable can include strings such as 'cotton' or 'wool', the *shape* string descriptions like 'straight' or letters that symbolise lines, such as 'I' or 'A', and the *season*, which is again described by a word. The *soft/stiff* variable is an integer in a scale from 1 to 10. The colour, pattern, print, material, shape, and soft/stiff variables contribute to the *aesthetics* variable, which will be defined later.

```
static var kind : String;
static var fashion : String;
static var subculture : String;
static var casualFormal : int;
static var comfortScale : int;
static var colour : String; // aesthetics
static var pattern : boolean; // aesthetics
static var print : boolean; // aesthetics
static var material : String; // aesthetics
static var shape : String; // aesthetics
static var softStiff : int; // aesthetics
static var season : String;
```

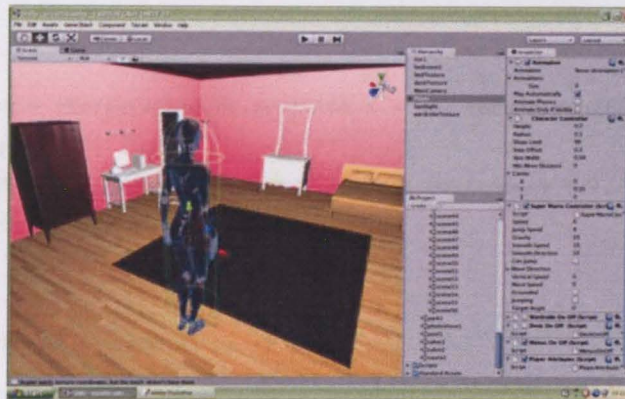
The attributes have to be combined in a certain way in order to offer a unique denominator, which serves as the player's 'matching' score, that is how successfully the player has combined garments, accessories, hair, make-up, and so on. Even though many different methods can be used, the following searches for "children" entities which are visible in the hierarchy in which the "parent" is the avatar itself. For example, if a top and a skirt have been turned on by the player so that they are visibly on the avatar, they are included in this calculation:

```
function Start () {
    if (GameObject.FindWithTag("Top").renderer.enabled == true) {
        if (FCas_Shirt3Attributes.kind == FCasPant3Attributes.kind) {
            // decrease
        }
    }
}
```



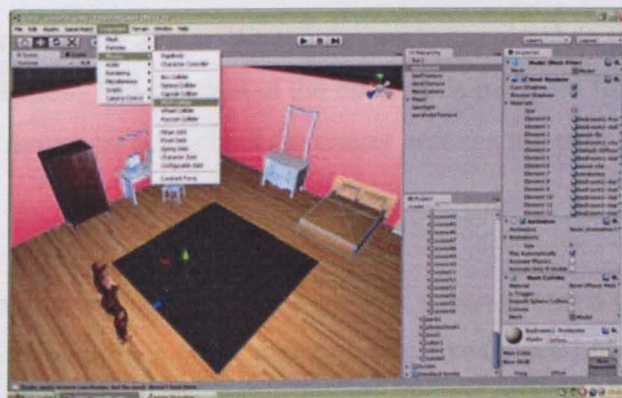

141. The new GUI

At this point, the room was re-modelled and re-textured, and the avatar was re-imported (illustration 142).



142. The character controller capsule

Physics colliders also had to be added to the environment meshes, so that the player character's collider can interact with them, and any collision will result in a triggered event, as well as a physical restriction so that the avatar does not intersect with any other entity in the room (illustration 143).



143. The mesh colliders for the scenery

After experimentation with different camera angles and positions, I decided that the most appropriate camera for this particular game would be an isometric camera, so that there is no perspective distortion, which accents the minimalist look of the game's graphics. The camera was originally static and overviewed the room from a corner on the ceiling, however I soon realised that it would be much more effective if it followed the avatar from an equal distance and at a similar angle. The avatar is therefore at the centre of the screen at all times now, whenever the player has control over it. The code for the isometric camera is as follows, where the position of the camera is declared to be 15 units to the left of the avatar and 9 units above the avatar:

```
var target : Transform;
var ortho : float = 7;

@script AddComponentMenu("Camera-Control/Smooth Follow")

function LateUpdate () {
    transform.position = (Vector3(target.position.x - 15, target.position.y + 9,
target.position.z + 15));
    transform.LookAt(Vector3(target.position.x, target.position.y + 4, target.position.z));
    if ( Input.GetKeyDown( KeyCode.Equals )) {
        ortho -= 0.5;
    }
    if ( Input.GetKeyDown( KeyCode.Minus )) {
        ortho += 0.5;
    }
    camera.orthographicSize = ortho;
}
```

In Chapter 2, I distinguished the distanced third-person view as the most appropriate view for the observation of avatars, provided that it includes a zoom function, so that the player can appreciate the details of the avatars. A vector is formed from the camera to the target, which is in this case the avatar, and the two relative end points of the vector remain constant in the combined local space of the camera and the avatar. What changes is the absolute position of both at the same time in the global space. The last part of the code adds the extra functionality of being able to zoom in or out on the avatar by 0.5 units if the player presses the plus (+) or minus (-) buttons on the keyboard.

The following is the script that creates the 'story' window, which contains the introductory texts for the player, as well as visual feedback of the dialogue that takes place between the avatar and the other characters. It is the means by which the game communicates with the player, and a string variable can be passed to this script from any other object in the game, so that the player is

constantly given feedback, depending on which stage they are in, so that they have an indication of direction in the game. It is worth mentioning here that the text within the quotation marks is the representational content of the game, and it is interchangeable. The game's simulation would not be any different if this text was different. This belongs in the representational semiotic layer of the game.

```
static var storyTextOn : boolean = true;
var windowRect : Rect;
var labelRect : Rect;
static var currentText : String = "7.00 am - The alarm clock rings and the avatar wakes up and gets out of bed. Still in her underwear, she will have to make the first choice of the day and choose to wear a combination of items from the wardrobe. Please walk to the wardrobe and choose some clothes to wear.";

function Start() {
    windowRect.x = windowRect.x * Screen.width;
    windowRect.y = windowRect.y * Screen.height;
    windowRect.width = windowRect.width * Screen.width;
    windowRect.height = windowRect.height * Screen.height;
    labelRect.x = labelRect.x * Screen.width;
    labelRect.y = labelRect.y * Screen.height;
    labelRect.width = labelRect.width * Screen.width;
    labelRect.height = labelRect.height * Screen.height;
}

function OnGUI () {
    if (storyTextOn) {
        windowRect = GUI.Window (30,windowRect, WindowFunct, "Story");
    }
}

function WindowFunct(windowID : int) {
    GUI.Label(labelRect, currentText);
}
```

The avatar was eventually re-imported not as a static model, but as a series of animated models in *FBX* format, which allows for the combination of any number of animations to be controlled by the *Unity* game engine, as long as the geometry the imported animations refer to is the same. In this first instance, I only imported the main walk cycle, which is activated when the player presses any of the arrow keys to move the avatar, and deactivated when the keys are released (illustration 144).



144. The new animated avatar

The following script controls the avatar's different animations. There are three different walk cycles as well as an 'idle' state, which is a standing pose which animates slightly from left to right and the other way around, so that the avatar looks natural when standing idle. The animations are blended together with the 'crossfade' command, so that the transitions between any stages of the blended animations are smooth. The speed of the avatar's walk is currently set to 0.5, but it can be changed to a faster or slower pace.

```
var walk : int = 1;

function Start () {
    animation.wrapMode = WrapMode.PingPong;
    animation.Play("idle");
}

function Update () {
    var playerController : SuperMarioController = GetComponent(SuperMarioController);
    if (Input.GetKey ("up") || Input.GetKey ("down") || Input.GetKey ("left") || Input.GetKey ("right")) {
        if (!MenusOnOff.hitObject) {
            animation.wrapMode = WrapMode.Loop;
            if (walk == 1) {
                animation.CrossFade("walk", 0.5);
            }
            if (walk == 2) {
                animation.CrossFade("walk2", 0.5);
            }
            if (walk == 3) {
                animation.CrossFade("walk3", 0.5);
            }
            if (!audio.isPlaying) {
                audio.Play();
            }
        }
    }
}
```



```

    else {
        animation.wrapMode = WrapMode.PingPong;
        animation["idle"].speed = 0.02;
        animation.CrossFade("idle", 0.5);
        audio.Stop();
        MenuOnOff.hitObject = false;
    }
}
else {
    animation.wrapMode = WrapMode.PingPong;
    animation["idle"].speed = 0.02;
    animation.CrossFade("idle", 0.5);
    audio.Stop();
}
if (Input.GetKey ("1")) {
    walk = 1;
}
else if (Input.GetKey ("2")) {
    walk = 2;
}
else if (Input.GetKey ("3")) {
    walk = 3;
}
}
}

```

The room was modelled and textured for a third and final time. The avatar's modelling, texturing and animations were also finalised. Dynamic lighting was added to enhance the realistic feeling of the environment. Cone lights were added on the lamps above the desk, and area lights on the ceiling and the floor lamp in the corner of the room. The size of the windows was changed to fit the screen better, and a new window was added. The 'player status' window includes all of the avatar's attributes, most of which derive from the combined attributes of the articles of clothing the avatar is wearing at any given time. There is a *fashion* indicator (in this example "Trendy Casual"), a *subculture* indicator ("Neutral"), *comfort*, *casual/formal* and *style* scales, and the overall *matching score* of the dress combination. The scales range from one to ten and their results are represented in this window in the form of sliding scales (illustration 145).



145. The new aesthetic enhancements

The following script controls the player attributes window. The 'fashion', 'subculture', 'comfort', 'casual/formal', 'style', and 'match' attributes are all displayed here:

```
var windowRect : Rect;
var fashion : String;
var subculture : String;
var comfort : int;
var casualFormal : int;
var aesthetics : int;
var compatibility : int;

function Start(){
    windowRect.x = windowRect.x * Screen.width;
    windowRect.y = windowRect.y * Screen.height;
    windowRect.width = windowRect.width * Screen.width;
    windowRect.height = windowRect.height * Screen.height;

    fashion = PlayerAttributes.playerOverallFashion;
    subculture = PlayerAttributes.playerOverallSubculture;
    comfort = PlayerAttributes.playerOverallComfortScale;
    casualFormal = PlayerAttributes.playerOverallCasualFormal;
    aesthetics = PlayerAttributes.playerAesthetics;
    compatibility = PlayerAttributes.playerCompatibility;
}

function OnGUI () {
    windowRect = GUI.Window(20, windowRect, WindowFunc, "Player");
}

function WindowFunc(windowID : int) {
    if (GUI.Button (Rect (windowRect.width * 0.02, windowRect.height * 0.12, windowRect.width *
0.96, windowRect.height * 0.13), "+fashion))
    if (GUI.Button (Rect (windowRect.width * 0.02, windowRect.height * 0.25, windowRect.width *
0.96, windowRect.height * 0.13), "Subculture: "+subculture))
    if (GUI.Button (Rect (windowRect.width * 0.02, windowRect.height * 0.38, windowRect.width *
```



```

0.48, windowRect.height * 0.13), "Comfort"))
    GUI.Box (Rect (windowRect.width * 0.50, windowRect.height * 0.38, (windowRect.width * 0.48)/
10*comfort, windowRect.height * 0.13), "");
    if (GUI.Button (Rect (windowRect.width * 0.02, windowRect.height * 0.51, windowRect.width *
0.48, windowRect.height * 0.13), "Casual/Formal"))
        GUI.Box (Rect (windowRect.width * 0.50, windowRect.height * 0.51, (windowRect.width * 0.48)/
10*casualFormal, windowRect.height * 0.13), "");
        if (GUI.Button (Rect (windowRect.width * 0.02, windowRect.height * 0.64, windowRect.width *
0.48, windowRect.height * 0.13), "Style"))
            GUI.Box (Rect (windowRect.width * 0.50, windowRect.height * 0.64, (windowRect.width * 0.48)/
10*aesthetics, windowRect.height * 0.13), "");
            if (GUI.Button (Rect (windowRect.width * 0.02, windowRect.height * 0.83, windowRect.width *
0.48, windowRect.height * 0.13), "Match"))//Match: "+compatibility))
                GUI.Box (Rect (windowRect.width * 0.50, windowRect.height * 0.83, (windowRect.width * 0.48)/
10*compatibility, windowRect.height * 0.13), "");
}

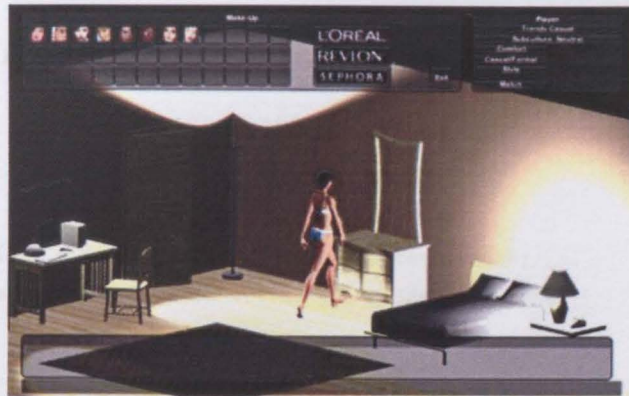
```

Links to external fashion websites such as net-à-porter.com and asos.com were introduced as buttons in the wardrobe window. By using these, the player is able to access downloadable content, which will be added to the wardrobe window, where it can be used to dress the avatar (illustration 146). In Chapter 3, I discussed the willingness of fashion brands to be included in virtual worlds, so that they have virtual presence, for the additional profit over insignificant costs, but mostly for promotional purposes.



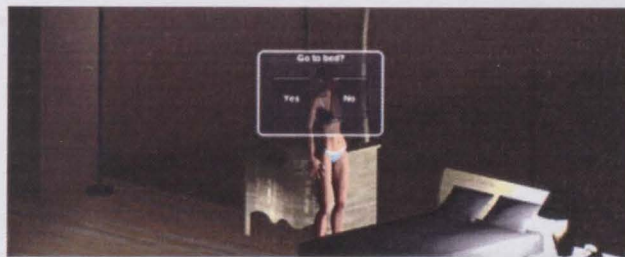
146. The wardrobe

The make-up menu works similarly to the wardrobe menu and it is switched on when the player approaches the dressing table (illustration 147).



147. The dressing table

Similarly, a window pops up when the avatar approaches the bed, so that the player has the choice to skip the remainder of the day and move on to the next. This window only includes a 'yes' and a 'no' button, the latter of which exits the window and resumes play (illustration 148).



148. The bed

The 'events menu' code, however, is different in that it can do more than just check for button clicks. The events menu switches on as soon as the player approaches the computer desk. The window includes fifteen character boxes – of which four are active in this example, an event scenery box, and two arrows which allow the player to cycle through the available events (illustration 149). Clicking on one of the character/friend boxes displays a window with the character's attributes, similar to the player's attributes window. The player can browse through the events by using the arrow buttons, and see the several locations and friends attending each event. This helps make decisions on how to dress the avatar appropriately for each event. This is the events menu script:

```
static var deskMenuOn : boolean = false;
var deskWindowRect : Rect;
var eventTexture : Texture;
...
var characterTexture1 : Texture;
...
var previousTexture : Texture;
var nextTexture : Texture;
```



```

var cycleEvents : int = 1;

function Start() {
    deskWindowRect.x = deskWindowRect.x * Screen.width;
    deskWindowRect.y = deskWindowRect.y * Screen.height;
    deskWindowRect.width = deskWindowRect.width * Screen.width;
    deskWindowRect.height = deskWindowRect.height * Screen.height;
}

function OnGUI () {
    if(deskMenuOn) {
        windowRect = GUI.Window(1, deskWindowRect, DeskWindowFunc, "Events");
        if (Input.GetMouseButtonDown(1)) {
            GUI.BringWindowToFront(1);
            JaneStats.janeStatsOn = false;
            JohnStats.johnStatsOn = false;
            OliverStats.oliverStatsOn = false;
            PeterStats.peterStatsOn = false;
        }
    }
}

function DeskWindowFunc(windowID : int) {
    if (GUI.Button (Rect (deskWindowRect.width * 0.01, deskWindowRect.height * 0.15,
deskWindowRect.width * 0.08, deskWindowRect.width * 0.08), characterTexture1)) {
        JaneStats.janeStatsOn = true;
        JohnStats.johnStatsOn = false;
        OliverStats.oliverStatsOn = false;
        PeterStats.peterStatsOn = false;
    }
    if (GUI.Button (Rect (deskWindowRect.width * 0.9, deskWindowRect.height * 0.33,
deskWindowRect.width * 0.04, deskWindowRect.width * 0.04), previousTexture))
        cycleEvents -=1;
        if (cycleEvents > 2) {
            cycleEvents = 1;
        }
    if (GUI.Button (Rect (deskWindowRect.width * 0.9, deskWindowRect.height * 0.63,
deskWindowRect.width * 0.04, deskWindowRect.width * 0.04), nextTexture))
        cycleEvents +=1;
        if (cycleEvents < 1) {
            cycleEvents = 2;
        }
    if (cycleEvents == 1) {
        eventTexture = eventTexture1;
    }
    if (cycleEvents == 2) {
        eventTexture = eventTexture2;
    }
}

```



```

    }
    if (GUI.Button (Rect (deskWindowRect.width * 0.45, deskWindowRect.height * 0.15,
deskWindowRect.width * 0.4, deskWindowRect.height * 0.78), eventTexture)) {
    }
}

```



149. The computer desk

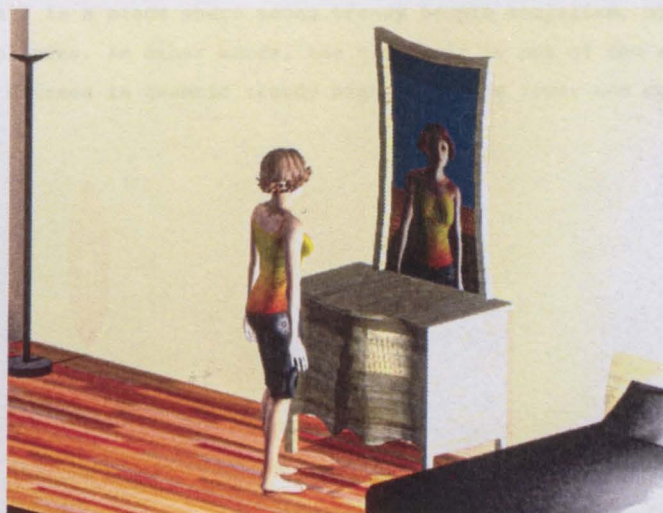
The following code allows the player to move on to the café when the avatar approaches the door:

```

function Update() {
    var hit : RaycastHit;
    if (Physics.Raycast (transform.position, transform.forward, hit, 3)) {
        if(hit.collider.gameObject.tag=="doorCollider") {
            Application.LoadLevel ("cafe");
        }
    }
}

```

A texture that takes information from a camera positioned inside the mirror frame (illustration 150), and then flips it horizontally to appear like a mirror, was added.



150. The mirror

The Café

The café is the stage where the avatar meets four characters, Jane, John, Oliver and Peter (illustration 151). They each have their own style of appearance, which matches more or less with the appearance of the avatar, and produces a match score for each character. I only describe the processes and code involved in handling Jane, even though the rest of the characters are dealt with in the same way.

The sound of footsteps on a wooden floor was added to the avatar's walk to make it more realistic, and a café ambient sound was added to the stage to add to the affective involvement (Calleja, 2011).

The content of the story window changes as soon as the player enters the new stage to the following, which is stored in the *currentText* variable and sent to be displayed through the script that controls the story window. This text is part of the representational semiotic layer. In the second chapter, I demonstrated how the representational text, visuals and sounds, are all interchangeable and secondary to the main, simulational semiosis, bearing significance (affecting the simulation) only in the way they inform the player.

```
function Start () {  
    StoryText.currentText = "Let us say that the player chooses the first option. The player  
will be given a brief, which will present the profiles of the friends the avatar is going out for  
breakfast with. The names, ages, tastes, styles, and other information about the characters will be  
displayed along with a meter which will represent the level of the popularity and recognition status  
of the avatar with each character. The 3D model of the avatar will also be displayed. The player  
will be able to check the acquaintances of the avatar at will, as well as the status of the places  
the avatar will have to visit. In this example, a screen of the café will be displayed, offering  
information on the location, the clientele, and the social scene the place is part of. Let us say  
that this particular café is a place where young trendy people socialise, but it is quite neutral in  
terms of specific subcultures. In other words, the clientele is not of the emo or punk or mod  
persuasion, but rather dresses in generic trendy high street or lower end designer clothes."  
}  
  
function Update () {  
}
```




151. The Café

Jane's attributes are calculated thus: if the player's overall fashion factor is equal with that of Jane's, then the character earns ten points toward her final 'matching' score, otherwise she earns one; if the player's 'subculture' factor is the same with Jane's, then she earns ten points, otherwise one; the score derived from the 'comfort scale' factor is calculated by getting the absolute value of the difference between the player's comfort score and that of the other character. Similarly, the 'casual/formal' and 'style' scales are calculated by difference of the comparison between Jane's and the avatar's scores. Jane's overall 'match' number is then calculated by adding up all aforementioned factors and dividing them by their total, in this case six.

```
static var janeOverallFashion : String = "Trendy Casual";
static var janeOverallSubculture : String = "Gothic";
static var janeOverallComfortScale : int = 5;
static var janeOverallCasualFormal : int = 6;
static var janeAesthetics : int = 8;
static var janeCompatibility : float;

var fashionRatio : int;
var subcultureRatio : int;
var comfortRatio : int;
var casualFormalRatio : int;
var aestheticsRatio : int;

function Update () {
    if (janeOverallFashion == PlayerAttributes.playerOverallFashion) {
        fashionRatio = 10;
    }
    else
    {
        fashionRatio = 1;
    }
    if (janeOverallSubculture == PlayerAttributes.playerOverallSubculture) {
        subcultureRatio = 10;
    }
}
```



```

else
{
    subcultureRatio = 1;
}
if (janeOverallComfortScale >= PlayerAttributes.playerOverallComfortScale) {
    comfortRatio = janeOverallComfortScale - PlayerAttributes.playerOverallComfortScale;
}
else
{
    comfortRatio = PlayerAttributes.playerOverallComfortScale - janeOverallComfortScale;
}
casualFormalRatio = Mathf.Abs(janeOverallCasualFormal -
PlayerAttributes.playerOverallCasualFormal);
aestheticsRatio = Mathf.Abs(janeAesthetics - PlayerAttributes.playerAesthetics);
janeCompatibility = (fashionRatio + subcultureRatio + comfortRatio + casualFormalRatio +
aestheticsRatio + JaneMenu.janeSlider) / 6;
if (janeCompatibility < 1) {
    janeCompatibility = 1;
}
}

```

The code that displays the pop-up window when the mouse pointer is overlapping with the model of Jane on screen is similar to that of the player's attributes window. The script that turns the pop-up window on or off is the following:

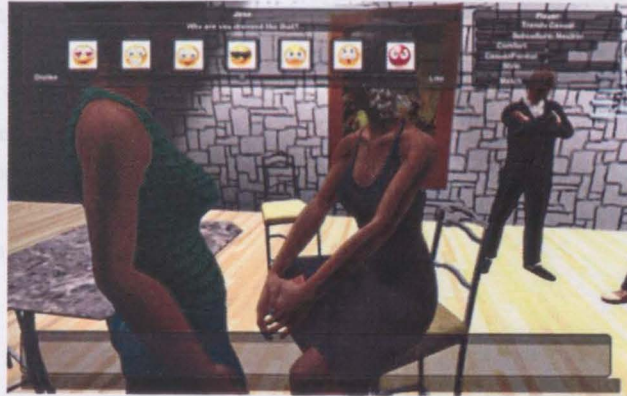
```

function OnMouseEnter () {
    JaneStats.janeStatsOn = true;
}

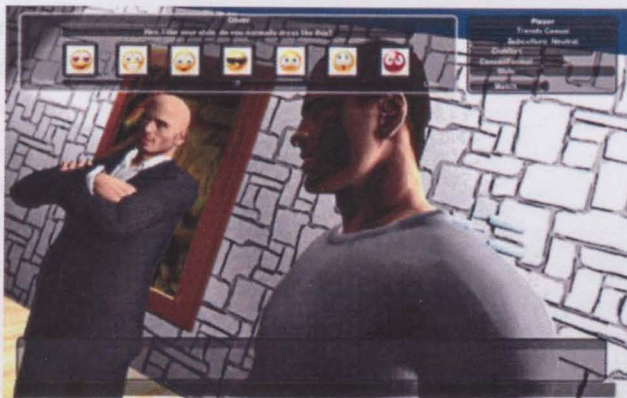
function OnMouseExit () {
    JaneStats.janeStatsOn = false;
}

```

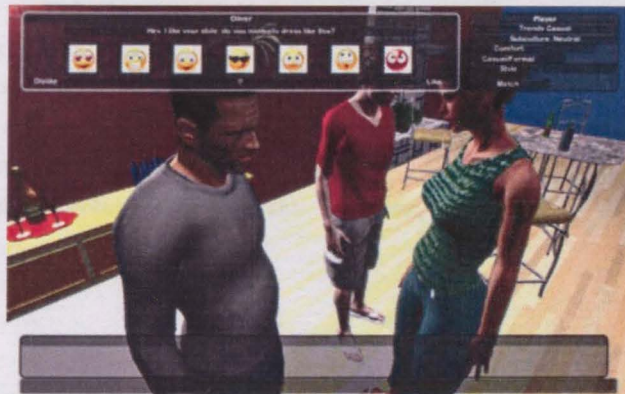
The dialogue system originally revolved around direct questions and replies, the latter of which the player can choose from a window at the top of the screen, which appears when the avatar approached a character. The dialogue choices were eventually masked by means of icons representing emotions. These 'emoticons', similar to the ones used in 'chatting' applications such as Microsoft *Messenger*, serve now as indicators of how a player feels about a given question posed by a character, and are each assigned a specific reply. The emoticons run in this order, from positive to negative: "in love", "embarrassed", "amused/pleased", "cool/neutral", "annoyed", "shocked" and "angry" (illustrations 152-154).



152. Jane



153. Oliver and Peter



154. Oliver and John

The following code controls the aforementioned emoticons window, along with a voice-over and a text to be passed on to the story window for every reply. For example, when Jane is approached, her 'emoticons' window pops up, and she asks "Why are you dressed like that?". The camera now switches to a close-up on Jane. Upon clicking on one of the emoticons, the game switches back to the main isometric camera, and now a speech bubble is visible above the player avatar, displaying the reply "Well, I knew you were going to be here so I made the effort!". The texts are accompanied by sound clips that increase the syndesis of the representation with the simulation.


```

static var janeMenuOn : boolean = false;
var windowRect : Rect;
var myBubbleRect : Rect;
static var myBubble : boolean = false;
var myBubbleTexture : Texture;
var myAnswer : String;
static var janeSlider : float = 5.5;

var mainCam : Camera;
var janeCam : Camera;

var amusedTexture : Texture;
var angryTexture : Texture;
var annoyedTexture : Texture;
var embarrassedTexture : Texture;
var inloveTexture : Texture;
var neutralTexture : Texture;
var shockedTexture : Texture;

var clip1 : AudioClip;

...

function Start() {
    windowRect.x = windowRect.x * Screen.width;
    windowRect.y = windowRect.y * Screen.height;
    windowRect.width = windowRect.width * Screen.width;
    windowRect.height = windowRect.height * Screen.height;
    myBubbleRect.x = myBubbleRect.x * Screen.width;
    myBubbleRect.y = myBubbleRect.y * Screen.height;
    myBubbleRect.width = myBubbleRect.width * Screen.width;
    myBubbleRect.height = myBubbleRect.height * Screen.height;
}

function OnGUI () {

    if(janeMenuOn) {

        myBubble = false;
        JohnMenu.myBubble = false;
        OliverMenu.myBubble = false;
        PeterMenu.myBubble = false;
        windowRect = GUI.Window(1, windowRect, WindowFunc, "Jane");
    }

    if(myBubble) {
        GUI.DrawTexture (myBubbleRect, myBubbleTexture);
    }
}

```



```

GUI.contentColor = Color.black;

GUI.Label (Rect(myBubbleRect.x + 13, myBubbleRect.y + 5, myBubbleRect.width - 26,
myBubbleRect.height - 10), myAnswer);
}

if (Input.GetMouseButton(1)) {
    myBubble = false;
}

}

function WindowFunc(windowID : int) {
    if (GUI.Button (Rect (windowRect.width * 0.02, windowRect.height * 0.18, windowRect.width *
0.96, windowRect.height * 0.13), "Why are you dressed like that?"))
        if (GUI.Button (Rect (windowRect.width * 0.09, windowRect.height * 0.4, windowRect.width *
0.1, windowRect.width * 0.1), inloveTexture)) {
            janeCam.enabled = false;
            mainCam.enabled = true;
            GameObject.FindWithTag("Player").transform.Translate(0, 0, -1);
            DialoguesOnOff.zoom = false;
            myBubble = true;
            myAnswer = "Well, I knew you were going to be here so I made the effort!";
            janeMenuOn = false;
            StoryText.storyTextOn = true;
            StoryText.currentText = "Jane asked me why I was dressed like that and I replied it
was because I new she was going to be there and I made the effort.";
            GameObject.FindWithTag("MainCamera").audio.clip = clip1;
            GameObject.FindWithTag("MainCamera").audio.Play();
        }

        if (GUI.Button (Rect (windowRect.width * 0.21, windowRect.height * 0.4, windowRect.width *
0.1, windowRect.width * 0.1), embarrassedTexture)) {
            janeCam.enabled = false;
            mainCam.enabled = true;
            GameObject.FindWithTag("Player").transform.Translate(0, 0, -1);
            DialoguesOnOff.zoom = false;
            myBubble = true;
            myAnswer = "I know, what was I thinking!";
            janeMenuOn = false;
            StoryText.storyTextOn = true;
            StoryText.currentText = "Jane asked me why I was dressed like that and I was quite
embarrassed, I said I didn't know what I was thinking!";
            GameObject.FindWithTag("MainCamera").audio.clip = clip2;
            GameObject.FindWithTag("MainCamera").audio.Play();
        }

        ...

        GUI.Label (Rect (windowRect.width * 0.03, windowRect.height * 0.777, windowRect.width * 0.2,
windowRect.width * 0.13), "Dislike");

```



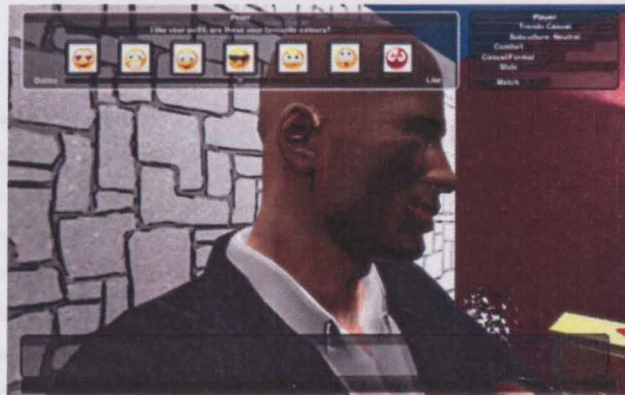
```

janeSlider = GUI.HorizontalSlider (Rect (windowRect.width * 0.1, windowRect.height * 0.8,
windowRect.width * 0.8, windowRect.width * 0.13), janeSlider, 1, 10);

GUI.Label (Rect (windowRect.width * 0.925, windowRect.height * 0.777, windowRect.width *
0.2, windowRect.width * 0.13), "Like");
}

```

The close-up cameras were added in order to enhance the dramatic impact of the dialogues and to offer a clearer view of each character the avatar is talking to. A sliding bar is also offered in order for the player to give an indication of how much she likes each character and their clothes, in a scale that varies from 'Dislike', which has a value of 0 (zero), to 'Like', which has a value of 10 (ten). This factor, which can be otherwise described as the visual impression of each character on the player, affects the 'Match' attribute of the character, which measures how 'compatible' or alike in terms of dress the character is to the player's avatar (illustration 155).



155. Peter

The speech bubble appears on-screen as soon as the player gives an answer and the isometric camera resumes. The speech bubble contains the player's reply and it fades away after a few seconds (illustration 156).



156. The dialogue bubble

The game's score system adds up the attributes of all clothes and accessories that the avatar is wearing to deduce a unique style score for the player. The following code gives the shirt its attributes. It is of the categories 'Top', 'Casual', and 'No subculture'. It falls 5 between 1 and 10 for casual/formal, meaning it is neither in particular. It is a 6 in a comfort scale from 1 to 10, which means that it is only moderately comfortable. Its colour is 'White', it has a pattern (denoted by the boolean `pattern = true`), it is made of 'Cotton', its shape is described as 'I', it is a 'Spring/Summer' item, and in a scale between 1 and 10 for soft and stiff, it is a 3, and therefore quite soft. This approach of fashion as textual descriptions is influenced by the work of Barthes (2006 [1967]). Significantly, however, what in Barthes remained an approximation of linguistic with social codes becomes in a hyper-modernity, which has as its medium the video and computer game, a concrete equation of programming with social codes. What is written in Javascript is deemed to find its parallel in the societal language of individuation and conformity that are both 'spelt out' as well as concealed underneath existing discourses.

```
static var kind : String = "Top";
static var fashion : String = "Casual";
static var subculture : String = "None";
static var casualFormal : int = 5;
static var comfortScale : int = 6;
static var colour : String = "White"; // aesthetics
static var pattern : boolean = true; // aesthetics
static var print : boolean = false; // aesthetics
static var material : String = "Cotton"; // aesthetics
static var shape : String = "I"; // aesthetics
static var season : String = "Spring/Summer";
static var softStiff : int = 3;
```

Similarly, the attributes of the trousers are as follows:

```
static var kind : String = "Top";
static var fashion : String = "Casual";
static var subculture : String = "None";
static var casualFormal : int = 5;
static var comfortScale : int = 6;
static var colour : String = "White"; // aesthetics
static var pattern : boolean = true; // aesthetics
static var print : boolean = false; // aesthetics
static var material : String = "Cotton"; // aesthetics
static var shape : String = "I"; // aesthetics
static var season : String = "Spring/Summer";
static var softStiff : int = 3;
```


Likewise, the shoes, make-up, and hairstyle attributes are also given in the scripts attached to the items. These are the overall attributes of the avatar, as derive from the combined shirt, trousers, shoes, make-up, and hairstyle attributes. In this example, the overall style of the avatar is 'Trendy Casual', 'Neutral', as the avatar does not belong in a particular subculture, 7 in terms of comfort (quite comfortable), 3 in terms of casual/formal (quite casual), and very tasteful (10 for aesthetics). The simulational and representational cues have to be in harmony in order for the signs of the two not to be contradictory. For example, the 'casual/formal' attribute cannot be as low as 3 if the character is wearing a formal suit.

```
static var playerOverallFashion : String = "Trendy Casual";
static var playerOverallSubculture : String = "Neutral";
static var playerOverallComfortScale : int = 7;
static var playerOverallCasualFormal : int = 3;
static var playerAesthetics : int = 10;
static var playerCompatibility : float = 1.0;

function Start () {
    if (GameObject.FindWithTag("Top").renderer.enabled == true) {
        if (FCas_Shirt3Attributes.kind == FCasPant3Attributes.kind) {
            // decrease match
        }
    }
}
```

The Living Room

A dialogue is introduced here as the avatar describes to the flatmate/friend the events that took place at the café. Every time the avatar approaches and faces the character, an aural and a visual indication of the events that took place prior is presented (illustration 157). The flat-mate will then reply in a variety of ways, one of them being paraphrasing, or even quoting, a fashion theorist on something they said or wrote, which is of course relevant to the avatar's experience. The purpose of this is to give the player reflective peer feedback and evaluation of the social interactions that took place in the café, in the office, and at other social places. This feedback is given in a humorous, albeit appropriate rhetorical manner. When the flat mate pontificates in a mock-ironical fashion about a philosophy of dress, the player is reminded of the game's conceptual reference, while exposed to the very fallacy of theorising dress codes. The discrepancy between social dictates and programming language, as well as between subjective language and (pre)structured narrative becomes apparent here.



157. The living room

In the following script, there are four available sentences/subjects when addressing the flatmate, accompanied by sound clips:

```
var mainCam : Camera;
var jessiCam : Camera;
var clip1 : AudioClip;
...
var clipNo : int = 0;

function Start() {
    mainCam.enabled = true;
    jessiCam.enabled = false;
}

function Update() {
    var hit : RaycastHit;
    if (Physics.Raycast (transform.position, transform.forward, hit, 2)) {
        if(hit.collider.gameObject.tag=="jessiCollider") {
            clipNo += 1;
            if (clipNo == 1)
                GameObject.FindWithTag("MainCamera").audio.clip = clip1;
            if (clipNo == 2)
                GameObject.FindWithTag("MainCamera").audio.clip = clip2;
            if (clipNo == 3)
                GameObject.FindWithTag("MainCamera").audio.clip = clip3;
            if (clipNo == 4)
                GameObject.FindWithTag("MainCamera").audio.clip = clip4;
            if (clipNo > 4)
                clipNo = 0;
            GameObject.FindWithTag("MainCamera").audio.Play();
        }
    }
}
```


The Office

The office is where the action will be interrupted for you.

Plaza
Tennis Court
Swimming Pool
Golf Course
Clubhouse
Bar
Bike
Rack

279

Part 3 – Evaluation and Discussion

During the focus group that was conducted at the American Intercontinental University in London, a second questionnaire was handed out to the same 22 fashion students (aged 17-23, among those 2 males and 20 females). The details of the questionnaire and the findings can be found in Appendix 2. After playing *DressCode*, the students were asked to complete this second questionnaire, which contained the questions: 'Does *DressCode* allow you to express your personality?'; 'Does *DressCode* allow you to perform your identity?'; 'Does *DressCode* allow you to perform the identity of the character?'; 'Do you think that the items included in *DressCode* are sufficient for the creation of a unique look?'; 'What do you think of the game's graphics (visuals)?'; 'What other features would you like to have seen in the game?'; 'Do you find *DressCode* interesting? Please justify your answer.'; 'Do you find *DressCode* fun? Please justify your answer.'; and 'Would you like to see more games like *DressCode*?'. The questions were designed this time to evaluate *DressCode* on a number of aspects. The same limitations apply here, namely that the focus group are a small sample of players (22), that most of them are females, aged 17-23, US or British citizens, and studying fashion.

After evaluation, the prototype appears to sufficiently satisfy many of the goals that it set out to fulfil. It successfully allows the players to express their personality (68%), to make their own decisions (68%), to express themselves through clothing and dialogue (68%), and to perform the identity of the avatar (73%) as well as their own identity (55%). The game offers freedom to switch between role-play (the avatar's identity) and identity play (play with own's self-identity), and the use of seduction to highlight positive, and downplay negative aspects of the player. Expression through choice of dress and dialogue was appreciated and enjoyed by most players. Crucially, most players confirmed that this is uncharted territory, and that I am only scratching the surface of what could become a new genre, or what could affect the games market.

Conversely, most players felt that, for a prototype which claims to offer great subjectivity, the actual affordances of the game were rather limited. The elements that I should be looking into amending or expanding, are the interaction with the other characters in order to make the responses more flexible; the inclusion of more options such as colours, garments, hairstyles, and make-up based on real trends. In addition, I am planning to include more environments, including nightclubs, a gym, and an outdoor setting. The characters should be animated and independent in their movement and actions, so the appropriate A.I. algorithms will have to be identified and employed in order to achieve this. The characters, in addition to the clothing and the scenery, should be developed more, and perhaps remodelled and retextured. The control scheme may have to be

amended in order to accommodate for the isometric view, which one of the players found confusing. I am considering implementing a point-and-click interface for desktop computers and a similar touch-based interface for mobile phones and tablets. Customisation options should be added for the interiors of the avatar's home, and for other lifestyle choices such as means of transportation, pets, and food. More importantly, a body customising module should be added, so that the players can select the exact body they want to use, including body measurements and skin colour; and a design module should be added so that players can create their own garments and accessories.

DressCode as Social Realism

Regardless of its shortcomings at this stage of its development, *DressCode* did accomplish what it set out to do, namely to present the player with a social realist model of the system of fashion. As such, *DressCode* offers an abstract model of how fashion actually manifests and operates in the real world, i.e. a model of the Baudrillardian socio-economic code. As such, it revolves around the promiscuous consumption of products for the construction of the image of the self. It is a game of consumption for social success.

Dress in the fashion game becomes two things: a visual representation of dress and a numerical and textual simulation of dress. Both the simulational and the representational virtual identity of the player are constructed in this way simultaneously through *syndesis*. The avatar is a representation, and at the same time a simulacrum of the player.

In *DressCode*, the avatar becomes the medium of fashion. The signs of the body of the avatar blend with the signs of the dress of the avatar. The body is partitioned into regions that can be covered with articles of different kinds, and which signify different things. It is dependant on a network of social relations, personal activities, and various cultural ideologies, through subcultures and other social and class groups. The avatar in this context is a blank canvas, no less as the avatar's body is modelled separately to any clothing, and exists in its own merit. The clothes surround the polygon body as they would a physical body and what is more, they have "physical" properties such as a comfort factor. The Flügelian duality of modesty/immodesty in dress (1950 [1930]) is thus present, and as the avatar has an actual body underneath the clothing, the latter conceals or reveals parts of the body, which evoke social consequences. Fashion, in this case, lets the avatar play with models and binary oppositions. Even though Baudrillard (1993 [1976]) rightly insists that there is infinite differentiation, rupture, commutation and ambiguity of values in fashion,

in *DressCode* there is a system in place which, however elementary, is able to establish the relative success of combinations of articles for specific purposes. Various aspects of fashion, such as subcultures and fashion in a formalist sense, are used in the game: the player can choose articles of clothing that belong in a specific subculture, or a specific kind of dress for specific occasions.

The material of fashion in *DressCode* is the avatar's identity, sexuality, and status, as the expression of the player's self beyond the self's physical limitations. Baudrillard sees the body as a cultural artefact, as our relation to the body reflects our relation to things and social interactions (1993 [1976]). By extension, the player's relation to the avatar reflects the player's relation to non-player characters and social events in the game, and the avatar is intimately involved in the production of signs in the economic and sociological system of the game.

The fashion game is about social discourse in the hyper-society. The player co-authors his or her identity as the avatar with the game's real or A.I. driven community. The prototype remained a single-player off-line game, where the community is simulated. However, on-line capabilities will later be attached to it to enhance and expand gameplay with the inclusion of more avatars played by human players over a local network or the Internet. The avatar is driven towards accomplishing tasks through the player's preferences and at the same time through social pressure, i.e. through subjectivity and discourse. Dress and narrative construct avatarial identity based on the avatar's image in the virtual social world and the complex sociological forces in that world. Of course in the game these complex sociological forces are simulated, rather than represented, as a model, as an abstraction. As Barthes (2006 [1967]), Baudrillard (1993 [1976]), and Lipovetski (1987) have established, dressing is based on personal choice, which is however mediated by society. The avatar is dressed based on the personal choice of the player, but there are pressures for conformity from several social groups, depending on each scenario. The player is able to conceal or enhance the avatar's physical attributes, as well as assume social status, by consuming virtual products. The construction of an image through consumption is a fundamental aspect of the game. Objects surround the avatar and construct its image. The avatar then becomes an object, which engages in competition with other characters by means of image. The player constructs identity through this act of consumption in order for the avatar to land a better job or to belong to a higher social circle; the identity of the avatar is plastic, and it changes according to what it wears.

In this context, the avatar is treated as a social body which has status and sexuality. Foucault's theories on fashion and power come into play in this respect, as in post-structuralist feminist theory, gender is not ascribed to persons, but is a property of societal behaviours that carry certain meaning, and it is therefore a textual discourse that can be performed (Allen, 2005). The

experiences, values, and history of the avatar are formed through the thought processes, perceptions and values of the player. The avatars image is consistent with what other characters perceive in the avatar's body, and how they respond to it. The player has to negotiate with the game's fashion system and social conditions and norms. There is social pressure for a particular kind of appearance in different social situations. The player is rewarded for the avatar being liked by the other characters. Combinations of revelation and concealment may be used to excite and stimulate, and even embarrass if not used suitably.

The avatar is the medium of expression of the player, and it is mediated by the virtual culture that the network of non-player characters forms. The game puts pressure on the player to choose the right outfit for each occasion, and depending on the aesthetic characteristics of the avatar. The physical and the social aspects of the body, as well as the constraints the latter is subjected to by the former, are exploited. The restricted medium of the body is mediated by the social pressure applied to it by the game's scenarios, the non-player characters, and the social clusters formed by them.

As there is no absolute or defined victory or defeat in the game, the player's efforts are rewarded with new affordances, i.e. more clothing, accessories, in-game currency, acquaintances and places. There is no winning or losing in this game as such, however there are certain indicators of relative success or failure relative to the player's direction, preferences and choices. At worst, the avatar may be socially embarrassed, for example, by being dressed in an inappropriate way for a specific occasion. At best, the avatar, having made relatively appropriate choices for certain events, may enjoy the acquaintance of new friends, higher popularity and recognition, a better job, better income, and consequently more dress choices. This akin to 'real' social existence, where there are usually no clear winners or losers, but rather only survivors of the socio-economic code. This is also the best way to put the fashion system in the context of a social-realist simulation.

DressCode as the Performance of Identity

As argued in the first chapter, the identity of the player is constructed on two levels, namely the simulational and the representational. The simulation of the game becomes a secondary simulation in the player's mind, through the onscreen representation (and the representation of agency by means of a control device). There is, in other words, bi-directional simulational semiosis through representation. In this sense, the player's emotional investment in the avatar takes place by means of two kinds of emotions: world emotions (being/representation) and game emotions (doing/simulation). The experienced narrative through entity autobiography is mainly simulational,

as sets of numbers and attributes (Calleja, 2009: 5) The art, i.e. the representation of the avatarial dress, in this case, is secondary, but still important. The player's body schema changes to incorporate the geometry and movement of the avatarial dress (Biocca, 1997: 23), which increases self-presence, and subsequently cognitive performance and emotional development. The body schema is the interpretation in the player's mind of the representational semiotic layer of the game. Dress, in this context, affects the player's identity both as a group of visual signs, but also as a set of numerical attributes and behaviours. The player's identity is the result of the syndesis of the simulation and the representation of the avatarial dress and the avatar's social interactions.

Goffman's concept of identity as contextual and performative through the dramaturgic metaphor of 'masks' (1990 [1959]: 30), as well as Baudrillard's notion of fashion as performative theatrical sociality (1993: 94), in which the objective production of meaning takes place through the play of simulation and combinatory innovation, are central to the game, which is essentially about communication through dress. The player is given certain variety in terms of colour, shape, and other styling factors, and this allows the semiotics of the avatarial dress to sustain sufficient embodiment and identification. The change of the appearance of the avatar is constant in order for gameplay to progress, and as a permanent preoccupation of the player. The identity which emerges for each avatar is the result of personal choice and scrutiny from society. This means that the game features articles which can be combined in order to produce meaning, which affects the game's advancement by means of dramatic social interaction.

Identity through dress in the fashion game is subject to Sutton-Smith's rhetorics of the self and of play as identity, which encompass personal and social identity formation. The body as the vehicle of identity progressively defined by social situations is both the property of the avatar and the virtual social world. Dress through player choice is the link between the player's identity, the avatar's identity, and social belonging in the virtual world. The identities of player and avatar gain new dimensions through being and acting in a virtual social world, and by wearing virtual clothing. The virtual *habitus*, as formed by conditions of class grouping, plays its role by reflecting and evaluating the player's dress choices for the avatar. The avatar's appearance is in this sense a practical negotiation between the game's scenarios, the non-player characters, and the individual style of the avatar which is gradually formulated via a personal history system, based on prior player choices. The player's personal preferences with regards to dress are in constant dialogue and negotiation with the game's 'social' system, which imposes specific kinds of article combinations for the avatar, based on the aforementioned character history.

The avatar is completely open, which means that it does not have a predetermined appearance or identity. Instead, the avatar is developed over time and freely customised by the player. Unlike

other current on-line or off-line games, the appearance of the avatar is changed freely at any point in the game. The avatar's personality is kept undefined so that the player can project her personality on it. The avatar in this sense is a cursor, a flat character, at least originally, as it becomes increasingly deep and rounded progressively, through player choices. Each player assumes a unique identity through the avatar, as two different games will rarely result in the same text. This kind of individuality lets the player establish his or her own unique presence in the game. The numerical description and development of the avatar's set of features helps the player find out who the avatar is, and develop it further, according to his or her preferences. Personality styles influence the progress of the game in different ways, as the player may develop the avatar to suit his or her personality and playing style. The avatar becomes the ideal other, i.e. who the player aspires to be. As per Lacan's mirror stage theory (2007 [1949]), the player identifies with it by means of similarity and difference. The player develops an identity for the avatar, and in doing so, the player's identity is also affected. The avatar is the embodiment of the player's actions and experiences. It develops over time in the game by means of enhanced attributes and new items, i.e. the game's internal system of fashion and consumerism, and becomes the embodiment of the player's experience of playing the game. These enhancements and new items work as an extension of the game's semiotic structures in that they expand the avatar's abilities so that it can cope with increasingly difficult scenarios.

DressCode demands a narcissistic attempt by the player to dress the avatar's sexuality, to feminise or masculinise, in order to develop a body image and to construct a unique self. The player is looking in the mirror, while being the centre of the world, the centre of the social network. The player is the producer of the on-screen image, and is the spectator watching from a distance but also at the same time the avatar itself. Identification, voyeurism and fetishism partake in the game equally, in their cybernetic form. The viewer/producer takes on an active role and co-authors the narrative, while identifying with the avatar. The notion of agency blurs the line between voyeurism and narcissism. In terms of fetishism, the spectator adopts a masculine subject-position. The fashion game is about the player's narcissism, but also about the player's gaze.

In a final reflective comment, I will claim that the game positively *transforms the identity of the player*. The player performs facets of her real identity, as the avatar mediates and feeds back the construction of the player's emergent identity during gameplay. The player dresses the avatar in order to project a particular image for the accomplishment of specific tasks set by the game or the player herself, but also in an attempt to develop a virtual identity for its own sake, and the two overlap and merge, but also conflict, in unexpected ways.

Conclusion

Between the avatar and the player, there is a primordial connection, and the one is the reflection of the other. In the length of this research, I approached this premise looking at the fields of psychology and sociology, and then at medium-specific literature. My original question: 'How does avatarial dress affect the identity of the player while playing a video game?' was addressed by utilising varying but compatible models of identity construction in virtual environments, such as the theory proposed by Waggoner, who believes that performing actions in a video game impacts on identity formation due to internal self-reflection and assessment; by Gee, who situates projective identity between the player and the avatar, thereby affecting both; and by Abrams, who confirms that games affect identity in a predictive performance based on the game's affordances. I was particularly taken by Biocca's belief that the alterations of the body schema of the player cause changes to her identity, an assertion that informs my idea about self-reflection through the avatar and its dress. On the other hand, such medium-specific theories were further supported by postmodern psychoanalytical and sociological views on identity performance, such as Butler's *performativity* theory, which point out that identity is affected by social expectations. I realised that in the performance of the player by means of the avatar, it must be the interface which is of utmost importance in the player being affected by the game, which lead me to the formulation of my own theory of identity construction in virtual worlds: two phenomena occurring in parallel, the simulational and the representational, both affecting identity separately but also in combination, their combinatory strength deciding how meaningful a game is and how much it can change the player's life experience. Drawn together in *syndesis*, the two ontologies transform the player's real identity, as the autobiography of the avatar progressively emerges within the interactive experience. Subjectivity equals freedom of choice, and choice forms the player's identity. Of course, the identity that emerges for each avatar is the result of personal choice and scrutiny from society, and the player's body schema transforms to incorporate these changes: the player's identity is equally affected by what the avatar is wearing. Goffman's concept of identity as contextual dramaturgic performance and Baudrillard's notion of fashion as performative theatrical sociality affirm this thesis, as communication through dress in the "real" world affects the identity of the player in a process of reconfiguration and adaptation. The same is true in a virtual world, where the player's personal preferences negotiate with the world's "social" system. As a result, the player assumes and develops a unique identity for the avatar, and through identification with it by means of similarity and difference, akin to the process in Lacan's original mirror stage theory, her own identity is formed.

As I wanted to draw my conclusions both from theory and practice, I used a constructivist methodology, merging research and design into an ongoing hermeneutic circle, where the research informed the design decisions, and the design evaluated the theoretical assumptions. Within this scheme, I created *DressCode* as both test ground for my theoretical speculations and a self-contained artistic project, as a study in designing and developing a game that would utilise dress as its main gameplay factor. This way, I would be able to establish whether dress could work as a game mechanic, another question posed at the beginning of the research, which serves as a supportive consideration for the main research question. I therefore set up the theoretical frame, in the course of this research, in order to produce a video game whose gameplay mechanics would be solely based on social performance through dress: a simulated fashion system, an abstract and limited model of 'real-world' fashion. I achieved this by attaching semiology to programming, as I considered communication through social performance by means of appearance *textual*: cultural forces simulated in the game, such as peer pressure, gender dynamics, and psychological motivations such as narcissism, can all be read as texts. From a sociological point of view, *DressCode* constitutes a testing ground for the function of dress, fashion, and social interaction through motivation for success and social affluence. Influenced by Galloway's view on social realism in games, I used programming code in this context to produce rhetorical content, what Noah Wardrip-Fruin terms *expressive processing* and Ian Bogost calls *unit operations*.

In *DressCode*, I explored the notion of dress as a limited theatrical *performance* within a ludic simulation. The objective was to examine how *emergent autobiography*, which gradually becomes identity, is constructed through dress and fashion: a text, a reading of the world, develops into social reality through play. In her performance in the social environment, the player of *DressCode* creates a unique identity for the avatar through consumption. The game in this sense can be seen as a simulation of the consumption of signs, and of fashion as social standing, as described in Baudrillard's work regarding the socio-economic code. The derived social-realist outlook poses a solution to the issue of objectification in video games, by achieving the expression of meaning within a combination and manipulation of signs. One of my findings is that subjectivity through dress within the fashion system, which of course implies the making of relative choices and the subjective performance of body and dress, is paradoxically only possible within the objectification imposed on the consumer. It is this very conflict between the personal and the social that makes *DressCode* fun to play, which brings me to the conclusion that satisfactory and enjoyable gameplay can indeed be supported by use of dress. We can indeed deploy the choice of attire, as a consequential gameplay mechanic, from which and through which players can derive enjoyment, engagement and edification – even though *DressCode* as a product is very much an early prototype which only provides a glimpse of the possibilities contained in such an endeavour.

Future Development

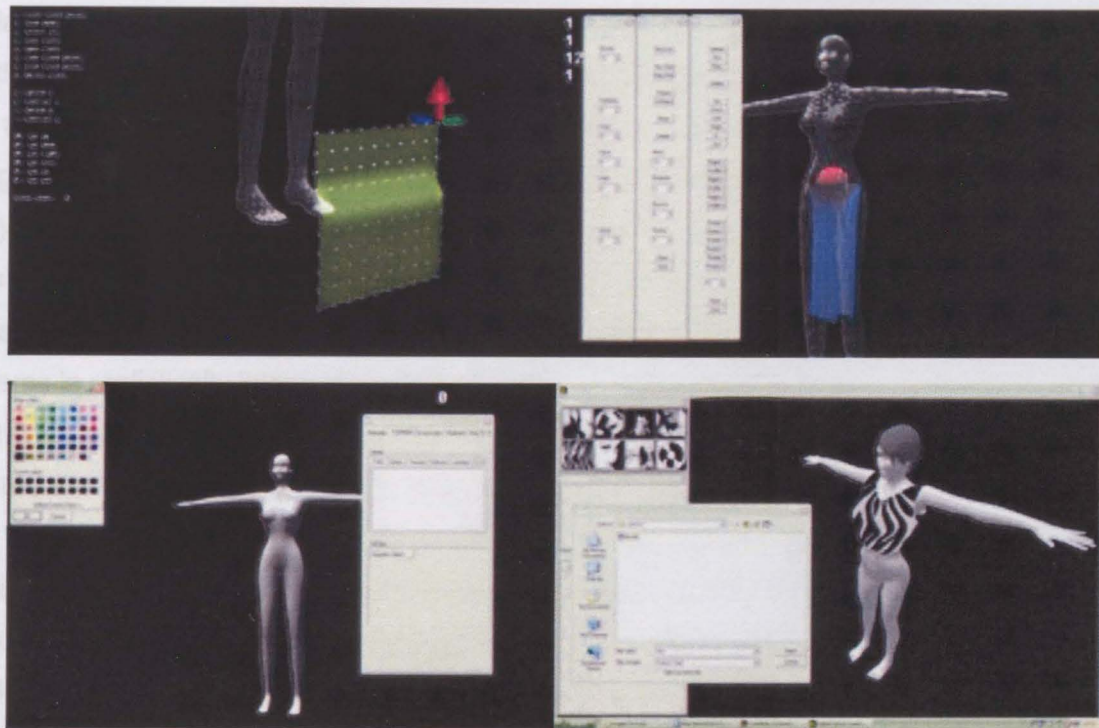
In the years of developing *DressCode*, my personal game design skills were also in development. As a result, towards the end of my PhD study, I was employed by the National Film and Television School to support the students of the Games Design and Development MA course in designing and implementing their ideas. While I consider this a professional achievement on its own, an opportunity is given to me now to fully develop and publish *DressCode*, having access to the appropriate resources and expertise, as well as plenty of support from my colleagues. Set design, animation, scripting, directing, music composition, motion capture and sound recording for the game can all be carried out in-house. I am also now in a position where I can seek the help of industry leaders more easily. Among the people I am planning to approach is Paulina Bozek, BAFTA award-winning creator of the *SingStar* franchise, and founder of Inensu, a company that makes social applications for phones, which revolve around music and fashion. Among Inensu's projects is *Closet Swap*, an application for the iPhone that allows people to connect and exchange clothes. It will be interesting to hear Bozek's recommendations on the commercial development and publishing of *DressCode*. Another person whose input may be valuable is Owen Daly Jones of Playable Games, a company that carries out game usability testing. Daly Jones' resources and expertise will allow me to test the theories developed in this research by using large demographics and advanced usability tests in order to identify the players' responses to the gameplay of *DressCode*. Both Bozek and Daly Jones are on the advisory committee of the NFTS games course.

Other developments involve the inclusion of more content. High fashion, in the form of iconic spectacular pieces of clothing created by famous couturiers, has not been featured in video games at all to date. In *DressCode*, however, whose gameplay depends on dress directly, high fashion would be an interesting inclusion. Expansions that will account for futuristic or historic costume, as well as localised fashion from different regions, may also be implemented in the future. The inclusion of downloadable content for the game on existing fashion websites could also be arranged with companies such as net-à-porter.com and asos.com. The opportunity arises for brands to include proprietary content for the game, and to thus use the game as advertising and promotion platform, a notion that has existed in the past under the name 'advergaming', but which has never been utilised to a great extent in the field of fashion. More environments will also be included: a hair-dressing salon will be developed so that the player could change the hairstyle and hair colour of the avatar. As presented earlier in this chapter, the hair of the avatar is included in the formula that calculates the overall look and style of the avatar. Interiors, transportation, pets, food, and other lifestyle choices will be looked at. More scenarios will be produced, covering many possibilities and spanning a wide variety of stories, dealing with all aspects of life, social and

professional, such as for example scenarios on the erotic attraction between characters. I am currently in discussion with several screenwriters at NFTS in order to start producing these scenarios and the scripts that will support them.

A software application that will facilitate the creation of garments originally for *DressCode*, but subsequently for all real-time applications by persons with expertise in fashion rather than in digital design is also scheduled to be produced. The software will mainly address the video game, virtual worlds, and virtual reality industries but it will also have the appropriate capabilities to be used by the fashion design, visualisation and marketing industries. This software will include features such as a library of base garments that can be modified to create unique designs; a library of accessories – more accessories may be created in modeling packages such as *Maya* and *Rhino* and imported; a material and texture library and editor; customisation of fabrics with prints and other decorations; a physics engine that will deal with cloth simulation inside the design environment as well as in conjunction with the host game engines; precise editing tools that will facilitate the creation of intricate designs, such as cutting and stitching tools; the ability to apply buttons, zips, and other support and decoration, to garments; the ability to import and export geometry; the ability to create animations and catwalks; and the ability to render 2D stills and animations for pre-visualisation purposes. I have already produced a prototype called *Wardrobe* in order to explore the possibilities of such software. This prototype features a library of mannequins, which can be customised in terms of skin tone and body decorations such as tattoos and piercings; a library of hairstyles, currently made of polygons, whose colour and the way they are affected by lights can be selected; a library of garments; pre-built garments like tops, skirts, and trousers, can be combined to create a style – materials and colours can be customised; a library of accessories – shoes, bags, and hats, among other accessories, can be used to complete the style; materials and colours can be customised, as with the garments; a library of materials and textures, which will be used to personalise everything in the scene, i.e. mannequin, hair, garments, accessories, and scenery; a library of make-up presets to further modify the mannequins; a library of sceneries, which can be customised with materials and lighting; settings and palettes for the detailed customisation of the library assets; a built-in physics engine that could support real-time cloth simulation, given the right plug-in – at the time of creation of the software, cloth simulation was only supported on rectangular pieces of geometry; precise navigation controls around the mannequin; features for importing geometry built in modeling packages, for use as garments, accessories, or part of the scenery; and features for saving projects on the local hard drive, for later loading and further manipulation or demonstration. The parameters established by this applied research through the creation of the *Wardrobe* prototype offer an example of a good graphical user interface structure, which could influence the creation of subsequent attempts at avatar styling modules. The technological challenges faced in the production of such software is a

factor to be reckoned, as the realistic inclusion of cloth simulation on individual clothing items can be extremely difficult in real-time contexts, particularly as clothing is currently not considered a priority in video games. However, things are changing fast, and there are many practical applications for such technologies, many of which commercial. The use of virtual catwalks and advergames for the promotion of fashion brands is an obvious use, as is the enhancement of video gameplay.



159. First, second, third, and final software prototype

3D models of clothes are mainly arrays of vertices, i.e. Cartesian positions in 3D space, defined in relation to each other, and they can therefore be included and calculated in the spatial simulation of games. There are three main approaches to cloth modelling: the *geometric*, the *energy-based*, and the *physical* (Babic, 1999). Most cloth simulations work on the principle of particles calculated with Newtonian physics and held together by spring systems. The geometric technique, pioneered by Jerry Weil, a scientist and visual effects artist in the Hollywood film industry, in 1986, is based on treating cloth as a collection of cables and using hyperbolic cosine curves to approximate real-life behaviour. As it is only an effective approximation, it is not suitable for dynamic models, but only for the creation of still renders. In the second, energy-based method, the energy interactions of the particles are used to determine the cloth's shape. This last energy-based technique is more versatile as the behaviour of the cloth can be determined by dynamics provided within a game engine (Babic, 1999). The final, physical technique, treats cloth like a grid work of particles connected to one another with springs. This physical model accounts for stretch (tension), stiffness, and weight. The principle of mechanical equilibrium (all particles seek lowest energy) is

then applied to the cloth particles system in order to calculate the position and the shape of the cloth. This is the most common method used in video games in technologies such as APEX Clothing belonging in the larger NVidia APEX framework of video game technologies. Current games use soft body physics for particle effects, liquids and cloth. Middleware physics engines such as Ageia's *PhysX* and Havok's *Havok Physics* are today incorporated in most games. These physics engines, combined with hardware such as Playstation 3, Xbox 360, and current PC graphics cards by Nvidia and ATI, offer great capabilities for effects, including cloth and hair simulation. Of particular interest is that, through the use of such physics engines, every object, including hair and clothing, can have real material properties. Most modern commercial software uses the physical model to simulate cloth as a cluster of vertices or particles held together by springs. However, Nadia Magnenat Thalmann and Pascal Volino (MIRALab, University of Geneva, 1996), two pioneers in the field of cloth and hair simulation, have demonstrated that there are alternative techniques for recreating digital garments, which allow for the realistic interpretation of garment panels and the attributes of fabrics within these panels (1996: 208). The two main problems in realistically interpreting clothes digitally appear to be the motion of the cloth on its own, and the collision of the cloth with the body and with itself. Thalmann and Volino claim to have invented a way of simulating cloth 'in any situation that may be encountered in real life' (1996: 211). Within their system, the cloth is represented as a set of fabric panels, which behave like pieces of real fabric under any circumstances. Outside this system, garments are usually considered to be groups of regular triangle meshes held together by seams, their movement being calculated with simple, mechanical methods, as part of the minimal and smooth movements of the body. Hair simulation is an equally challenging area of realistic human representation, as thousands of individual hairs, as well as the collisions of the hairs with other objects, such as a head or a jacket, have to be calculated simultaneously (Thalmann & Volino, 1996: 221). Thalmann's and Volino's cloth and hair simulation techniques appear to not have been used in any graphics engine or software package even though they sound very promising. I am planning to enquire about the availability and compatibility of Thalmann's and Volino's solution with a view to including it in future iterations of *DressCode* and *Wardrobe*.



160-161. APEX and Thalman & Volino's work

The commercial uses of a piece of software like *DressCode* are numerous: for one thing, I am planning to publish the game as an online social experience, both PC browser-based and on mobile phones and tablets (Android, iPhone and iPad). For another, I will be developing a version for fashion education, which may be used to teach fashion students how the fashion system works through play. Games have strong educational capacity, precisely due to their rhetorical nature: through play, the student absorbs the educational content of a game by negotiating with its network of choices and reactions. As Bogost points out, videogames are microcosms of the material world, which stimulate its actual dynamics in a behaviourist fashion. Playing games has therefore the same effect as does learning in the material world, i.e. through reinforcement of repeat behaviour, to which the player/learner adapts (Bogost, 2007: 236): 'Through engagement with the game, players learn to reflect on the natural or artificial design of systems in the material world' (Bogost, 2007: 240). More than this, I hope that this research will draw some attention to problems associated with the dress of characters, and enhance social realism in the medium in general. What led me to write on game character dress was the realisation that it has not yet received sufficient attention by game developers and publishers, and I am hoping that this will gradually change, particularly helped by research such as the present study. Having a fashion theory and design background helped me to observe the subject of this study from a different point of view to that of the typical video game scholar or practitioner, and I believe that the adoption of interdisciplinary approaches by the industry and academia of games, through the inclusion of more people like myself, will enrich the medium and give it more power.

This research has taken nearly seven years to complete, including one year's time that I was offered for the opportunity to resubmit. Particularly in this last year of work, the research has developed immensely, as did my personal skills as a game developer and a theorist. In this time, the position of the present research in the current academic discussions of video games has become even more relevant than before, as the medium still lacks the academic and cultural

validity it so desperately seeks, despite its technological progress within this period. Dress, but also avatar and character representation in general, has only marginally improved and the practical outcome of this research is now more than ever a viable paradigm for the solution of such a discrepancy. The medium's potency as a cultural artefact with a political dimension has been disregarded for too long, and even though the present research approaches this aspect as it applies to the characters, the same logic could be applied equally to other aspects of games, such as storytelling, architecture, product design, and music composition.

I am hoping that the industry of video games will start taking serious note of attempts like these at making the medium meaningful, significant and relevant in today's troubled socio-politico-economic reality. I do not of course expect the entirety of the market to change, nor do I wish that. There is a purpose to most kinds of entertainment, and shallow fantasy-oriented triple-A action titles do have a place in many people's lives, including mine. I do, however, expect a larger genre of games as meaningful arts-, humanities-, or science-oriented interactive experiences to form, in order to unlock and take full advantage of the medium's *real* capabilities. I also expect a larger and stronger independent scene in games development to form, similar to the historical progression of film, which will go beyond targeting mobile phone users with pleasant yet devoid of meaning puzzle games. At the moment, we are still lacking in empirical evidence on audience reactions and demands, beyond sales figures. Therefore, research into the experiential dimension of games must be carried out, informed by the literature of games, which is still very limited but thankfully expanding at impressive rates, and also helped by the more extensive and established literature of film, and other media remediated in games. Film discourse is still more respected by the industry, and game studies are still too new to have similar acceptance, although publications like *Kill Screen* and online initiatives like *Game Studies* (gamestudies.org) and *Digiplay* (digiplay.info) offer a critical reflection of the state of the industry by its insiders and makers, in a similar fashion to what *Cahiers du Cinéma* has done for film for more than half a century. Indeed, there is a historical parallel to be drawn between film studies/film-making and game studies/game development. The former pair has been informing each other for much longer, and yet some of its original curiosities deriving from its very form still puzzle. *DressCode* was used as an illustration of such peculiarities of the video game medium, but also the shortcomings of the ones who are in charge of (re) producing it. Nintendo recently had its first ever loss in 30 years¹, partially initiated by the popularity of mobile phones and by a strong yen, but also due to low software sales, which are in my view caused by the company's insistence on clones of *Mario* and *Zelda*: how many will one want to play, even if they are considered to be paradigmatic by the critics? Nintendo is not alone. The same is true for Sega and its countless *Sonic* versions, Square Enix and its numerous *Final Fantasy* iterations, EA and its annual sports editions. History has taught us that lack of innovation

¹ £400m in the nine months to 31 December 2011, according to BBC News (2012)

and diversification lead to the eventual disinterest of the public and thus to financial losses. Video game market crashes have happened before: in 1977, the market crashed due to an abundance of poor *Pong* clones, before it was resurrected by Taito's *Space Invaders* in 1978; the same happened in 1983, again due to the publishing of too many poorly implemented clones, such the Atari 2600 version of *Pac-Man*, and poor film franchise adaptations like *E.T. the Extra-Terrestrial* (Atari, 1983). The question here is, will the industry start looking at the accumulating academic evidence of the things that they do wrong before this happens again?

Adams, M., 2005. *First Person*. New Media as Story, Performance, and Game. Cambridge, MA: The MIT Press.

Aarseth, E., 2007. Doors and Perception: Fiction vs. Simulation in Games. *Intermediality: History and Theory of the Arts, Literature and Technologies*, 9, pp. 35-44.

Abrams, B. S., 2011. Association Through Action: Identity Development in Real and Virtual Video Game Environments. *National Society for the Study of Education*, Volume 110, Issue 1, pp. 220-243.

Ackerman, D., 1989. *Deep Play*. New York: Random House.

Adam, M., 2001. Visual pleasure in textual places: Gazing in multi-user object-oriented worlds. In: Adam, A., Green, E. eds. *Virtual Gender: Technology, Consumption and Identity*. London: Routledge.

Adams, E., Rollings, A., 2006. *Andrew Rollings and Ernest Adams on Game Design*. New Jersey: New Riders Games.

Allen, A., 2005. Dependency, subordination, and recognition: On Judith Butler's theory of subjection. *Continental Philosophy Review*, 38, pp. 3-4.

Allen, A., 2005. *Feminist Perspectives on Power*. [online]. Available at: <http://plato.stanford.edu/entries/feminist-power/> [Accessed 24 March 2010].

Anonim, M., Trumbore, B., Chagnon, P. L., 2000. Cognitive Repositioning Inside a Desktop VE: The Constraints Introduced by First-versus Third-Person Imagery and Mental Representation. *Richman*. In: *Presence: Teleoperators and Virtual Environments*, April 2000, Vol. 9, No. 2, 165-166, pp. 165-189.

Andersen, P. B., 1988. Semiotics and information: computers as media. In: *Information Technology And Information Use, toward a united view of information and information technology*, 64-87. London: Taylor Graham Publishing.

Andersen, P. B., Holmquist, B., Jensen, J., P. eds., 2007. *The Computer as Medium: Learning in Doing: Social, Cognitive and Computational Perspectives*. Cambridge: Cambridge University Press.

Bibliography

- Aarseth, E., 1997. *Cybertext: Perspectives on Ergodic Literature*. Baltimore: The John Hopkins University Press.
- Aarseth, E., 2004. *Genre Trouble*. In: Harrigan, P., Wardrip-Fruin, N. eds., 2006. *First Person: New Media as Story, Performance, and Game*. Cambridge, MA: The MIT Press.
- Aarseth, E., 2007. Doors and Perception: Fiction vs. Simulation in Games. *Intermediality: History and Theory of the Arts, Literature and Technologies*, 9, pp.35-44.
- Abrams, S. S., 2011. Association Through Action: Identity Development in Real and Virtual Video Game Environments. *National Society for the Study of Education*, Volume 110, Issue 1, pp.220–243.
- Ackerman, D., 1999. *Deep Play*. New York: Random House.
- Adam, M., 2001. Visual pleasure in textual places: Gazing in multi-user object-oriented worlds. In: Adam, A., Green, E. eds. *Virtual Gender: Technology, Consumption and Identity*. London: Routledge.
- Adams, E., Rollings, A., 2006. *Andrew Rollings and Ernest Adams on Game Design*. New Jersey: New Riders Games.
- Allen, A., 2005. Dependency, subordination, and recognition: On Judith Butler's theory of subjection. *Continental Philosophy Review*, 38, pp.3-4.
- Allen, A., 2005. *Feminist Perspectives on Power*, [online], Available at: <http://plato.stanford.edu/entries/feminist-power/> [Accessed 24 March 2010].
- Amorim, M., Trumbore, B., Chogyen, P. L., 2000, Cognitive Repositioning inside a Desktop VE: The Constraints Introduced by First-versus Third-Person Imagery and Mental Representation Richness. In: *Presence: Teleoperators and Virtual Environments*, April 2000, Vol. 9, No. 2, 165-186; pp.165-186.
- Andersen, P. B., 1986. Semiotics and informatics: computers as media. In: *Information Technology and Information Use, toward a unified view of information and information technology*, 64-97. London: Taylor Graham Publishing.
- Andersen, P., B., Holmqvist, B., Jensen, J., F. eds., 2007. *The Computer as Medium (Learning in Doing: Social, Cognitive and Computational Perspectives)*. Cambridge: Cambridge University Press.

- Aristotle, 1997. *Poetics*. London: Penguin Classics.
- Atkins, B., 2003. *More than a Game: The Computer Game as Fictional Form*. Manchester: Manchester University Press.
- Badiou, A., 2007. *Being and Event*. London: Continuum.
- Bainbridge, W. S., 2009. *Online Worlds: Convergence of the Real and the Virtual*. New York: Springer.
- Barsalou, L. W., 1992. *Cognitive Psychology: An Overview for Cognitive Scientists*. London: Lawrence Erlbaum Associates.
- Barthes, R., 1977. *Elements of Semiology*. New York: Hill and Wang.
- Barthes, R., 1990. *The Fashion System*. Berkeley: University of California Press.
- Barthes, R., 2006. *The Language of Fashion*. Oxford: Berg.
- Bartky, S. L., 1990. *Femininity and Domination: Studies in the Phenomenology of Oppression*. London: Routledge.
- Bartle, R., 2003. *Designing Virtual Worlds*. Berkeley: Peachpit Press.
- Bartle, R., 2012. Players Who Suit MUDs. [online] Available at: <http://www.mud.co.uk/richard/hcds.htm>. [Accessed 15 January 2012]
- Baudrillard, J., 1981. *For a Critique of the Political Economy of the Sign*. New York: Telos Press.
- Baudrillard, J., 1983. *Simulations*. Cambridge, MA: The MIT Press.
- Baudrillard, J., 1993. Fashion: The Enchanting Spectacle of the Code. In M. Barnard, ed. *Fashion Theory: A Reader*. Abingdon: Routledge.
- Baudrillard, J., 1993. *Symbolic Exchange and Death*. London: Sage Publications.
- Baudrillard, J., 1994. *Simulacra and Simulation*. Ann Arbor: University of Michigan Press.
- Baudrillard, J., 1998. *The Consumer Society: Myths and Structures*. London: Sage Publications.
- Baudrillard, J., 1999. *Fatal Strategies*. London: Pluto Press.
- Baudrillard, J., 2001. *Jean Baudrillard: Selected Writings*. Oxford: Polity.
- Baudrillard, J., 2002. *Jean Baudrillard: Selected Writings*. 2nd edition. California: Stanford University Press.
- Baudrillard, J., 2002. *Screened Out*. Brooklyn: Verso.
- Baudrillard, J., 2005. *The System of Objects*. Brooklyn: Verso.

- Baudrillard, J., 2009. *The Transparency of Evil: Essays on Extreme Phenomena*. Brooklyn: Verso.
- Bauman, Z., 1998. *Culture as Praxis*. London: Sage Publications
- Bauman, Z., 2000. *Liquid Modernity*. Cambridge: Polity.
- Bauman, Z., 2007. *Consuming Life*. Cambridge: Polity.
- Bauman, Z., 2007. *Liquid Times: Living in an Age of Uncertainty*. Cambridge: Polity.
- Bauman, Z., 1988. *Freedom*, Milton Keynes: Open University Press.
- BBC News, 2012. Nintendo Posts Losses on Strong Yen and Falling Sales. [online] Available at: <http://www.bbc.co.uk/news/business-16737858>. [Accessed 25 February 2012].
- Beasley, B., 2002. Shirts vs. Skins: Clothing as an Indicator of Gender Role Stereotyping in Video Games. *Mass Communication & Society*, 2002, 5(3), pp.279-293.
- Beatty, B., 2006. *The Currency of Heroic Fantasy: The Lord of the Rings and Harry Potter from Ideology to Industry*. P.h. D. Massey University.
- Becker, B., Mark, G., 1999. Constructing Social Systems through Computer-Mediated Communication. *Virtual Reality Society Journal*, pp.60-73.
- Belk, R. ed., 2006. *Research in Consumer Behavior, Volume 10*. Bradford: Emerald Group Publishing.
- Bell, D., Kennedy, M., 2007. *The Cybercultures Reader*. London: Routledge.
- Bergler, E., 1987. *Fashion and the Unconscious*. Madison: International Universities Press.
- Biocca, F., 1997. The Cyborg's Dilemma: Embodiment in Virtual Environments. *Cognitive Technology, 1997: Humanizing the Information Age*, Aizu-Wakamatsu City, Japan, 25-28 Aug 1997, pp.12-26
- Birdwhistell, R. L., 1970. *Kinesics and Context: Essays on Body Motion Communication*. Philadelphia: University of Pennsylvania Press.
- Blackwell, M., 2012. Vigigames – Cultural Hegemony Through the Use of the Monomyth. [online] Available at: <http://www.vigigames.com/?p=277>. [Accessed 18 February 2012].
- Blumer, H., 2005. Fashion: From Class Differentiation to Collective Selection. *Sociological Quarterly* – Wiley Online Library. [online] Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1533-8525.1969.tb01292.x/pdf>. [Accessed 16 January 2012].
- Boellstorff, T., 2010. *Coming of Age in Second Life: An Anthropologist Explores the Virtually Human*. Princeton: Princeton University Press.

- Boeree, G., 2006. *Carl Jung* [online]. Available at: <http://webpace.ship.edu/cgboer/jung.html> [Accessed: 3/6/2006]
- Bogatyrev, P., 1971. *Functions of Folk Costume in Moravian Slovakia (Approaches to Semiotics [As])*. Berlin: Mouton de Gruyter.
- Bogost, I., 2008. *Unit Operations: An Approach to Videogame Criticism*. Cambridge, MA: The MIT Press.
- Bogost, I., 2010. *Persuasive Games: The Expressive Power of Videogames*. Cambridge, MA: The MIT Press.
- Bolter, J.D., Grusin, R., 2000. *Remediation: Understanding New Media*. Cambridge, MA: The MIT Press.
- Bordwell, D., 2006. *The Way Hollywood Tells It : Story and Style in Modern Movies*. California: University of California Press.
- Bourdieu, P., 2005. *The Social Structures of the Economy*. London: Polity.
- Bovone, L., , 1998. The Circularity of Production and Consumption, or the Reflexivity of Fashion. In: Malossi, G., ed. *The Style Engine*. New York: The Monacelli Press, 92-97.
- Brand, J., Knight, S., 2005, *The Narrative and Ludic Nexus in Computer Games: Diverse Worlds II*, [online], Available at: http://works.bepress.com/jeff_brand/7 [Accessed 14 June 2008].
- Bruzzi, S., 1997. *Undressing Cinema*. London: Routledge.
- Bryce, J., & Rutter, J. (2007). Poca diversión: Las barreras de las aficionados a los videojuegos/Not much fun: The constraining of female video gamers. *ADOZ Journal of Leisure Studies*, 31. 97-108.
- Bryce, J., Rutter, J. ed., 2006. *Understanding Digital Games*. London: Sage Publications.
- Burke, K., 1969. *A Rhetoric of Motives*. California: University of California Press.
- Burn, A., 2006. Playing Roles. In: Carr, D., ed., *Computer Games: Text, Narrative and Play*. London: Polity.
- Butler, J., 1990. *Gender Trouble: Feminism and the Subversion of Identity*. London: Routledge
- Butler, J., 1993. *Bodies That Matter: On the Discursive Limits of "Sex"*. London: Routledge.
- Butler, J., 1997. *Excitable Speech: A Politics of the Performative*. London: Routledge.
- Butler, J., 2004. *Undoing Gender*. London: Routledge.

- Caillois, R., 2001. *Man, Play and Games* (1st edition 1958). Champaign: University of Illinois Press.
- Calefato, P., 2004. *The Clothed Body*. Oxford: Berg Publishing.
- Calleja, G., 2009. Experiential Narrative in Game Environments. DiGRA 2009: *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. Brunel University, London, UK, 2009.
- Calleja, G., 2011. *In-Game: From Immersion to Incorporation*. Cambridge, MA: The MIT Press.
- Campbell, J., 1988. *The Hero with a Thousand Faces*. 2nd ed. London: Paladin.
- Cannon, L., 2012. Gay and Lesbian Video Game Characters: LGBT Themes In Modern Games. [online] Available at: <http://hubpages.com/hub/Gay-and-Lesbian-Video-Game-Characters-LGBT-Themes-In-Modern-Games>. [Accessed 15 January 2012].
- Carnegie, D., Easterly, D., Harper, D., 2009. Evolution and Digital Game Studies. In: *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. London: Brunel University, September, 2009. DIGRA [online].
- Carter, L., 1973. *Imaginary Worlds*. New York: Ballantine Books.
- Carter, M., *Fashion Theory: The Journal of Dress, Body & Culture*, Volume 7, Number 1, 1 March 2003, pp.79-101(23). Oxford: Berg Publishers.
- Cassell, J., Jenkins, H., 1998. Chess for Girls? Feminism and Computer Games. In J. Cassell, H. Jenkins, ed. 1998. *From Barbie to Mortal Kombat: Gender and Computer Games*. Cambridge, MA: MIT Press.
- Castronova, E., 2001. Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier, *The Gruter Institute Working Papers on Law, Economics, and Evolutionary Biology*: Vol. 2: Article 1. <http://www.bepress.com/giwp/default/vol2/iss1/art1>.
- Castronova, E., 2005. *Synthetic Worlds: The Business and Culture of Online Games*. Chicago: University Of Chicago Press.
- Castronova, E., 2007. *Exodus to the Virtual World: How Online Fun Is Changing Reality*. New York: Palgrave Macmillan.
- Chambers, J., 2005. The Sponsored Avatar: Examining the Present Reality and Future Possibilities of Advertising in Digital Games, *Changing Views: Worlds in Play*, 2005 International Conference. Available for DIGRA.
- Chatman, S., 1989. *Story and Discourse : Narrative Structure in Fiction and Film*. New York: Cornell University Press.

Chee, F., Vieta, M., Smith, R., 2006. Online gaming and the interactional self: Identity interplay in situated practice. In Williams, J. P., Hendricks, S. Q., Winkler, W. K., Eds., *Gaming as Culture: Essays on Reality, Identity, and Experience in Fantasy Games*. Jefferson, NC: McFarland Publishing.

Childs, M., 2011. Identity: A Primer. In: Childs, M., Peachey, A. eds, *Reinventing Ourselves: Contemporary Concepts of Identity in Virtual Worlds*. New York: Springer.

Childs, M., Peachey, A., 2011. Virtual Worlds and Identity. In: Childs, M., Peachey, A. eds, *Reinventing Ourselves: Contemporary Concepts of Identity in Virtual Worlds*. New York: Springer.

Clarke, A., Mitchell, G., 2000. Playing with Film Language. In: Coulter-Smith, G., ed. *The Visual-Narrative Matrix*. Southampton: Southampton Institute of Higher Education, pp.85-89.

Community, identity and digital games Moore, K., Hand, M., 2006. In: J. Rutter, J. Bryce. *Understanding Digital Games*. London: Sage, pp.166-182.

Conway, S., 1996. Plato, Aristotle, and Mimesis. [online] Available at: www.subverbis.com/essays/mimesis.rtf. [Accessed 21 February 2012].

Craik, J., 2009. *Fashion: The Key Concepts*. Berg Publishers.

Crawford, C., 2003. *Chris Crawford on Game Design*. New Jersey: New Riders Games.

Crawford, C., 2008. Deikto: A Language for Interactive Storytelling. [online] Available at: <http://www.electronicbookreview.com/thread/firstperson/algorithmic>. [Accessed 12 February 2012].

Crick, T., 2010. The Game Body: Toward a Phenomenology of Contemporary Video Gaming, *Games and Culture* 2011, 6, p.259.

Croghan, P., 2007. Remembering (Forgetting) Baudrillard, *Games and Culture*, 2, p.405.

Crowther, W., 1976. Colossal Cave Adventure. [online] Available at: <http://jerz.setonhill.edu/if/crowther/>. [Accessed 15 January 2012].

Csikszentmihalyi, M., 1990. *Flow: The Psychology of Optimal Experience*. New York: Harper & Row.

Csikszentmihalyi, M., 1990. *Flow: The Psychology of Optimal Experience*. New York: Harper and Row.

Csikszentmihalyi, M., 1998. *Finding Flow: The Psychology of Engagement With Everyday Life*. New York: Basic Books.

Cuddy, L., ed., 2008. *The Legend of Zelda and Philosophy*. Chicago: Open Court.

- Cutting Edge Women's Research Group, 2000. *Digital Desire: Language, Identity and New Technologies*. London: I. B. Tauris.
- D'Aloia, A., 2009. Adamant Bodies. The Avatar-Body and the Problem of Autoempathy, 2009 AISS - *Associazione Italiana di Studi Semiotici* T. reg. Trib. di Palermo n. 2 - 17.1.2005.
- Daelemans, W., De Smedt, K., 1991. *International Journal of Human-Computer Studies*, 41, pp. 149-177.
- Daelemans, W., et al, 1994. Default Inheritance in an Object-Oriented Representation of Linguistic Categories. *International Journal of Human-Computer Studies*, 1994, 41, pp.149-177.
- Darley, A., 2000. *Visual Digital Culture*. London: Routledge.
- Davis, F., 1994. *Fashion, Culture, and Identity*. Chicago: University Of Chicago Press.
- De Castell, S., Jenson, J., 2007. *Worlds in Play: International Perspectives on Digital Games Research*. New York: Peter Lang Publishing.
- De Matos, X., 2009. Gay Video Game Characters Coming Out of the Closet – Asylum.com. [online] Available at: <http://www.asylum.com/2009/12/07/gay-video-game-characters-coming-out-of-the-closet/>. [Accessed 15 January 2012].
- De Mul, J., 2005. Games Telling Stories. In: R. Joost, ed. *Handbook of Computer Game Studies*. Cambridge, MA: MIT Press.
- De Mul, J., 2005. The Game of Life: Narrative and Ludic Identity Formation in Computer Games. In R. Joost, ed. *Handbook of Computer Game Studies*. Cambridge, MA: MIT Press.
- De Saussure, F., 1995. *Course in General Linguistics*. London: Duckworth.
- Delong, M., 1998. *The Way We Look: Dress And Aesthetics*. New York: Fairchild Publications.
- Derrida, J., 2001. RC Series Bundle: *Writing and Difference*. London: Routledge.
- Diederik, J., 2010. The Obscenity of Gender Theory: Baudrillard's Masculinities – Culture, Society and Masculinities. [online] Available at: <http://periodicals.faqs.org/201004/2089624601.html>. [Accessed 31 January 2012].
- Dietz, T. L. (1998). An examination of violence and gender role portrayals in video games: Implications for gender socialization and aggressive behavior. *Sex Roles*, 38, pp.425–442.
- Di Paola, S., Turner, J. O., 2008. Authoring the Intimate Self: Identity, Expression and Role-playing within a Pioneering Virtual Community. *Loading...*, Volume 2, 3, 2008.
- Dittmar, H., 1992, *The Social Psychology of Material Possessions: To Have is to Be*. Hemel Hempstead: Harvester Wheatsheaf.

Rusch, D., 2007. Mechanisms of the Soul – Tackling the Human Condition in Videogames. [online] Available at: <http://www.digra.org/dl/db/09287.01371.pdf>. [Accessed 12 February 2012].

Dovey, J., Kennedy, H., 2006. *Game Cultures: Computer Games as New Media*. London: Open University Press.

Dow, S., Mateas, M., Sali, S., & Wardrip-Fruin, N., 2009. Agency Reconsidered. In: *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. London: Brunel University, September, 2009.

DUNNIWAY, T., 2000, using the hero's journey in games [online]. Available: http://www.gamasutra.com/features/20001127/dunni-way_01.htm [Accessed 5/5/2009].

Dworkin, A., 1974. *Woman Hating*. New York: Plume.

Easterly, D., et al., 2009. Evolution and Digital Game Studies. DiGRA 2009: *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. Brunel University, London, UK, 2009.

Eco, U., 1976. *A Theory of Semiotics (Advances in Semiotics)*. Bloomington: Indiana University Press.

Edwards, T., 1997. *Men in the Mirror: Men's Fashion, Masculinity and Consumer Fashion (Sexual Politics)*. London: Cassell.

Elliot, R., 1997. Existential consumption and irrational desire. *European Journal of Marketing*, 31, pp.285-296.

Elliott, R., Wattanasuwan, K., 1998. Consumption and the Symbolic Project of the Self, *European Advances in Consumer Research*, 3, pp.17–20. [online] Available at: <http://www.acrwebsite.org/volumes/display.asp?id=11147>. [Accessed 15 January 2012].

Entertainment Software Association, 2005. Essential Facts about the Computer and Video Game Industry [Online]. Available at: <http://www.theesa.com/files/2005EssentialFacts.pdf> [Accessed: 7/3/2006]

Entertainment Software Association, 2011. Essential Facts about the Computer and Video Game Industry. [online] Available at: http://www.theesa.com/facts/pdfs/ESA_EF_2011.pdf. [Accessed 15 January 2012].

Entertainment Software Association, 2011. Sales, Demographic and Usage Data – Essential Facts About the Computer and Video Game Industry.

Entwistle, J., 2000. *The Fashioned Body: Fashion, Dress and Modern Social Theory*. London: Polity.

- Entwistle, J., Wilson, E., 2001. *Body Dressing*. Oxford: Berg Publishing.
- Ernest Adams, 2009. *Fundamentals of Game Design*. Indianapolis: New Riders Press.
- Eskelinen, M., 2001. *The Gaming Situation*. [online] Available at: <http://www.gamestudies.org/0101/eskelinen/>. [Accessed 26 January 2012].
- Eskelinen, M., 2004. *Towards Computer Game Studies*. [online] Available at: <http://www.electronicbookreview.com/thread/firstperson/anticolonial>. [Accessed 26 January 2012].
- Evans, S., 2011. The Self and Second Life: A Case Study Exploring the Emergence of Virtual Selves. In: Childs, M., Peachey, A. eds, *Reinventing Ourselves: Contemporary Concepts of Identity in Virtual Worlds*. New York: Springer.
- Fahey, M., 2009. How Not To Address Homosexuality In Gaming. [online] Available at: <http://kotaku.com/5232808/how-not-to-address-homosexuality-in-gaming>. [Accessed 15 January 2012].
- Ferri, G., 2007. Narrating machines and interactive matrices: a semiotic common ground for game studies. DiGRA 2007: *Situated Play*. Brunel University, London, UK, 2007.
- Ferri, G., 2009. Interpretive Cooperation and Procedurality. A Dialogue between Semiotics and Procedural Criticism. EIC, Special Number, *Computer Games Between Text and Practice*.
- Filiciak, M., 2003. Hyperidentities. In M. Wolf, ed. *Videogame Theory Reader*. London: Routledge.
- Flanagan, M., Booth, A., 2002. *Reload: Rethinking Women and Cyberculture*. Cambridge, MA: The MIT Press.
- Flügel, J.C., 1950. *The Psychology of Clothes* (1st edition 1930). Richmond, Hogarth Press.
- Foucault, M., 1998. *The History of Sexuality Vol. 1: The Will to Knowledge*. London: Penguin.
- Frasca, G., 2003. Ludology.org. [online]. Available at: <http://www.ludology.com> [Accessed 08/09/2006].
- Frasca, G., 2003. Simulation versus Narrative: Introduction to Ludology. In: Wolf, M., 2003. *The Video Game Theory Reader*. London: Routledge, pp.221-236.
- Frasca, G., 2007. Videogames of the Oppressed. [online] Available at: <http://www.ludology.org/articles/thesis/siminterpretation.html>. [Accessed 15 January 2012].
- Freeman, B., 1991. *Staging the Gaze*. New York: Cornell University Press.
- Freud, S., 1991. On Narcissism: An Introduction (1st edition 1914). New Haven: Yale University Press.

- Frome, J., 2007. Eight Ways Videogames Generate Emotion. DiGRA 2007: *Situated Play*. Brunel University, London, UK, 2007.
- Fuss, D., 1995. *Identification Papers: Readings on Psychoanalysis, Sexuality, and Culture*. London: Routledge.
- Gabriel, Y. and T. Lang (1995), *The Unmanageable Consumer: Contemporary Consumption and its Fragmentations*. London: SAGE Publications.
- Gaines, J. M., Herzog, C., 1990. *Fabrications: Costume and the Female Body*. London: Routledge.
- Gallelli, R., Fanelli, R. D., 2010. Game and Narration. Identity Formation and Identity De-Construction. *International Journal for Cross-Disciplinary Subjects in Education*, Volume 1, Issue 2, June 2010.
- Galloway, A., 2004. Game Studies – Social Realism in Gaming. [online] Available at: <http://www.gamestudies.org/0401/galloway/>. [Accessed 15 January 2012].
- Garvey, C., 1977. *Play*. London: Open Books.
- Gee, J. P., 2004. *What Video Games Have to Teach Us About Learning and Literacy*. New York: Palgrave Macmillan.
- Gee, J. P., 2007. *What Video Games Have to Teach Us About Learning and Literacy*. London: Palgrave Macmillan.
- Gee, J. P., 2008. *Video Games and Embodiment*, Games and Culture, 3, p.253.
- Geiger, R. S., 2006. A Critical Analysis of Identity Liberation in Virtual Gaming Communities. [online] Available at: <http://www.stuartgeiger.com/portfolio/papers/liberation.pdf>. [Accessed 22 February 2012].
- Gibson, W., 1995. *Neuromancer*. Edition. New York: Voyager.
- Giddens, A., 1991. *Modernity and Self-Identity*. Cambridge: Polity.
- Giddens, A., 1991. *The Consequences of Modernity*. Palo Alto: Stanford University Press.
- Giddens, A., 1993. *Sociology*. Cambridge: Polity Press.
- Glover, J., 1988. *I: The Philosophy and Psychology of Personal Identity*. London: Penguin.
- Goffman, E., 1971. *Relations in Public: Microstudies of the Public Order*. New York: Basic Books.
- Goffman, E., 1990. *The Presentation of Self in Everyday Life*. London: Penguin.
- Gollwitzer, P. M., Wicklund, R. A., 1982. *Symbolic Self Completion*. London: Routledge.

- Green, E., Adam, A., ed., 2001. *Virtual Gender: Technology, Consumption and Identity Matters*. London: Routledge.
- Grimes, S., 2003. "You Shoot Like A Girl!": The Female Protagonist in Action-Adventure Video Games. *Level Up!*. 2003 Digital Games Research Association Conference, Utrecht, The Netherlands: University of Utrecht.
- Grodal, T., 2009. *Embodied Visions: Evolution, Emotion, Culture, and Film*. New York: Oxford University Press.
- Gunkel, D., 2010, The Real Problem: Avatars, Metaphysics and Online Social Interaction. *New Media & Society*, February 2010, 12: pp.127-141.
- Hall, S., 1997. *Representation: Cultural Representations and Signifying Practices*. London: Sage Publications.
- Haraway, D., 1990. *Simians, Cyborgs, and Women: The Reinvention of Nature*. London: Routledge.
- Harland, R., 1987. *Superstructuralism: The Philosophy of Structuralism and Post-Structuralism*. London: Routledge.
- Hayles, K., 1999. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago: University of Chicago Press.
- Hedgpeth, K., Missal, S., 2005. *Exploring Character Design*. London: Delmar Learning.
- Hellard, P., 2007. Stam on Maya's nCloth. *CGSociety* [online]. Available at: http://features.cgsociety.org/story_custom.php?story_id=4026&page=1. [Accessed: 13/5/2007].
- Hemphill, C. S., Suk, J., 2009. The Law, Culture, and Economics of Fashion. *Stanford Law Review*, Vol. 61, March 2009.
- Henttonen., T., 2008. Exploring Virtual Worlds: Key Success Factors In Virtual World Marketing. [online] Available at: <http://www.stratmark.fi/wp-content/uploads/2008/03/Tuomas%20Henttonen%20-%20Exploring%20Virtual%20Worlds%20-%20Key%20Success%20Factors%20in%20Virtual%20World%20Marketing.pdf>. [Accessed 01 September 2011].
- Highland, M., 2006. Simulation and Identity in Video Games. [online] Available at: <http://www.michaelhighland.com/timeline/sim.pdf>. [Accessed 22 February 2012].
- Hollander, A., 1993. *Seeing Through Clothes*. London: University of California Press.
- Holmboe, C., 2005. *The Linguistics of Object-Oriented Design*, Annual Joint Conference Integrating Technology into Computer Science Education, 37, 3, pp.188-192.

- Holopainen, J., & Meyers, S., 2000. Neuropsychology & Game Design. [online] Available at: <http://stephan.com/NeuroBio.html>. [Accessed 15 January 2012].
- Horney, K., 2002. *Neurosis and Human Growth: The Struggle Toward Self-Realization*. New York: W.W. Norton and Company.
- Huber, W., 2005. Fictive Affinities in Final Fantasy XI: Complicit and Critical Play in Fantastic Nations. [online] *DIGRA*. Available at: <http://www.digra.org/dl/db/06278.41524.pdf>. [Accessed 23 March 2006].
- Huh, S., Williams, D., 2010. Dude Looks Like a Lady: Gender Swapping in an Online Game. *Online Worlds: Convergence of the Real and the Virtual*, 2010, pp.161-174.
- Huizinga, J., 1971. *Homo Ludens: A Study of the Play-Element in Culture*. Boston: Beacon Press.
- Hutchinson, R., 2007. Performing the Self: Subverting the Binary in Combat Games, Games and Culture. *Games and Culture*, October 2007, vol. 2, no. 4, pp.283-299.
- Indopedia, 2004. Žižek, S. [online] Available at: http://www.indopedia.org/Slavoj_Zizsek.html [Accessed 25 April 2009].
- Ivory, J., 2006. Still a Man's Game: Gender Representation in Online Reviews of Video Games. *Mass Communication and Society*, 9, pp.103-114.
- Jacobs, S., 2007. The Basics of Narrative. In: Bateman, C., ed, *Game Writing: Narrative Skills for Videogames*. Boston: Charles River Media, pp.25-42.
- Jameson, F., 1971. *Marxism and Form: Twentieth Century Dialectical Theories of Literature*. Princeton: Princeton University Press.
- Järvinen, A., 2008. Understanding Video Games as Emotional Experiences. In: Perron, B., Wold, M., eds. *The Video Game Theory Reader 2*. London: Routledge.
- Jeffreys, S., 2005. *Beauty and Misogyny: Harmful Cultural Practices in the West (Women and Psychology)*. London: Routledge.
- Jenkins, H., 2008. *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press.
- Jensen, K. B., 1995. *The Social Semiotics of Mass Communication*. London: Sage Publications.
- Johnson-Laird, P., 1988. *The Computer and the Mind*. London: Fontana Press.
- Johnson, S., 2005. *Everything Bad is Good for You*. London: Riverhead Books.

- Jørgensen, K., 2009. "I'm overburdened!" An Empirical Study of the Player, the Avatar, and the Gameworld. *DiGRA 2009: Breaking New Ground: Innovation in Games, Play, Practice and Theory*. Brunel University, London, UK, 2009.
- Jung, C. G., 1991 (first published 1934). *The Archetypes and the Collective Unconscious*. London: Routledge.
- Juul, J., 2002. The Open and the Closed: Games of Emergence and Games of Progression. In: F. Mäyrä, ed., *Computer Games and Digital Cultures Conference Proceedings*. Tampere: Tampere University Press, 2002, pp.323-329.
- Juul, J., 2005. *Half-Real: Video Games between Real Rules and Fictional Worlds*. Cambridge, MA: The MIT Press.
- Juul, J., 2005. *Half-Real*. Cambridge, MA: MIT Press.
- Kafai, Y. B., Fields, D. A., Cook, M., 2007. Your Second Selves: Avatar Designs and Identity Play in a Teen Virtual World. *DiGRA 2007: Situated Play*. Brunel University, London, UK, 2007.
- Kaiser, S. B., 1996. *The Social Psychology of Clothing: Symbolic Appearances in Context*. New York: Fairchild Publications.
- Kehily, M. J., 2009. What is Identity? A sociological Perspective. In: ESRC Seminar Series: *The educational and social impact of new technologies on young people in Britain*, 2 March 2009, London School of Economics, UK.
- Kennedy, T., Moore, R. J., Williams, D., 2011. Behind the Avatar: The Patterns, Practices, and Functions of Role Playing in MMOs. *Games and Culture*, May 7, 2010.
- Kilan, N., 2011. Bringing a Bikini to a Sword Fight - Xbox360 Feature at IGN . [online] Available at: http://uk.xbox360.ign.com/articles/114/1143136p1.html?_cmpid=ign18. [Accessed 15 January 2012].
- Kimppa, K., Muukkonen, P., 2007. Do Online Computer Games Affect the Player's Identity? [online] Available at: http://www.cs.kau.se/IFIP-summer-school/summer-school2009/IFIP2007POST/papers/S04_p3_Kai_Kimppa.pdf. [Accessed 22 February 2012].
- King, B., Borland, J., 2003. *Dungeons and Dreamers*. London: McGraw-Hill.
- King, G., 2006. *Tomb Raiders and Space Invaders: Videogame Forms and Contexts*. London: I. B. Tauris.
- King, G., Krzywinska, T., 2006. *Tomb Raiders and Space Invaders: Videogame Forms and Contexts*. London: I. B. Tauris.

- Kingsepp, E., 2007. Fighting Hyperreality With Hyperreality: History and Death in World War II Digital Games. *Games and Culture*, 2, p.366.
- Kirkpatrick, G., 2011. *Aesthetic Theory and the Video Game*. Manchester University Press, Manchester.
- Kittler, F., 1999. *Gramophone, Film, Typewriter*. California: Stanford University Press.
- Kivikangas, J. M., et al., 2010. Review on Psychophysiological Methods in Game Research. DiGRA 2010: *Innovation*. University of Stockholm, Sweden.
- Klevjer, R., 2006. What is the Avatar? – Fiction and Embodiment in Avatar-Based Singleplayer Computer Games. [online] Available at: http://folk.uib.no/smrk/docs/RuneKlevjer_What%20is%20the%20Avatar_finalprint.pdf. [Accessed 01 September 2011]
- Kolan, P., 2011. The Devolution of Character Designs – Xbox360 Feature at IGN. [online] Available at: http://uk.xbox360.ign.com/articles/117/1177659p1.html?_cmpid=ign40. [Accessed 15 January 2012].
- Kornai, A., 2010. *Mathematical Linguistics*. New York: Springer.
- Kostera, M., 2012. Warsaw Indefinite: The Poetics of The City. [online] Available at: <http://kociak.org/city.htm>. [Accessed 18 January 2012].
- Krawczyk, M., and Novak, J. 2006. *Game Story & Character Development*. Clifton Park, NY: Thompson Delmar Learning.
- Kress, G. R., Van Leeuwen, T., 2001. *Multimodal Discourse: The Modes and Media of Contemporary Communication*. New York: Oxford University Press.
- Kristopher, B., 1999. Cloth Modeling. [online] Available at: <http://davis.wpi.edu/~matt/courses/cloth/>. [Accessed 15 January 2012].
- Kromand, D., 2007. Avatar Categorization. DiGRA 2007: *Situated Play*. Brunel University, London, UK, 2007.
- Krzywinska, T., 2008. World Creation and Lore: World of Warcraft as Rich Text. In H. Corneliussen, J. Rettberg, ed., *Digital Culture, Play, and Identity – A world of Warcraft Reader*, pp.123-141.
- Kücklich, J., 2003. The Playability of Texts Vs The Readability of Games: Towards a Holistic Theory of Fictionality. In: Digital Games Research Conference 2003, 4-6 November 2003, University of Utrecht, The Netherlands.
- Lacan, J., 1949. The Mirror Stage as Formative of the Function of the I as Revealed in Psychoanalytic Experience, *16th International Congress of Psychoanalysis*, Zurich, July 17, 1949.

- Lacan, J., 1988. *The Seminar of Jacques Lacan: Book 2: The Ego in Freud's Theory and in the Technique of Psychoanalysis*. Cambridge: Cambridge University Press.
- Lacan, J., 1998. *The Four Fundamental Concepts of Psychoanalysis (The Seminar of Jacques Lacan, Book 11)*. New York: W. W. Norton & Company.
- Lacan, J., 2007. *Écrits*. New York: W. W. Norton & Company
- Lakoff, G., Johnson, M., 2003. *Metaphors We Live By*. Chicago: University Of Chicago Press.
- Lamb, W., Watson, E., 1979. *Body Code: The Meaning in Movement*. London: Routledge.
- Lankoski, P., 2011. *Character-Driven Game Design – A Design Approach and Its Foundations in Character Engagement*.
- Lash, S., Lury, C., 2007. *Global Culture Industry: The Mediation of Things*. Oxford: Polity.
- Laurel, B., 1993. *Computers as Theatre*. Boston: Addison-Wesley Professional.
- Lavallee, A., 2006. Now, Virtual Fashion. [online] *The Wall Street Journal*. Available at: http://online.wsj.com/public/article/SB115888412923570768-zVZuLNMf6YlpTXqtuGcTAWcrWY_20070925.html?mod=blogs [Accessed: 12/11/2007].
- Lawler, S., 2008. *Identity: Sociological Perspectives*. Oxford: Polity.
- Le Chevallier, M. 2012. *Vigilance 1.0*. [online] Available at: http://www.martinlechevallier.net/english/A_vigilance.html. [Accessed 22 January 2012].
- Lehdonvirta, V., et al., 2009. Virtual Consumerism: Case Habbo Hotel. *Information, Communication & Society*, Vol. 12, No. 7, pp.1059-1079.
- Lemert, E., 1997. *The Goffman Reader*. New Jersey: Wiley-Blackwell.
- Lessig, L., 2000. *Code and Other Laws of Cyberspace*. New York: Basic Books.
- Liao, C., 2011. Virtual Fashion Play as Embodied Identity Re/Assembling: Second Life Fashion Bloggers and Their Avatar Bodies. In: Childs, M., Peachey, A. eds, *Reinventing Ourselves: Contemporary Concepts of Identity in Virtual Worlds*. New York: Springer.
- Lindley, C. A., 2002. The Gameplay Gestalt, Narrative, and Interactive Storytelling. [online] Available at: <http://www.tii.se/zerogame/pdfs/CGDCIindley.pdf> [Accessed: 12/11/2007].
- Lindley, C. A., 2004. The Semiotics of Time Structure in Ludic Space As a Foundation for Analysis and Design. *The Game Design Research Symposium and Workshop*, Copenhagen, Denmark, 7-8th May 2004.

- Lipovetsky, G., 2002. *The Empire of Fashion: Dressing Modern Democracy*. Princeton: Princeton University Press.
- Lipovetsky, G., 2006. Art and Aesthetics in the Fashion Society. In: Brand, J., Teunissen, J., & Van Der Zwaag, A., eds. *The Power of Fashion: About Design and Meaning*. Houten: Lannoo Publishers.
- Llewelyn, G., 2004. Beginners Guide To Second Life – Second Life Wiki. [online] Available at: http://wiki.secondlife.com/wiki/User:Gwyneth_Llewelyn/Beginners_Guide_To_Second_Life. [Accessed 15 January 2012].
- Logas, H., 2004. Agency: A Character-Centric Approach to Single Player Digital Space Role Playing Games. M. Sc. Georgia Institute of Technology.
- Lorenz, E., 1995. *The Essence Of Chaos*. Boca Raton, FL: CRC Press.
- Malossi, G., 1998. *The Style Engine*. Edition. The Monacelli Press.
- Manovich, L., 2002. *The Language of New Media*. Cambridge, MA: The MIT Press.
- Marin, J., 2005. Virtually Visual: The Effects of Visual Technologies on Online Identification. DiGRA 2005: *Changing Views – Worlds in Play*. Brunel University, London, UK, 2005.
- Martey, R. M., Stromer-Galley, J., 2007. The Digital Dollhouse : Context and Social Norms in The Sims Online. *Games and Culture*, October 2007, vol. 2 no. 4, pp.314-334.
- Martin, J., 2005. Virtually Visual: The Effects of Visual Technologies on Online Identification. [online] DiGRA 2005: *Changing Views – Worlds in Play*. Brunel University, London, UK, 2005.
- Mateas M., Stern A., 2005. Build It to Understand It: Ludology Meets Narratology in Game Design Space. DiGRA 2005: *Changing Views – Worlds in Play*. Brunel University, London, UK, 2005.
- Mäyrä, F., 2010. Japanese Fantasy and the East-West Dialectic. In: E. Niskanen ed., *Imaginary Japan: Japanese Fantasy in Contemporary Popular Culture*. Turku: International Institute for Popular Culture, 2010.
- McCracken, G., 1990. *Culture and Consumption: New Approaches to the Symbolic Character of Consumer Goods and Activities*. Bloomington: Indiana University Press.
- McLuhan, M., 2003. *Understanding Media*. London: Routledge.
- Merleau-Ponty, M., 2002. *Phenomenology of Perception*. London: Routledge.
- Mertsalmi, J., 2010. Character Customization in Video Games as Symbolic Consumption – How Characters Are Customized. M.A. Aalto University.

- Metz, C., 1984. *Psychoanalysis & the Cinema (Language, Discourse, Society)*. London: Palgrave Macmillan.
- Metz, C., 1986. *The Imaginary Signifier: Psychoanalysis and the Cinema*. Bloomington: Indiana University Press
- Miller, M. K., Summers, A., 2007. Gender Differences in Video Game Characters' Roles, Appearances, and Attire as Portrayed in Video Game Magazines. In: *Sex Roles*, Volume 57, Numbers 9-10. New York: Springer, pp.733-742.
- Misztal, B., 2003. *Theories of Social Remembering*. New York: Open University Press.
- Morse, M., 1997. Virtually Female: Body and Code. In: Terry, J., Calvert, M., ed. *Processed Lives: Gender and Technology in Everyday Life*. New York: Routledge
- Mort, F., 1996. *Cultures of Consumption*. London: Routledge.
- Moulthrop, S., 1999. Misadventure: Future Fiction and the New Networks. *Style*, vol. 33, no. 2, pp. 184-203.
- Moulthrop, S., 2004. Response to *Genre Trouble*. In: Harrigan, P., Wardrip-Fruin, N. eds., 2006. *First Person: New Media as Story, Performance, and Game*. Cambridge, MA: The MIT Press
- Mulvey, L., 1989, *Visual and Other Pleasures*, London: Macmillan.
- Mulvey, L., 1999. Visual Pleasure and Narrative Cinema. In: L., Braudy, M., Cohen., eds. *Film Theory and Criticism : Introductory Readings*. New York: Oxford University Press, pp.833-844.
- Mulvey, L., 2006. *Death 24x a Second: Stillness and the Moving Image*. London: Reaktion Books.
- Murphy, S., 2004. 'Live in Your World, Play in Ours': The Spaces of Video Game Identity. *Journal of Visual Culture* August 2004, vol. 3, no. 2. London: Sage Publications, pp.223-238.
- Murray, J., 1997. *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Cambridge, MA: The MIT Press.
- Nagayama, R. S., Seyama, J., 2007. The Uncanny Valley: Effect of Realism on the Impression of Artificial Human Faces. *Presence: Teleoperators and Virtual Environments*, 16(4), pp.337-351.
- Neher, A., 1996. Jung's Theory of Archetypes: A Critique. *Journal of Humanistic Psychology*, Vol. 36, No. 2.
- Neitzel, B., 2005. Narrativity In Computer Games. J. Raessens, J. Goldstein, ed. *Handbook of Computer Game Studies*. Cambridge, MA: MIT Press.
- Neiva, E., Romano, C., 2007. The Semiotic Immersion of Video Games, Gaming Technology and Interactive Strategies. *The Public Journal of Semiotics* 1(2), July 2007, pp.31-49.

Nephew, M., 2006. Atlas Games Forum [online] Available at: <http://forum.atlas-games.com/memberlist.php?mode=viewprofile&u=2&sid=3433582a9a238663f42fb0a009b353f7>. [Accessed 18 February 2012].

Neustaedter, C., Fedorovskaya, E. A., 1999. Avatar Appearances and Representation of Self: Learning from Second Life, Biologically Inspired Cognitive Architectures II: *Papers from the AAAI Fall Symposium* (FS-09-01).

Newman, J., 2004. *Videogames*. London: Routledge.

Newman, J., 2008. *Playing with Videogames*. London: Routledge.

Ngai, A. C. Y., 2005. Cultural Influences on Video Games: Players' Preferences In Narrative and Game-Play. M.A.S. University of Waterloo.

Nielsen, B. H., 2010. Authored Narratives In Procedurally Generated Worlds. M.A. Aalborg University, Ballerup.

Oatley, K., 2004. *Emotions: A Brief History*. New Jersey: Wiley-Blackwell.

Orr, S., 2006. Beyond Content: The Emergence of Video Games and their Diverse Effects on Legal Normativity As Seen Through the Lens of Jean Baudrillard. *Canadian Journal of Law & Technology*, 5, pp.39-52.

Ortony, A., Clore, G. L., Collins, A., 1990. *The Cognitive Structure of Emotions*. Cambridge: Cambridge University Press.

Pearce, C., 1997. Beyond Shoot Your Friends. In: C. Dodsworth ed., *Digital Illusion*. New York: Addison-Wesley, p.209-228.

Pearce, C., 2002. Sims, BattleBots, Cellular Automata, God and Go: A Conversation with Will Wright, *Game Studies Journal*, Volume 2, Issue 1, July 2002.

Pearce, C., 2005. Towards a Game Theory of Game (Electronic Book Review) [online] Available at: <http://www.electronicbookreview.com/thread/firstperson/tamagotchi> [Accessed: 10/5/2006].

Pearce, C., 2006. Seeing and Being Seen: Presence & Play in Online Virtual Worlds. Online, Offline & The Concept of Presence. *When Games and VR Collide*. USC Institute for Creative Technologies, October 25-27 2006.

Pearce, C., 2006. Communities of Play: The Social Construction of Identity in Persistent Online Game Worlds. In Wardrip-Fruin, N., Harrigan, P., eds, *Second Person*. Cambridge, MA: MIT Press.

Pearce, C., et al., 2007. Playing Dress-Up: Costumes, role play and imagination. *Philosophy of Computer Games*, January 24-27.

- Peirce, C. S., 1991. *Peirce on Signs: Writings on Semiotic By Charles Sanders Peirce*. Chapel Hill: The University of North Carolina Press.
- Penn, G., 2005. *Edge*, June 2005. London: Future Publishing.
- Perron, B., Wolf, M., ed., 2008. *The Video Game Theory Reader 2*. London: Routledge.
- Pinchbeck, D., 2009. An Affordance Based Model for Gameplay. In: DiGRA 2009 - Breaking New Ground: Innovation in Games, Play, Practice and Theory, 1-4 September 2009, Brunel University, London.
- Plato. 360 BCE. *Sophist* – The Internet Classics Archive. [online] Available at: <http://classics.mit.edu/Plato/sophist.html>. [Accessed 15 January 2012].
- Poole, S., 1999. *Trigger Happy: The Inner Life of Videogames*. London: Fourth Estate.
- Radley, A., 1991. *The Body and Social Psychology*. New York: Springer.
- Raessens, J., 2006. Playful Identities, or the Ludification of Culture. In: *Games and Culture*, January 2006, vol. 1, no. 1. London: Sage Publications, pp.52-57.
- Ricœur, P., 1990. *Time and Narrative Volume 1*. Chicago: University of Chicago Press.
- Ricœur, P., 1990. *Time and Narrative Volume 2*. Chicago: University of Chicago Press.
- Ricœur, P., 1988. *Time and Narrative Volume 3*. Chicago: University of Chicago Press.
- Ricœur, P., 1991a, *A Ricœur Reader: Reflection and Imagination*, ed. Mario J. Valdes. Toronto: University of Toronto Press.
- Ricœur, P., 2007. *From Text to Action: Essays in Hermeneutics, II*. Evanston: Northwestern University Press.
- Ridley, M., 1994. *The Red Queen: Sex and the Evolution of Human Nature*. London: Penguin.
- Rilstone, A., Wallis, J. ed., 1994. *Inter*Action, The Journal of Role-Playing and Storytelling Systems*. Issue 1, August. London: Hogshead Publishing.
- Park, R. E., 1964. *Race and Culture*. New York: Free Press.
- Rollings, A., Adams, E., 2003. *Andrew Rollings and Ernest Adams on Game Design*. Indianapolis: New Riders Publishing.
- Rosen, P., 1986. *Narrative, Apparatus, Ideology: A Film Theory Reader*. New York: Columbia University Press.
- Rosencranz, M. L., 1972. *Clothing Concepts: A Social-Psychological Approach*. New York: Macmillan.

- Rusch, D., 2009. Mechanisms of the Soul – Tackling the Human Condition in Videogames. In: DiGRA 2009: *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. Brunel University, London, UK, 2009.
- Salazar, J., 2005. On the Ontology of MMORPG Beings: A Theoretical Model for Research. DiGRA 2005: *Changing Views – Worlds in Play*. Brunel University, London, UK, 2005.
- Salen, K., Zimmerman, E., 2003. *Rules of Play: Game Design Fundamentals*. Cambridge, MA: The MIT Press.
- Salen, K., Zimmerman, E. eds., 2004. *The Game Design Reader: A Rules of Play Anthology*. Cambridge, MA: The MIT Press.
- Sanford, K., Madill, L., 2007. I'm a warrior, I'm a monster – Who am I anyway? Shifting/Shaping Identity through Video Game Play. *Loading...*, Vol 1, No 1, 2007.
- Scharrer, E., 2004. Virtual Violence: Gender and Aggression in Video Game Advertisements. In *Mass Communication and Society*, 7, pp.393–412.
- Schott, G., 2005. Sex in Games: Representing and Desiring the Virtual. DiGRA 2005: *Changing Views – Worlds in Play*. Brunel University, London, UK, 2005.
- Schroeder, R. ed., 2002. *The Social Life of Avatars*. New York: Springer.
- Schuurink, E., Toet, A., 2010. Effects of Third Person Perspective on Affective Appraisal and Engagement: Findings From Second Life. In: *Simulation Gaming*, April 14, 2010.
- Second Life 2007. Available at: http://secondlife.com/showcase/sub_page.php?showcase_category=2&blog_category=2 [Accessed: 2/12/2007].
- Sengers, P., 2003. *Narrative Intelligence (Advances in Consciousness Research)*. Amsterdam: John Benjamins Publishing Company.
- Sermon, P., Gould, C., *All the world's a screen*. [online] Available at: <http://alltheworldsascreen.tumblr.com/post/2841051819/paul-sermon-and-charlotte-goulds-current-research-and>. [Accessed 27 January 2012].
- Simmel, G., 1904. *Fashion, International Quarterly*, 10, pp.130-155.
- Solomon, M. R., 1996. *Consumer Behavior*. London: Prentice-Hall International.
- Stapleton, A. J., 2005. Research as Design-Design as Research. DiGRA 2005: *Changing Views – Worlds in Play*. Brunel University, London, UK, 2005.
- Steele, V., 1996. *Fetish: Fashion, Sex & Power*. New York: Oxford University Press.

- Stone, A. R., 1995. *The War of Desire and Technology at the Close of the Mechanical Age*. Cambridge, MA: The MIT Press.
- Street, S., 2001. *Costume and Cinema*, London: Wallflower.
- Sung, L., 2009. *Sunday Musing: Homosexuality in Video Games* – Neoseeker News Article. [online] Available at: <http://www.neoseeker.com/news/11314-sunday-musing-homosexuality-in-video-games/>. [Accessed 15 January 2012].
- Sutton-Smith, B., 2001. *The Ambiguity of Play*. Harvard: Harvard University Press.
- Tanaka-Ishii, K., 2010. *Semiotics of Programming*. Cambridge: Cambridge University Press.
- Taylor, T. L., 1999, Life in Virtual Worlds: Plural Existence, Multimodalities, and Other Online Research Challenges. In: *American Behavioral Scientist*, Vol.43, No.3, November/December 1999. London: Sage Publications, pp.436-449.
- Taylor, T. L., 2002. Living Digitally: Embodiment in Virtual Worlds. In: R. Schroeder, ed., *The Social Life of Avatars: Presence and Interaction in Shared Virtual Environments*. London: Springer-Verlag.
- Taylor, T. L., 2003. Intentional Bodies: Virtual Environments and the Designers Who Shape Them. In: *International Journal of Engineering Education*, Vol. 19, No. 1, pp. 25-34.
- Thalmann, N. M., Volino, P., 1996. Sculpting, Clothing and Hairdressing our Virtual Humans, Thalmann, N. M., Volino, P. (ed) 1996, *Interactive Computer Animation*. London: Prentice Hall.
- Sebeok, T. A., 1991. *Biosemiotics: The Semiotic Web*. Berlin: Mouton De Gruyter.
- Thompson, J. B., 1995, *The Media and Modernity: A Social Theory of the Media*. Cambridge: Polity.
- Tomas, D., 1994. Cybernetics and Feedback: Reimagining the Body in the Age of the Cyborg. In: *Body and Society*, Vol. 1, pp.3-4.
- Tomczak, C., 2008. JsTetris / The JavaScript Source. [online] Available at: <http://javascript.internet.com/games/jstetris.html>. [Accessed 15 January 2012].
- Trasviña, F., 1998. Introduction to Object-Oriented JavaScript - MDN. [online] Available at: https://developer.mozilla.org/en/Introduction_to_Object-Oriented_JavaScript. [Accessed 15 January 2012].
- Tronstad, R., 2008. Character Identification in World of Warcraft. In: H., Corneliussen & J., Rettberg, eds., *Digital Culture, Play, and Identity: A World of Warcraft Reader*. Cambridge, MA: The MIT Press.
- Turkle, S., 1995. *Life on the Screen: Identity in the Age of the Internet*. New York: Touchstone.

- Turkle, S., 1996. Rethinking Identity Through Virtual Community. [online] Available at: www.manhattancache.net/pratt/turkle_rethinking-identity.pdf. [Accessed 22 February 2012].
- Tyler, L., 1978. *Individuality: Human Possibilities and Personal Choice in the Psychological Development of Men and Women*. San Francisco: Jossey-Bass Publisher.
- Vogler, C., 1999. *Writer's Journey*. New York: Macmillan.
- Voloshinov, V., 1973. *Marxism and the Philosophy of Language*. London: Seminar Press.
- Waggoner, Z., 2009. *My Avatar, My Self: Identity in Video Role-Playing Games*. NC: McFarland Publishing.
- Waggoner, Z., 2010. *Life in Morrowind: Identity, Video Games, and First-Year Composition. Currents in Electronic Literacy*. [online] Available at: http://currents.dwrl.utexas.edu/2010/waggoner_life-in-morrowind. [Accessed 15 January 2012].
- Ward, L. M., Hansbrough, E., & Walker, E., 2005. Contributions of Music Video Exposure to Black Adolescents' Gender and Sexual Schemas. In: *Journal of Adolescent Research*, 20, pp.143–166.
- Wardrip-Fruin, N., 2009. *Expressive Processing*. Cambridge, MA: MIT Press.
- Wardrip-Fruin, N., Harrigan, P., 2006. *First Person: New Media as Story, Performance, and Game*. Cambridge, MA: The MIT Press.
- Watt, J., 1999. *The Penguin Book of Twentieth Century Fashion Writing*. London: Viking.
- Westecott, E., 2009. The Player Character as Performing Object. DiGRA 2009: *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. Brunel University, London, UK, 2009.
- Wilson, E., 2003. *Adorned in Dreams: Fashion and Modernity*. London: I. B. Tauris Academic.
- Wolf, M., 2003. *The Video Game Theory Reader*. London: Routledge.
- Worsfold, A., 2012. *The Simulacra of Jean Baudrillard*. [online] Available at: <http://www.change.freeuk.com/learning/sothink/ baudrillard.html>. [Accessed 15 January 2012].
- Wright, R., 1994. *The Moral Animal*. London: Penguin.
- Wright, W., 2009. *FORA.tv – Will Wright on Spore, SimCity, and the Sims*. [online] Available at: http://fora.tv/2009/04/02/Will_Wright_on_Spore_SimCity_and_the_Sims. [Accessed 15 January 2012].
- Yee, N., 2003. *Edge*, February 2003. London: Future Publishing.
- Žižek, S., Indopedia. 2004. Slavoj Zizek. [online] [Accessed 15 January 2012].
- Žižek, S., 2004. *The Reality of the Virtual*. [DVD] Olive Films.

Žižek, S., 2007. *The Pervert's Guide to the Cinema*. [DVD] UK: P Guide Ltd.

1. The RADDAR Methodology
2. The McDonald game: <http://blog.fluidesign.com/wp-content/uploads/2009/08/mcpc.png>
3. America's Army: http://www.mixed.com/images_blogs/photos/uncategorized/2008/01/18/americasarmy.png
4. Façade: <http://blog.game-play.org.uk/files/Façade.jpg>
5. Tetris: <http://piston-games.com/blog/wp-content/uploads/2010/06/tetris.jpg>
6. The Secret of Monkey Island: <http://semo.jakki.org/screens/monkey2.gif>
7. Tomb Raider Underworld: http://thegamereviews.com/images/uploads/2008/12/02_tomb-raider-underworld-1.jpg
8. Lara Croft: Tomb Raider: http://news.bbc.co.uk/1/3/50000/images/1391784_rakier300.jpg
9. The Godfather: <http://mrwickedproductions.files.wordpress.com/2010/12/the-godfather-chair.jpg>
10. The Godfather: The Game: <http://wmafiles.ign.com/wmafiles/image/edicle/773/773509the-godfather-blackand-edition-20070316042153752.jpg>
11. Street Fighter 4: <http://gamingbolt.com/wp-content/uploads/2010/05/street-fighter-4-character-select-screen-big.jpg>
12. Battlezone: <http://www.retrogi.com/blog/Battlezone-111.cfm>
13. BattleZone PSP: http://www.pspgamestet.com/images/1/p_931656_0.jpg
14. Resident Evil action: <http://horrorcutfilms.co.uk/wp-content/uploads/2011/05/resident-evil-1.jpg>
15. Resident Evil map: <http://residentevilumbrella.weeb.com/ResidentEvil2015%20Original%20Map%2017.jpg>
16. Final Fantasy IV status screen: <http://www.finalfantasy.net/final-fantasy-4/menuinterface.jpg>
17. Final Fantasy X-2: http://finalfantasy.wikia.com/wiki/List_of_Final_Fantasy_X-2_jobs
18. Mario Miner's Willy: http://media.giantbomb.com/uploads/0/1410/201443-minerwilly_large.jpg
19. Golden Axe: <http://smenaxe.files.wordpress.com/2009/08/gold-axe-large-net.jpg>
20. Megaman X: [http://www.texturemonkey.com/TCG/blog/mega_man_X_\(17\).gif](http://www.texturemonkey.com/TCG/blog/mega_man_X_(17).gif)
21. Secret of Mana: http://www.retrojunk.com/default_articles/1528/
22. Planescape: Torment: <http://3isgames.files.wordpress.com/2009/06/48.jpg>
23. Tomb Raider: http://acheter-jeux.toms-hardware.com/images/products/elidos/TombRaiderLegend_scr1.jpg
24. Tomb Raider Legend: http://4.bp.blogspot.com/_41ame5FWzU/TTxP3gs9XCw/AAAAAAAAYFY/t8Dx7FmM/1600-lara-croft-returns-in-tomb-raider-underworld-big.jpg
25. Medal of Honor: http://techgaga.com/articles/gaming/medal_of_honor/medal_of_honor_13_thumb.jpg

List of Illustrations

1. The RADDAR Methodology
2. The McDonald game: <http://blog.fluidesign.com/wp-content/uploads/2008/08/mcpic.png>
3. America's Army: http://www.wired.com/images_blogs/photos/uncategorized/2008/01/18/americanarmy.png
4. Façade: <http://blog.game-play.org.uk/files/Façade.jpg>
5. Tetris: <http://piston-games.com/blog/wp-content/uploads/2010/06/tetris.jpg>
6. The Secret of Monkey Island: <http://asmo.jakki.org/screens/moneky2.gif>
7. Tomb Raider Underworld: http://thegamereviews.com/images/uploads/20081202_tomb-raider-underworld-1.jpg
8. Lara Croft: Tomb Raider: http://news.bbc.co.uk/olmedia/1390000/images/_1391784_raider300.jpg
9. The Godfather: <http://mrwickedproductions.files.wordpress.com/2010/12/the-godfather-chair.jpg>
10. The Godfather: The Game: <http://wiimedia.ign.com/wii/image/article/773/773509/the-godfather-blackhand-edition-20070316042153752.jpg>
11. Street Fighter 4: <http://gamingbolt.com/wp-content/uploads/2010/06/street-fighter-4-character-select-screen-big.jpg>
12. Battlezone: <http://www.retrogt.com/blog/Battlezone-111.cfm>
13. BattleZone PSP: http://www.pspgamelist.com/images/1/p_931656_0.jpg
14. Resident Evil action: <http://horrorcultfilms.co.uk/wp-content/uploads/2011/06/resident-evil-1.jpg>
15. Resident Evil map: <http://residentevilumbrella.webs.com/Resident%20Evil%201%20Original%20Map%2017.jpg>
16. Final Fantasy IV status screen: <http://www.ffinsider.net/final-fantasy-4/menuinterface.php>
17. Final Fantasy X-2: http://finalfantasy.wikia.com/wiki/List_of_Final_Fantasy_X-2_Jobs
18. Manic Miner's Willy: http://media.giantbomb.com/uploads/0/1410/201445-minerwilly_large.jpg
19. Golden Axe: <http://serenarex.files.wordpress.com/2009/08/goldnaxe-large-nobg.png>
20. Megaman X: [http://www.texturemonkey.com/HCG/blog/mega_man_X_\(17\).gif](http://www.texturemonkey.com/HCG/blog/mega_man_X_(17).gif)
21. Secret of Mana: http://www.retrojunk.com/details_articles/1528/
22. Planescape: Torment: <http://bisgames.files.wordpress.com/2009/06/48.jpeg>
23. Tomb Raider: http://acheter-jeux.tomshardware.com/images/products/eidos/TombRaiderLegend_scr1.jpg
24. Tomb Raider Legend: http://4.bp.blogspot.com/_41zme5FwEzU/TTkP3gs9XCI/AAAAAAAAAFY/oT8DxFsrtrM/s1600/lara-croft-returns-in-tomb-raider-underworld-big.jpg
25. Medal of Honour: http://techgaga.com/articles/gaming/medal_of_honor/medal_of_honor_13_thumb.jpg

26. Call of Duty 3: http://images.wikia.com/callofduty/images/a/a5/Ultra_Russain.jpg
27. Halo's Master Chief: <http://www.fanpop.com/spots/halo/images/547518/title/master-chief-photo>
28. Crysis: <http://thegamingliberty.com/index.php/2011/07/02/esrb-rates-crysis-1-for-xbox-360-and-playstation-3/>
29. Deus Ex's Adam Jensen: http://static.gamesradar.com/images/mb/GamesRadar/us/Daily/2010/07-Jul/08/half%20assed%20characters/deus_ex_matrix_dude--article_image.jpg
30. Mass Effect: http://images.thecoalition.com/2010/02/500x_post_thumb.jpg
31. Gears of War: <http://videogamewriters.com/wp-content/uploads/2011/06/Gears-of-War-1.jpg>
32. Metroid's Samus Aran: http://farm4.static.flickr.com/3462/3714555594_708b13a465_o.jpg
33. MGS's Snake: http://www.toyark.com/news/attach/1/9/9/9/metal_gear_solid_peace-walker_snake-007_1277897886.jpg
34. StarCraft Ghost: http://onlyhdwallpapers.com/wallpaper/starcraft_ghost_desktop_1280x1024_wallpaper-25577.jpg
35. Resident Evil's Jill: http://www.realsoftwaredevelopment.com/WindowsLiveWriter/Top10FamousNintendoVoices_8F08/200pxJill_Valentine_Resident_Evil_33.jpg
36. Sanity Requiem's Alexandra: <http://www.strangehorizons.com/2003/20030414/review1.jpg>
37. Final Fantasy XII: http://jedineka.com/wp-content/uploads/2010/07/final_fantasy_12_jedineka.jpg
38. Dead or Alive Xtreme 2: http://www.showwallpaper.com/wallpapercenter/Game/Dead_or_Alive_Xtreme_2/Dead_or_Alive_Xtreme_2_120006.jpg
39. Alyx Vance: <http://bbsimg.ngfiles.com/1/15071000/ngbbs477d63750996c.jpg>
40. Hentai dating game: <http://x63.xanga.com/272f5a2560c32250061756/z198436695.jpg>
41. Leisure Suit Larry: <http://magisterrex.files.wordpress.com/2010/09/bloglllhottubega.jpg>
42. Gals Panic: <http://www.mydescarga.com/imagenes/8687.jpg>
43. God of War: <http://www.mobygames.com/images/shots/l/289075-god-of-war-chains-of-olympus-psp-screenshot-two-girls-s.png>
44. Mass Effect nude patch: <http://nudepatch.net/games/mass-effect/>
45. BMX XXX: http://www.gamershell.com/static/screenshots/4297/68079_full.jpg
46. Lady Killer: [http://www.pdroms.de/media/upload/images/news/20100227_ladykiller_dc_\(.png](http://www.pdroms.de/media/upload/images/news/20100227_ladykiller_dc_(.png)
47. Heavy Rain: <http://img3.sankakustatic.com/wp-content/gallery/ero-misc-ii/heavy-rain-oppai-action.jpg>
48. GTA IV: <http://ps3media.ign.com/ps3/image/article/108/1084305/30-years-of-nudity-in-games-20100416034029827.jpg>
49. Diablo: http://fc04.deviantart.net/fs71/f/2010/110/e/2/Diablo_characters__wallpaper_by_pilotaz.jpg
50. Baldur's Gate characters: <http://www.gamejag.net/TnT/Images/cast4.jpg>
51. King's Quest: <http://www.photofunblog.com/wp-content/uploads/2011/02/King's-Quest.png>

52. Mafia: http://ui05.gamespot.com/1732/mafia021600x1200_2.jpg
53. Ultima VII: <http://imageshack.us/photo/my-images/219/ultima7stretchdu7.png/>
54. Warcraft III's Arthas Menethil: <http://images.wikia.com/wowwiki/images/b/b0/WotLKAarthasPose.jpg>
55. Titan Quest: http://media.giantbomb.com/uploads/0/3240/301053-icon_titan_narrowweb__300x404_0.jpg
56. Devil May Cry's Dante: <http://cdn.screenrant.com/wp-content/uploads/devil-may-cry-dante.jpg>
57. Castlevania characters: <http://www.castlevaniacrypt.com/games/sotn/images/art/dracula-03.jpg>
58. God of War's Kratos: <http://community.us.playstation.com/thread/3412381?start=0&tstart=0>
59. Final Fantasy VII: http://images.wikia.com/finalfantasy/images/6/6e/FFVII_Playable_Characters.jpg
60. Chrono Trigger characters: <http://starsmedia.ign.com/stars/image/article/886/886135/chrono-trigger-ds-20080703012543110-000.jpg>
61. Star Wars: The Force Unleashed, Too Human, GTA IV, Killzone 3, Infamous 2, and Wheelman characters: http://uk.xbox360.ign.com/articles/117/1177659p1.html?_cmpid=ign40
62. Contra
63. Double Dragon: <http://origin.arstechnica.com/journals/thumbs.media/Double%20Dragon.JPG>
64. Final Fight: <http://www.techreviews.net/wp-content/uploads/2010/04/Final-Fight-Double-Impact-Offers-a-Smart-Assortment-of-Challenges.jpg>
65. Grand Theft Auto IV's Niko: <http://ourenclave.wordpress.com/2008/06/20/grand-theft-auto-4-by-spike/>
66. Uncharted: Among Thieves: <http://i2.listal.com/image/2460631/936full-uncharted-2%3A-among-thieves-screenshot.jpg>
67. Shenmue: http://sfx-360.com/newsite/wp-content/uploads/2010/10/Shenmue__185.jpg
68. Resident Evil characters: http://th01.deviantart.net/fs71/PRE/f/2010/068/a/3/resident_evil_characters_2_by_michpirate.jpg
69. Alone in the Dark: <http://retromedia.ign.com/retro/image/article/883/883558/alone-in-the-dark-restrospective-20080623020407558.jpg>
70. Silent Hill characters: http://media.giantbomb.com/uploads/1/14030/616371-silentgirls_super.jpg
71. Karate Champ: <http://standing8.files.wordpress.com/2008/09/karate-champ.gif?w=440&h=368>
72. Way of the Exploding Fist: http://www.retrogames-db.com/Downloads/Images/Way%20of%20the%20Exploding%20Fist,%20The/way_of_the_exploding_fist_04.gif
73. Street Fighter IV characters: <http://ani-culture.net/wp-content/uploads/2010/09/SSF4.jpg>
74. Dead or Alive: <http://thegamingliberty.com/wp-content/uploads/DOA5.jpg>
75. Soul Calibur characters: <http://images.wikia.com/soulcalibur/images/1/17/Gilslm3.jpg>
76. Virtua Fighter: <http://realotakugamer.com/wp-content/uploads/2010/11/screenshot1.jpg>

- <http://ps3media.ign.com/ps3/image/article/758/758464/virtua-fighter-5-20070125013214660-000.jpg>
77. Tony Hawk Pro Skater 4: http://cubemedia.ign.com/cube/image/thps4gc_0822_5_640w.jpg
78. Track and Field: http://media.giantbomb.com/uploads/0/2262/529828-track5_super.jpg
79. FIFA International Soccer: <http://www.old-games.com/screenshot/357-8-fifa-international-soccer.jpg>
80. FIFA 2012: http://fifasoccerblog.com/files/2011/05/torres_fifa12-580x364.jpg
81. Madden NFL 2012: http://images.gamersyde.com/image_madden_nfl_11-12520-2012_0002.jpg
82. Barbie Fashion Designer: <http://image.allmusic.com/00/agg/cov200/drg000/g004/g0048221qq2.jpg>
83. Fashion titles: <http://game.downloadatoz.com/resources/soft/game/download/img/b/a/r/Barbie%20Fashion%20Show%201292354898.jpg>; http://ecx.images-amazon.com/images/I/51yysMD5OdL._SL500_AA300_.jpg; http://ecx.images-amazon.com/images/I/61Y5SPTA61L._SL500_AA300_.jpg; http://ecx.images-amazon.com/images/I/517PaMXPRmL._SL500_AA300_.jpg; http://ecx.images-amazon.com/images/I/51ZVudNk-cL._SL500_AA300_.jpg
84. Vigilance 1.0: http://3.bp.blogspot.com/_grH2OWcugRg/S68tD8ciO6I/AAAAAAAAABtI/poGJ4B3ZCo8/s400/image_vigilance.gif
85. Fahrenheit: http://1.bp.blogspot.com/-PqjQsLzJe84/TVhG_Fgh9sl/AAAAAAAAALQ/8OnFODglExo/s1600/Fahrenheit+2011-02-13+22-00-05-48.jpg
86. Silent Hill 2: http://videogamecritic.net/images/ps2/silent_hill_2.jpg
87. Ico: <http://2.bp.blogspot.com/-my3ZDLIToD0/TWHGVQZeRtI/AAAAAAAAABEA/45-hRjuqQoI/s1600/ico.jpeg>
88. World of Warcraft character screen: <http://www.dotconquer.com/wow/unpossible.large.jpg>
89. Baldur's Gate Level Up screen: <http://gamerzines.files.wordpress.com/2009/05/baldurs-gate-level-up.png>
90. Knights of the Old Republic character screen: <http://www.freewebs.com/henrijalo/kotor%20-%20character%20screen.jpg>
91. Space Invaders: <http://upload.wikimedia.org/wikipedia/en/2/20/SpaceInvaders-Gameplay.gif>
92. Tax Invaders: http://usability.typepad.com/confusability/images/tax_invaders.gif
93. Structural and constructive systems: Tanaka-Ishii, 2011: 155
94. Subcultures in Habbo Hotel
95. Habbo Hotel
96. Xbox.com avatar editor: <http://images.damieng.com/blog/AvatarEditor.png>
97. Playstation Home: http://www.blrag.com/storage/PlayStation_HOME_Pics_41.jpg?__SQUARESPACE_CACHEVERSION=1231225304052

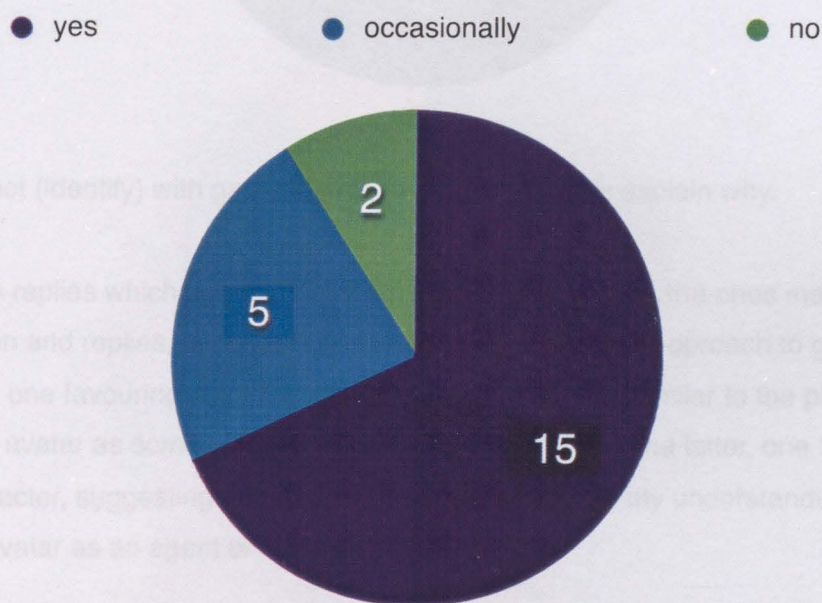
98. Spread from The Best of SL: <http://thebosl.com/september-issue>
99. Second Life: <http://alphavilleherald.com/images/old/6a00d8341bf70253ef01157211abdd970b-800wi.jpg>
100. American Apparel: http://www.gamesetwatch.com/2006_07_10_9.jpg
101. H&M: <http://darkzero.co.uk/img/screenshot/sims2hm-scrn0.jpg>
102. Diesel: http://www.shoppingblog.com/pics/diesel_playstation_home.gif
103. Second Life prim editor: http://fashiontech.files.wordpress.com/2008/08/flexi_skirt.png
104. Deikto: <http://www.electronicbookreview.com/ebressays/firstperson/algorithmic/bigcrawford2.jpg>
105. The avatar in her bedroom
106. Choice of events
107. Selecting the right outfit
108. Character interaction at the café
109. Dialogue with the flatmate
110. Character interaction at the office
111. Leaving home
112. Cloth simulation in Maya 2008
113. Cloth simulation in 3ds Max
114. Cloth simulation with Syflex
115. Modaris 3D Fit
116. 3D Runway Designer
117. Accumark V-Stitcher
118. Virtual Fashion
119. The first design (Giles, Spring 2007)
120. Creating the form in Virtual Fashion
121. Still render of the first design in Virtual Fashion
122. Simulation of the Giles dress in Poser
123. Catwalk rendered in Maya
124. Second design (Gareth Pugh, Spring 2007)
125. Creating the dress and the boots in Virtual Fashion
126. As above
127. As above
128. Still render of the dress in Virtual Fashion
129. Poser walk cycle and simulation of the dress
130. Catwalk rendered in Maya
131. Third design (Zara, Winter 2007)
132. Designing the dress, coat and shoes in Virtual Fashion

133. Still render of Zara dress and coat in Virtual Fashion
134. Creating the walk cycle and the cloth simulation in Poser
135. Final catwalk animation in Maya
136. GUI
137. The speech bubble
138. The first version of the bedroom
139. The addition of the clothes and garments icons
140. The clothes on the avatar
141. The new GUI
142. The character controller capsule
143. The mesh colliders for the scenery
144. The new animated avatar
145. The new aesthetic enhancements
146. The wardrobe
147. The dressing table
148. The bed
149. The computer desk
150. The mirror
151. The Café
152. Jane
153. Oliver and Peter
154. Oliver and John
155. Peter
156. The dialogue speech bubble
157. The living room
158. The office
159. The Virtual Wardrobe prototype
160. APEX: http://www.alltern8.com/news_slider/images/mmo/wod_online/medium.jpg
161. Thalman & Volino's work: http://books.google.co.uk/books?id=gTjXsxIkTCYC&pg=PA144IA9&source=gbv_selected_pages&cad=3#v=onepage&q&f=false

Appendix 1 – Questionnaire 1

1) Do you play video games? If yes, please specify what kinds of games.

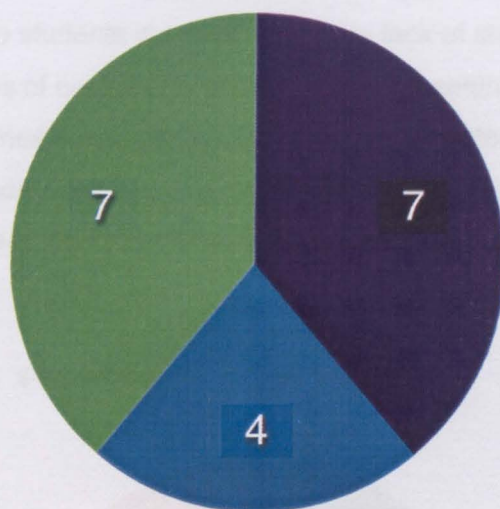
Approximately three quarters of the students (15) play games moderately to regularly, on both consoles and mobiles, however, nearly all the students play games on their phone (mostly iPhone). Among the most mentioned titles were Angry Birds, Singstar, Rock Band, and dancing games. The platforms mentioned were Wii, Xbox 360, Kinect, PS3, and N64.



2) Do the characters of video games look the way you would like them to look? If not, explain why.

Even though two students seem to bypass the avatar's appearance in the kinaesthetic effort and pleasure of the gameplay, it is apparent that there is relative dissatisfaction with the characters' appearance in terms of customisation, lack of realism, gender bias, and lack of fashionable dress. One student commented that games are addressed at male gamers.

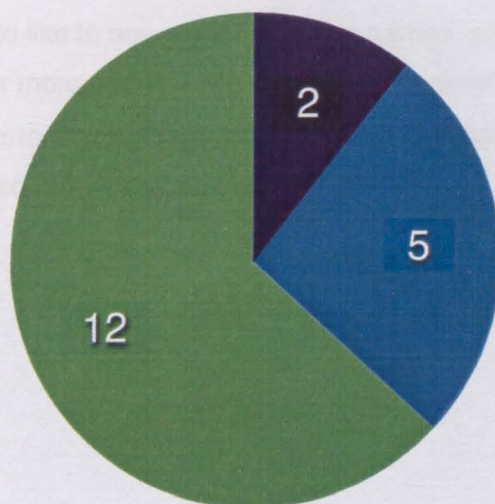
Many of the students described the characters as being more like a person than a game character. The most common description was 'fashionable or interesting' it is one described it as being, one as 'stylish', one as 'trendy', one as 'cool', one as 'outdated' and one as 'conservative'. Two students described the characters as 'like a person'. The most common description was 'fashionable or interesting' it is one described it as being, one as 'stylish', one as 'trendy', one as 'cool', one as 'outdated' and one as 'conservative'. Two students described the characters as 'like a person'. The most common description was 'fashionable or interesting' it is one described it as being, one as 'stylish', one as 'trendy', one as 'cool', one as 'outdated' and one as 'conservative'. Two students described the characters as 'like a person'.



3) Do you connect (identify) with game characters? If not, please explain why.

Apart from a few replies which seem to point out the same issues as the ones made evident by the previous question and replies, here we can also observe a different approach to gaming by two different groups, one favouring identification with avatars that look similar to the player, while the other regard the avatar as something separate to the player. From the latter, one 'copies and follows' the character, suggesting a narrative immersion, while, to my understanding, the other two simply see the avatar as an agent or a cursor.

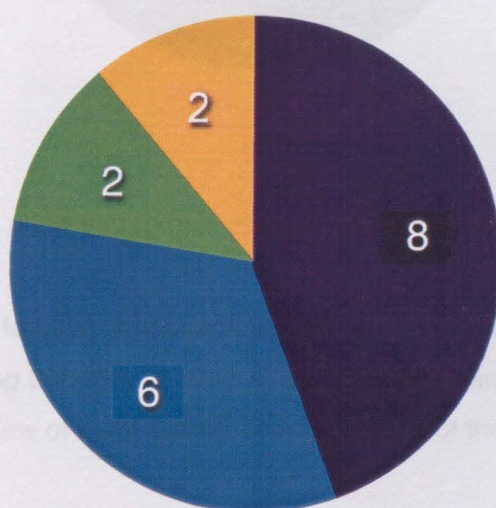
4) How would you describe the dress of the characters?



4) How would you describe the dress of the characters?

Many of the students found character dress inadequate, some with regards to how fashionable or interesting it is: one described it as boring, one as anachronistic, one as basic, one as outdated and one as conservative. Two students commented on the lack of choice. The rest remain consistent with previous views of costume in the context of the setting of a video game, commenting that in some games dress is playful and fantasy-oriented, in some it is fictional while in others realistic, in some sporty and in some cartoonish – which may also imply a lack of realism again – and in some battle gear. Many students agreed that dress depends on the setting of the game.

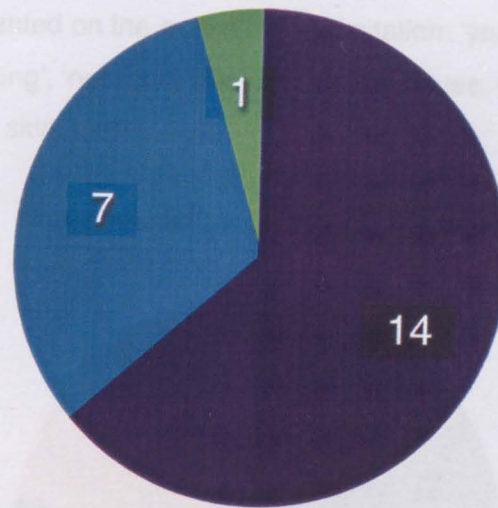
● contextual ● simple/boring ● outdated ● not enough choice



5) Would you like to see more fashion in video games?

The majority of students would like to see more fashion in games, some thinking that it will help them connect to the character more easily, while some of them point out that not all games may benefit from it: 'it would be interesting but I don't think it would be necessary in all games', and 'not necessarily, but a fashion video game may be interesting'.

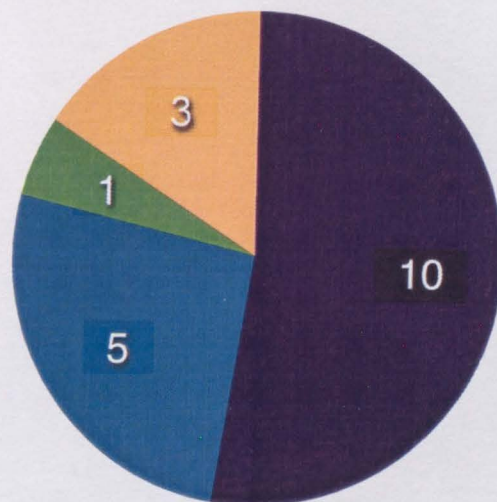
This is a mixed response, hinting that even though some offer some choice in the appearance of the avatar, but this choice is very limited and restricted to name, hair, colour, and some clothing. Many of the students commented on the limited choice, stating: 'you can choose the name and sometimes colours/hair/clothing', 'very limited', 'when online', 'very limited', and 'to a very small degree (hair, skin)'. The responses are as follows:



6) Do video game characters allow you to perform the identity of a character (role-play)?

Many of the students appear to have satisfactory role-playing experiences while playing video games, some of them implying that they identify with the player character's identity, again depending on the context. A few of them point to the limitations of the player's identification with the avatar, however.

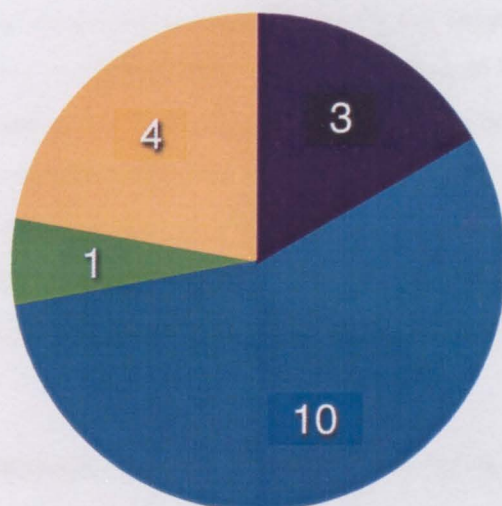
● yes ● contextual ● indifferent ● no



7) Do video game characters allow you to perform your own identity?

This is a mixed response, hinting that overall, games do offer some choice over the appearance of the avatar, but this choice is very limited and restricted to name, hair, colour, and some clothing. Many of the students commented on the extent of this limitation: 'you can choose the name and sometimes colours/hair/clothing', 'not really except *The Sims*', 'yes, when online', 'very limited', and 'to a very small degree (hair, skin, name, etc)'.

The major responses were: ● yes ● contextual ● indifferent ● no



2) Does DressCode allow...

Most of the students found the game to be... some found the affordances... game is currently in progress... students commented... having complete control over...

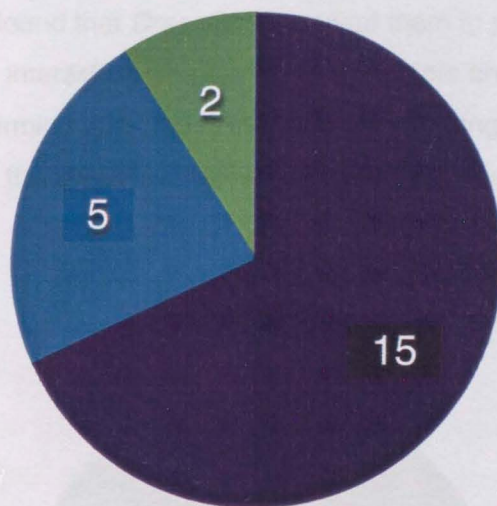
Appendix 2 – Questionnaire 2

1) Does *DressCode* allow you to express your personality?

The majority of the students found that *DressCode* allows the players to express their personality. A few commented on the game not being completed yet, which is a fair comment, as not all of the features had been completely implemented at the time that the focus group took place. Many students commented positively on the fact that *DressCode* allowed them to make their own decisions and express themselves through clothing and dialogue, however they also found the interaction with the other characters a little restrictive, as the responses are fixed. It is worth mentioning here that even if this is true in goal-oriented, solitary play, communication between player avatars during free play is completely open through the use of the chat window. Some students also commented positively on the idea of importing content from external fashion websites.

3) Does *DressCode* allow you to perform your identity?

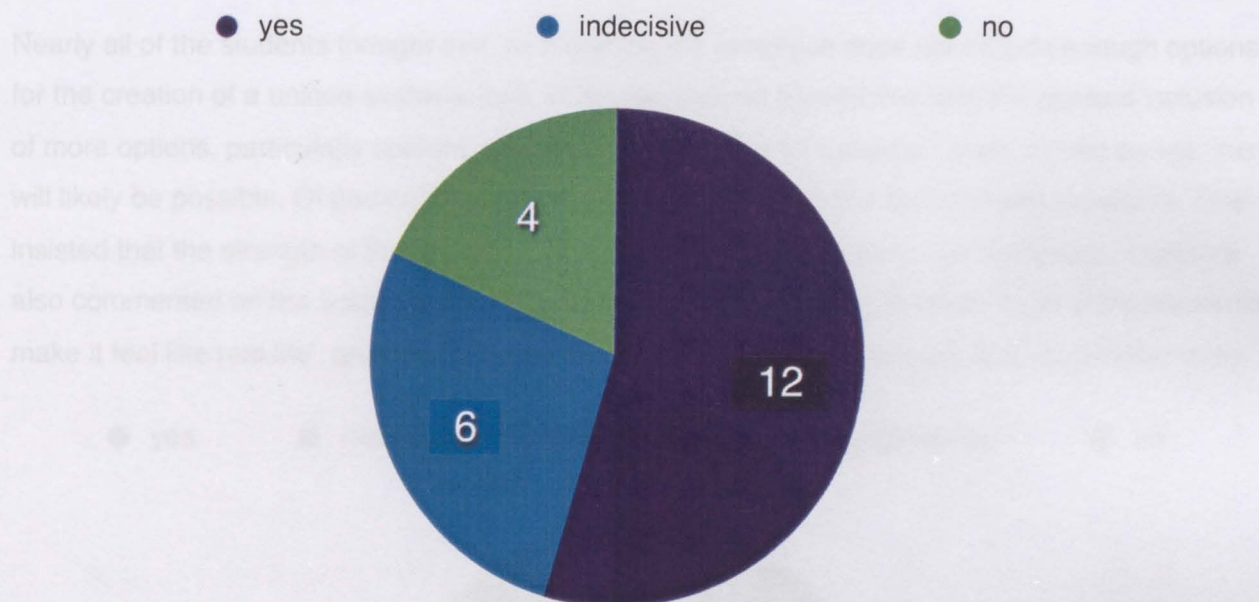
● yes ● indecisive – comment on game not being complete ● no



2) Does *DressCode* allow you to perform your identity?

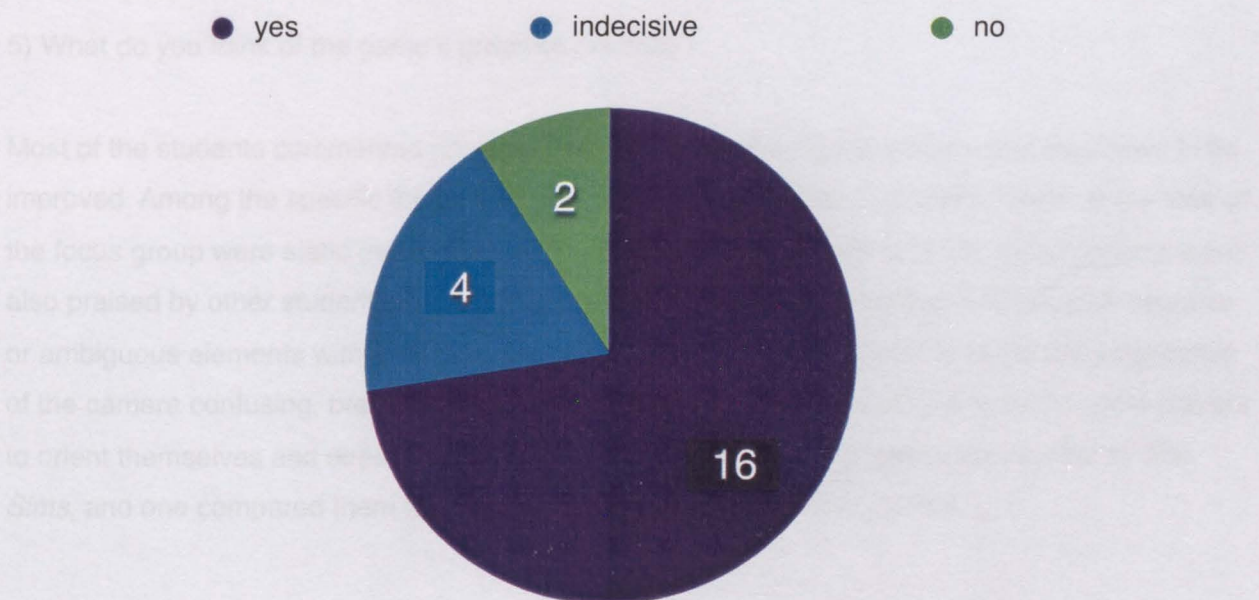
Most of the students found that *DressCode* allowed them to perform their own identity, however some found the affordances that the game offers limited. This is an issue I am aware of and, as the game is currently in prototype stage, it is enhanced with additional features constantly. A few students commented again on the fixed dialogue choices, which makes obvious the importance of having complete control over one's verbal expression in a game. Interestingly, a few of the

students also regarded the freedom to switch from one's own identity to role-play and back, and to use seduction to cover up any negative aspects of the self, as valuable assets of the gameplay.



3) Does *DressCode* allow you to perform the identity of the character?

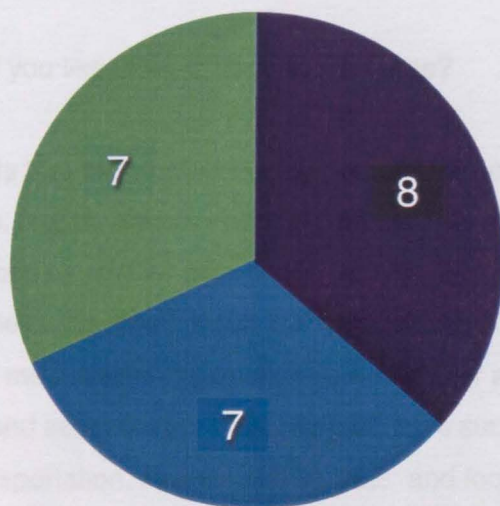
The majority of the students found that *DressCode* allowed them to perform the identity of the avatar. Some considered the interaction with the other characters and the choice of dress and expression important in performing role-play: 'yes, because anything you select makes the avatar who she is', 'yes, you control the avatar's identity', and 'yes, because we interact with the avatar's friends'.



4) Do you think that the items included in *DressCode* are sufficient for the creation of a unique look?

Nearly all of the students thought that, as it stands, the prototype does not include enough options for the creation of a unique avatarial look. However, they all agreed that with the gradual inclusion of more options, particularly colours, garments, hairstyles, and make-up based on real trends, this will likely be possible. Of particular interest was to many of them the cyclical fashion system. One insisted that the strength of the game is that it combines fashion with social interaction. Students also commented on the social reality represented in the game: 'yes, because most of the elements make it feel like real life', and 'yes for realistic looking outfits, no for fantasy and imaginative looks'.

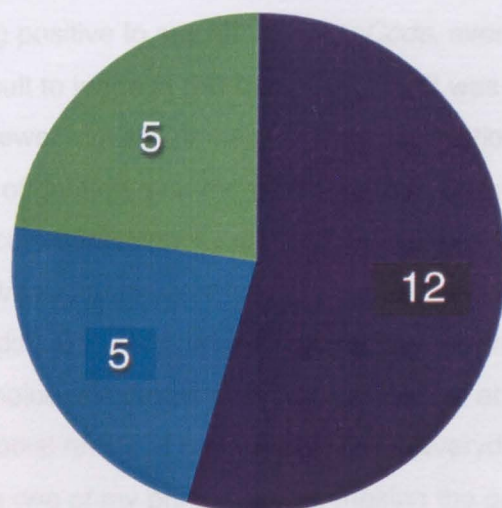
● yes ● indecisive – comment on game not being complete ● no



5) What do you think of the game's graphics (visuals)?

Most of the students commented positively on the visuals, and some thought that they need to be improved. Among the specific things they commented on were the characters, which at the time of the focus group were static (not animated), the clothing, and the scenery. The same aspects were also praised by other students, but one of the purposes of this focus group is to pinpoint negative or ambiguous elements with a view to amending them. One of the students found the perspective of the camera confusing, presumably because it is isometric and possibly difficult for some players to orient themselves and direct the avatar within it. One found the graphics very similar to *The Sims*, and one compared them favourably to those of other 'fashion' games.

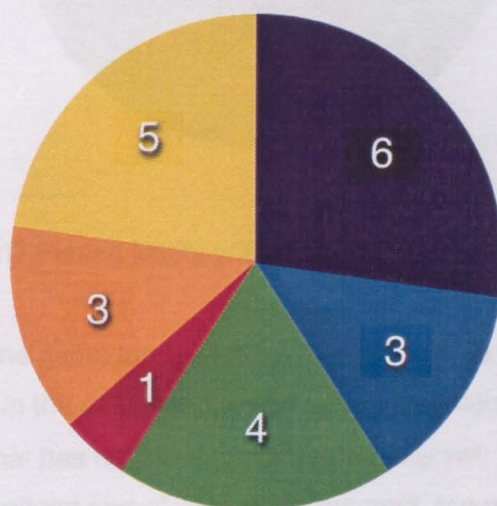
7) Do you like *DressCode*? ● approved ● indecisive – mixed comments ● disapproved



6) What other features would you like to have seen in the game?

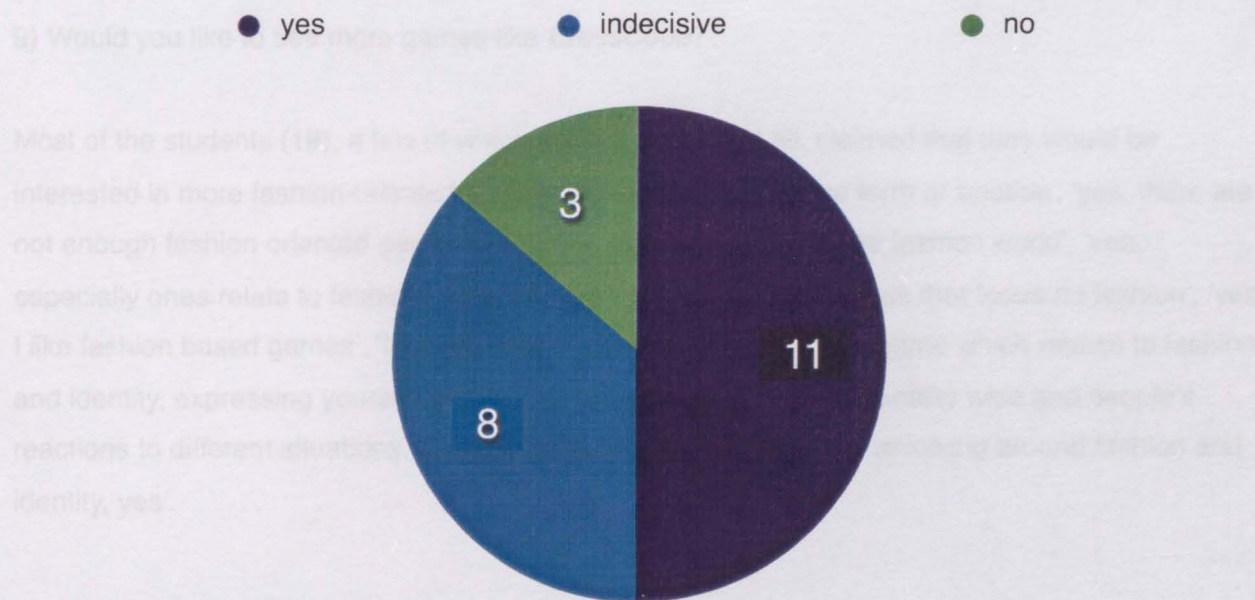
The most mentioned elements that the students would like to see included in *DressCode* are more environments, such as a club, a gym, and an outdoor setting, as well as customisation options for the rooms; being able to choose exactly what to say to other characters, as well as a chat feature, which was included at the time of the focus group but was not functional; being able to fine-tune the avatar to one's own body measurements, as well as skin colour and hair style; being able to design one's own garments and accessories; the setting of tasks such as a shop hunt; and a whole lifestyle that may involve transportation, interior design, pets, and food.

● settings/scenarios ● design module ● flexible dialogue ● clothing
● body/hair/make-up ● lifestyle



7) Do you find *DressCode* interesting? Please justify your answer.

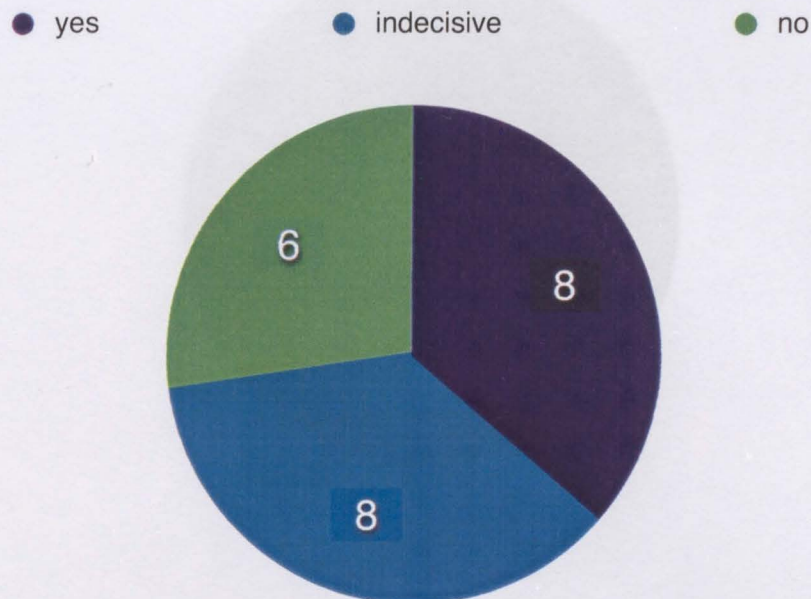
Most students had something positive to say about *DressCode*, even though it is clear that it is not to everyone's taste. It is difficult to judge at this stage whether it was the early state of the prototype that evoked the – fewer, but still present – negative reactions, or the fact that some of the students do not like this kind of gaming, and therefore they would not be interested in the final product. Among the notable comments was a perceived similarity with *The Sims*, which I can understand to an extent as *DressCode* makes use of a similar camera setting, however the game mechanics are categorically different. Many of the comments focused on the inclusion of communication, and dress choice and creation, which are after all at the centre of the game. One student commented on the social reality of the game, 'it's like everyday life scenes', which I consider positive, as this was one of my prime goals in making the game. Students also commented on the originality of the game: 'yes, nothing like it on the market', 'yes, new unique concept, very cool', 'yes, it seems like a really original and fun social networking game', 'yes, I think it's a cool way to try out new styles', and 'yes, I think it's a cool way to connect with friends'.



8) Do you find *DressCode* fun? Please justify your answer.

16 out of 22 students found the game fun to play, or that it would be fun to play, if more, or all of the features that were stipulated in the design document were implemented. Most students found the game a good idea, but one that has not been implemented fully yet: 'yes, it needs some more work but it is fun', 'I would the completed game', 'not at the moment, but maybe as more features are added', 'it is interesting but I hope to see more happenings in the game', 'I think it will be when it is

done because you get to make your own decisions', and 'sounds interesting from what I've seen, it would be cool to see how the new apparel from companies fits in'.



9) Would you like to see more games like *DressCode*?

Most of the students (19), a few of which are not gamers at all, claimed that they would be interested in more fashion-oriented games like *DressCode*, in one form or another: 'yes, there are not enough fashion oriented games out', 'sure, they seem fun for the fashion world', 'yes, especially ones relate to fashion', 'yes, I haven't seen too many games that focus on fashion', 'yes, I like fashion based games', 'I am not really into video games, but a game which relates to fashion and identity, expressing yourself, not only in terms of looks, but personality wise and people's reactions to different situations, is going to be exciting', and 'games revolving around fashion and identity, yes'.

● yes ● indecisive ● no

