Chapter 6: The computer game avatar

In chapter 4, I gave an outline of a general theory of the avatar, and of avatar-based play, without situating the concept specifically in relation to computer games. The central idea is that the avatar combines the principle of the perceptual prosthesis with the principles of fictional agency and fictional embodiment. In chapter 5, I moved on to a discussion of computer-simulated environments, what role they play in computer games, and in what way we can say that computer game spaces are also computer game worlds rather than just systems or automatons. In this chapter, building on the general theory of the avatar and of computer game 'worldness', I will look at the more specific characteristics of the computer game avatar, and discuss how avatar-based games relate to other categories of games.

Character

First of all, when we move from toy trucks or dolls to screen-based simulations, it is important to emphasise that the notion of the avatar, as noted in chapter 3, is distinct from the notion of playable *character*. 'Character', as I will define it here, is a general category that applies equally to novels or films as well as to drama or computer games. By definition, a character is an independent subject, someone who can act, and who can be related to as a human person or some sort of animated being with goals and intentions. As players, we may in a certain sense be able to act, think and feel 'vicariously', as it were, via the acts of a character, but as I argued in chapter 3 this is a relationship of *identification*, not a prosthetic extension of agency and perception. More specifically, the notion of 'character' is typically (although not always) associated with a subject that acts and thinks within a *diegetic* world. In other words, the primary function of character has to do with narrative; when we play with characters, we play with a story.

My point is not that character is unimportant to games or unimportant to avatar-based computer game play, but that there is, for analytical purposes, a lot to gain from keeping 'character' and 'avatar' distinct. In the present study, my main concern is with avatars, not characters, even if the two are often closely associated in the games that we play. In avatar-based games, characters (often

more than one) are usually appropriated a part of an avatarial relationship, as a playable character or 'avatar-character', through which the avatar's actions are expressed within the fictional world. However, this dimension is not necessary to avatarial embodiment; some avatars are manifested in the fictional world as vehicles (space ships, racing cars) rather than as humans, humanoids or other kinds of animated subjects. As avatars, these are significant in terms of what kind of fictional embodiment and fictional participation they enable, but they are not characters, and we do not need a theory of character – nor of narrative – to account for how they engage us in play.

As an alternative to the established conceptualisations of 'playable character', and drawing on the notion of fictional embodiment that I suggested in chapter 4, I will suggest that the notion of avatar-based play in computer games can be defined along two central dimensions: tangibility and miniatureness. These two dimensions can be drawn up in a simple model, illustrating the relationship between four generic categories of computer game 'worldness' and computer game play.

Tangible (information) spaces

Most computer game simulations rely on screen-projected moving images[53]. This is because of the unique way in which moving images are able to realise and express the principles of realistic agency in simulated environments. First, the informational output of the formal system must somehow translate into something than can be related to in interesting ways as concrete models. This could be done, of course, through various kinds of robotics, but screen-projected synthetic images with sound and physical interfaces are infinitely richer, more flexible and comprehensive in scope than robotic environments or installations. This is especially so if the simulation exploits the principle of embodiment through the avatar. Secondly, screen-projected moving images connect computer game environments to the projected environments of other image-based media, and to cultural conventions and perceptual habits developed through drawing, animation and film. As I will be discussing in chapter 8, contemporary games rely heavily on the habits developed by the cinematic camera.

53 It should be noted that a computer game does not necessarily have to include screen-projected spaces. Location-based or 'mixed reality' games must be considered as only partly screen-based (as a dominant part of the visual field of interaction would be the physical environment rather than the screen-projected environment). We could also imagine singleplayer computer games that use a similar kind of setup, or which relied on printed output, or – in the more advanced category: that rely on robotic installations.

Spacewar! (Russel/Graetz/Wiitanen 2006[1962]) was enabled by a new type of technology, which put the user in direct contact with the computer via a display screen, and made the computer playable. The screen-based computer give birth to a new technology of mimetic play because it could draw, and draw so fast it could animate shapes and figures while you were looking. *Spacewar!* demonstrated that one could instruct the PDP-1 mini computer to draw and animate with light on a CRT display, and then interact with these images in real-time, while the programme was running, either via toggle switches on the console typewriter, or, even better, via dedicated control boxes that were custom-built by members of MIT's Tech Model Railroad Club[54].

Spacewar! was a computer simulation, and a formal model of a real-world physical system governed its behaviour. Implemented by the PDP-1, the information output from the simulation was translated into moving lights that depicted spaceships, stars and missiles. This reifying metamorphosis was essential to the playability and appeal of the game. Sets of written instructions did not return data as numbers and words, but as dynamic, responsive and recognisable patterns of light on a screen, which behaved like real-world objects in outer space could possibly do. One did not need to know anything about computers or simulations to understand it, have fun with it, and master it. The output that was produced by the ongoing simulation did not reach the player in the shape of coded information. Neither did the player need to define his or her *input* as coded information, verbally or otherwise.

Through direct and embodied interaction, the concrete models of the simulated environment, even if those models were little more than simple shapes of light, became *tangible* models. 'Tangibility' in this context does not refer to that which can be physically touched and felt (although this dimension may also be implemented in various ways), but that which can be interacted with in a manner that simulates physical interaction. Indirect or informational manipulation, on the other hand, is when we control or influence elements in the environment through symbolic action, via language or other means of information that explain and designate behaviours and actions. This category includes point-and-click interfaces, which enable the player to provide quick and accurate information by pointing and designating. In contrast, the player of *Spacewar!* uses the toggle switches to thrust, turn and trigger (or fire off) the objects on the screen, as if he or she were directly manipulating these objects via a physical connection[55].

In the years after *Spacewar!*, a series of other games for mainframe computers followed that have influenced significantly the generic conventions of computer

54 See Graetz (2006).

55 A Java applet version of *Spacewar!* is (at the time of writing) available to play at http://lcs.www.media.mit.edu/groups/el/projects/spacewar/.

games as they appear today, but which relied entirely on text and numbers rather than tangible interaction. *Hammurabi* (Rick Merril/David Ahl 2006[1969]), *Hunt the Wumpus* (Gregory Yob 2006[1973]), and *Adventure* (Will Crowther/Don Woods 2006[1976]) all offer a basic form of realistic agency; they meet us as worlds of rule-colonising playthings rather than as formally defined worlds of rules and tokens. This realism applies even if, in actual practice, the formal rules that drive a simulation like *Hammurabi* may be easily 'deciphered' because of its relative simplicity (depending on the competence of the user). The tangibility of games like *Spacewar!*, on the other hand, goes beyond the basic principles of realistic agency. At the same time, more elaborate avatar-based games depend on information-interfaced and symbolic interaction in addition to tangible relationships; in the classic action adventure *The Legend of Zelda* (Nintendo 2004[1986]), the player picks items or weapons by selecting from an inventory.

'Tangibility' as I use it here would overlap with the concept of 'direct manipulation' as used in the field of Human Computer Interaction. However, my emphasis is on the simulation of a direct physical relationship rather than trying to account for in systematic terms how this directness is constructed from the point of view of interface design[56]. Tangible information spaces simulate the feel of touching, even if we cannot actually touch. This feel is not dependent on tactile feedback, but is implied by the experience of tangible interaction. Image-generated tangibility, moreover, is infinitely expressive and flexible; simulated objects have the capacity to come alive in all kinds of predictable or unpredictable ways when we touch them. Therefore, simulated physicality can be very different from anything we could experience in the real world. The following account from game designers and artists Kyle Gabler, Kyle Gray, Matt Kucic and Shalin Shodhan may illustrate this point:

> "Juice" was our wet little term for constant and bountiful user feedback. A juicy game element will bounce and wiggle and squirt and make a little noise when you touch it. A juicy game feels alive and responds to everything you do – tons of cascading action and response for minimal user input. (Gabler et al. 2005)

Tangibility accentuates the integrity of concrete models, and solidifies the reified as a perceptual habit. Tangible environments are therefore no longer visual presentations of 'output data' from the process of simulation. In *Spacewar!*,

56 The term 'direct manipulation', as introduced in HCI by Ben Schneiderman (1982), does not explain directness in terms of simulation, opting instead for more descriptive terms like continuous representation and instant response. Brenda Laurel, in spite of her alternative and 'dramatic' approach, adopts a similar model of 'directness', emphasising the "tight coupling of kinesthetic input and visual response" (Laurel 1993:21).

the 'visualisation' *is* the simulation. And to the extent that the game rules are integrated with the algorithmic procedures that drive the simulation, the tangible moving lights on the precision CRT display *are* the game.

Miniature worlds

As noted in the previous chapter, system simulators like *SimCity* or *The Sims* are based on instrumental agency rather than fictional and avatar-based agency. Borrowing from the terminology of Seymour Papert (1980) and Chaim Gingold (2003), we may call these environments 'microworlds' or *miniature* worlds. A microworld is a hybrid between a world and a toy. It provides macroscopic overview, and is approached as a totality. Because microworlds are autonomous and intelligent systems that have independent agency, instrumental make-believe thrives and expands; in order to author fictionally interesting scenarios, we do not have to understand exactly how the world is put together or how it works. Nor do we have to implement the effects of our (more or less) experimental actions ourselves.

In his pioneering study *Mindstorms: Children, Computers and Powerful Ideas (Papert 1980)*, Seymour Papert suggests a computer-simulated physics microworld as an 'incubator' for teaching Newtonian physics to children. Microworlds, he argues, enable practice-based and hands-on learning even if that which is to be learned may be complex and abstract (like mathematics). This is a learning process that operates via what Papert calls a 'syntonic' representation of knowledge. Syntonicity is a relationship of knowledge-transfer in two directions: our knowledge of the world (– of our body, of our intentional self, of our culture) helps us understand the relationships of some new phenomenon or system, and this phenomenon or system will in turn increase our understanding of ourselves and our position in the world. Through syntonic relationships, we are able to learn by projecting ourselves into situations rather than by trying to appropriate directly a set of formal rules. Computers are perfect for this kind of learning because they allow us to design special-purpose microworlds for learning, through which we can simulate and test out situations, mechanisms and relationships. The learner's goal may be to grasp the precise meaning and significance of formal rules and abstract relationships, but the learning approach is indirect, utilising the concretising power of the computer – utilising, we might say, the power of cybernetic playthings.

Chaim Gingold's thesis *Miniature Gardens & Magic Crayons: Games, Spaces & Worlds (2003)* analyses the aesthetic of computer games as miniature and playable worlds. Gingold draws on Paper's theory of syntonicity and the microworld, as well as the work and ideas of game designers Shigeru Miyamoto and Will Wright.

Paradigmatic examples of 'miniature gardens', according to Gingold, are *SimCity*, *Super Mario Bros.* and *The Sims (Maxis Software 2000)*. Gingold also describes the design for a prototype called *Comic Book Dollhouse*. This software is a 'magic crayon'; an authoring software for building and playing with story-based microworlds.

Miniature Gardens & Magic Crayons is an important contribution to our understanding of make-believe and fictional participation in computer games. This is how Gingold describes the principle of the miniature garden:

> A miniature garden, like a snow globe, model train set, or fish tank, is complete; nothing is missing, and nothing can be taken away. Clear boundaries (spatial and non-spatial), overviews, and a consistent level of abstraction work hand in hand to make the miniature world believable, complete, and tractable for both the author and player. Miniatureness makes a garden intelligible in the mind of the player, and emotionally safe in his heart. Miniature scale, clear boundaries, and inner life help players to wrap their heads, hands, and hearts around a world. (Gingold 2003:7-8)

The miniature garden, in other words, is not merely a collection of toys, but a self-contained and complete universe, which is imbued with the 'inner life' of independent agency. At the same time, there are safe and stable ontological boundaries between the miniature world and the real world of the player. The miniature garden is an object, a graspable microworld. What I have referred to as 'realistic agency' is for Gingold something that follows from a set of syntonic relationships. The behaviours and responses of the miniature environment resonate with the player's experience from the actual world and makes possible the 'bidirectional transference of knowledge' (2003:26); our experience of the actual world helps us get our head around the miniature world, and interaction with the miniature world can teach us things about the real world.

The miniature garden provides the overview that enables and encourages the player to grasp the world as a structured whole, as a fish tank, a separate organism. The most elementary form of overview is omniscient visual perspective of *SimCity*, but other functions that provide a sense of wholeness and totality can also perform a similar function, according to Gingold. This sense of wholeness makes the miniature garden malleable and playable. Its 'ludic playability' is explained by Gingold in terms of possible worlds theory:

> Digital worlds are procedural, which means that they can exist in a variety of states. The procedural description of a digital world defines a landscape of possible worlds: multiple world states and their relationships to one another. A digital world's dynamics, defined by its makers, gives rise to a possible worlds landscape that is traversed by players. (2003:72)

This account presents, we should note, a distinctly systemic and information-oriented conceptualisation of game space, emphasising the diversification of possible worlds as the fundament of ludic playability. The player is located in the world in the *epistemic* sense, through a basic restriction on information access. Because there is no random access to possible world states (2003:78), the player must 'traverse' through different states of the world-system. It is this situatedness or re-location in terms of knowledge and action that distinguishes a microworld from merely a set of expressive tools like for example a paint programme. The task of a miniature world designer is to create a restricted but interesting and playable possibility-space of different global configurations (2003:68).

In the miniature garden, fictional recentring is not embodied and restricted but mental and flexible. 'When playing SimCity", Gingold says, "I mentally insert myself into my city's streets and look up and around at the surrounding buildings." (2003:25). So whereas agency is global and instrumental, there is still room for mental simulations that take the point of view of the local and the situated. This re-positioning is not perceptual in any sense; Gingold is not actually 'looking up' at the surrounding buildings. There is, in this form of imaginative make-believe, a playful split between agency and subject-positioning. As a player, you are given realistic agency from a position outside the fictional world, while at the same time being able to mentally insert yourself into this world.

Gingold also gives *Super Mario Bros*. a central role his analysis, even if this game is an action adventure rather than a management-oriented 'god game' game like *The Sims*. The Japanese garden metaphor is borrowed from Mario's creator Shigeru Miyamoto. Gingold also includes, although with some reservations, *Super Mario 64* – a pioneering game of the 3D era – as an example of a miniature garden. His analysis emphasises the macroscopic and miniature aspect of both games rather than focussing on the role and status of the player-avatar relationship. In this way, he draws attention the playful miniatureness of Mario's world. Gingold's analysis illustrates that the notion of the miniature worlds does not exclude avatar-based play. Still, I would argue that the player's vicarious embodiment through Mario *does* make the microworld less micro, and the macroscopic more situated. From the point of view of the avatar, the magic garden is full size. In this sense, a game like *SimCity* must be categorised as a more radical variant of the miniature, because it does not provide any entry point for situated fictional embodiment within the world of the game.

In terms of fictional participation, the syntonic learning process of *SimCity* also has a type of appeal, I would argue, that action adventures like *Super Mario Bros*. do not have in the same way. *SimCity* teaches the player to manage and understand the parameters of a complex rule-based system, but it also teaches the player to think about the real world in terms of systems that can be manipulated and managed. This is not just a powerful learning tool but also a powerful

fiction, as well as a persistent fantasy in our culture. System simulators enable us to play with the world as if it was a machine, as if it was a toy, entirely under our command.

As for *Super Mario 64*, Gingold finds this iteration of the series somewhat less successful as a miniature than the 2D games. This makes natural sense, I would argue, given the more restricted situatedness that the player is given in a three-dimensional world – in spite of the many tricks and devices that, admittedly, provide a different sense of overview and graspability than in, say, *Tomb Raider*. I would go further than Gingold, however, and argue that *Super Mario 64* is not primarily to be considered as a miniature at all, or at least it is relatively weak in this aspect as compared to *The Sims*, or – even more so – as compared to *SimCity*. If, as I will be arguing in the next chapter, a navigable point of view is adopted as an integrated part of the avatarial relationship, the distinct logic and appeal of the miniature is rejected. The more general point I want to make here is that whereas miniature worlds accommodate the principle of the avatar – in a particular variant – miniatureness is also a strong moderating and balancing factor with respect to avatar-based play. Radical miniatures, like *SimCity*, have no place for the avatar.

In the following I will look more closely at the distinguishing characteristics of the screen-based computer game avatar, based on the more general principles laid out in chapter 4, and defined in relation to the notions of tangibility and miniatureness.

The screen-based avatar

In screen-based computer-simulated environments, avatarhood is produced from the appropriation or incorporation of tangible relationships. Unlike a playable character, which can be controlled in a number of indirect ways, including via point-and-click designations, the avatarial relationship is by definition a tangible and real-time relationship. Like a mouse cursor, the avatar enables us to make direct and continuous movements across the divide of the screen. The phenomenological appropriation of this relationship as a prosthetic extension of the player's own body-subject is described in detail by jazz pianist, sociologist and philosopher David Sudnow in *Pilgrim of the Microworld (1983)*, where he painstakingly records how he – after hundreds of hours of training – learned to become a master of the arcade game *Breakout* (EC Interactive 2005[1978]). According to Sudnow, the link or 'wire' that connects our hand to the responsive image of a paddle – or, we might add, to a cursor – works like an 'electro-umbilical hookup', producing a "mysterious transformation" of our movements (Sudnow 1983:23).

> There's that space over there, this one over here, and we traverse the wired gap with motions that make us nonetheless feel in a balanced extending touch with things. (Sudnow 1983:37)

Sudnow, who is analysing his own learning process armed with Merleau-Ponty's phenomenology of perception, discovers that *Breakout* can be learned, and can be embodied as second nature, in spite of the alienation he experiences in the early stages of the learning process, and in spite of all the unproductive strategies and sidetracks he is led to explore. This process of incorporation, he says – drawing on Merleau-Ponty's notion of bodily space – changes the player's relationship to the objects on the screen.

> When a paddle or a bat is incorporated by the body, becoming a continuation of ourselves into and through which we realize and aim in a certain direction, such implements lose all existence as things in the world with the sorts of dimensions you measure on rulers. They become incorporated within a system of bodily spaces that can never be spoken of in the objective terms with which we speak of objects outside ourselves. (Sudnow 1983:122)

Sudnow's phenomenological account addresses a process of learning and 'incorporation' that is equally central to the development of a competent player-avatar relationship. Through the avatar, as a privileged locus of the process of perceptual habituation, the images on the screen as well as the physical interface between the player and the controller interface all become a part of the player's own extended self. When disciplined by this real-time 'hookup', the player's bodily skills, mediated through the hardware interface, have become part of a new perceptual regime. Physical movements – moving fingers across the keyboard, pressing buttons on the controller, moving the analogue sticks in microscopic increments – are seamlessly integrated with the audio-visual perception of the screen-projected space of the game. We may say that the player has become temporally 're-wired'; the body-subject learns to perceive and act as the avatar, directly into projected space, via the invisible hardware interface of screen, speakers and control devices

In avatar-based computer games, therefore, there is little room for what I have referred to in chapter 4 as *gestural* make-believe. In order to play the game competently, the player must learn to act intuitively within the space of the simulated environment, via the affordances of the avatar. This imperative implies that any movement or action that does *not* emerge from the 'electro-umbilical' symbiosis between the body and the avatar becomes irrelevant within the work-world of the game. So unless there are some kind of alternative 'channels', as it were, that would allow fictional participation outside and independently of the avatarial relation, mimetic gestures – or the lack thereof – become irrelevant. In

avatar-based fiction, the avatar captures or colonises the body of the player, via the principle of the perceptual prosthesis. Independently of the avatar, there is no space for fictional participation.

This colonising of the player's body through the avatarial hookup – which in most cases implies that any movement apart from those of the hands (or merely the fingers) and eyes are left out of the perceptual loop – distinguishes fictional participation in avatar-based computer games from role-playing or dramatic performance. Because the actions of the player only become meaningful within the perceptual domain of the player-avatar umbilical relationship, the movements of the player's physical interaction with the hardware interface are in principle *arbitrary*; gestures do not in any way need to mimic or correspond to the movements and actions that are simulated through the embodiment of the avatar. The act of pressing a blue button on the game controller has no relation to the simulated act of swinging a heavy bronze sword, but the two merge together perceptually nonetheless.

As we know, many computer games do require, or encourage, physical movements that imitate, to a greater or lesser extent, the actions that are performed in the screen-projected fictional world. To a certain extent, this gestural dimension may be integrated, and made second nature, as part of the player-avatar relationship. However, as a general rule, such integration requires gestures to be either metonymic – as 'intrinsically coded acts' – or, alternatively, they must be part of controlling some sort of replica machinery. A full Golf Launchpad peripheral, for example, would hardly qualify for either of those categories; when the player is playing a golf game by actually swinging a golf club ('Use your own clubs!'), there is no need for any avatar. Metonymic gestures, on the other hand – like the 'trigger finger' that pulls the shoulder buttons on a console controller interface – because they relate to the avatar's actions as a (small) part in relation to a whole[57], do not compete with or undermine the authority of the avatar. Neither do interfaces that replicate the controls of machines and vehicles, like, typically, steering wheels and pedals, or the fully encapsulating 'cockpit' in *Star Wars* (Atari 1983); like standard controllers, those kinds of hardware interfaces discipline the player through a small set of restricted and well-defined movements, and their role is to mediate a vicarious embodiment – some sort of vehicle – within the screen-projected simulated environment. Elaborate vehicle-based interfaces are mostly found in arcade games, but there are also similar devices available as peripherals for home consoles, like, for example, seats with wheel and pedals, for the racing connoisseur.

57 Strictly speaking, the more correct rhetorical trope to describe this relationship would be a 'synecdoche' rather than 'metonomy', but I choose here to consider the former as a specific variant of the latter. 'Metonymic' also has a slightly better ring than 'synecdochic'.

The instrument

On the other hand, we should note that Sudnow's analysis above is not concerned with the avatar. Sudnow's prosthesis is hooked up with what goes on across the surface of the screen, not with the paddle as such, seen in isolation. The 'avatar' in Sudnow's analysis is the game space as a whole, and the perceptual extension to be incorporated is the game itself. In fact, Sudnow argues, *Breakout* is not really a game at all in the ordinary sense of the term; it is an *instrument*, merely disguising itself as a game[58]. As other instruments, *Breakout* does not need to follow any other logic than its own – and it doesn't. The simulation of physical properties is a far step from what a novice would expect; instead the behaviour of the ball and bricks follow seemingly irregular and ad-hoc patterns. Nevertheless, Sudnow discovers that the game *can* be learned; it can be incorporated into his bodily space the way an instrument can. Learning to play *Breakout*, Sudnow finds, is to integrate into one's perceptual apparatus a new and seemingly alien kind of being.

> It's as if instead of truly incorporating the events on the screen within the framework of the body's natural way of moving and caring, the action on the screen must incorporate me, reducing or elevating me to some ideal plane of synaptic being through which the programmed coincidences will take place. (Sudnow 1983:138)

Sudnow's account of becoming a 'synaptic being' strikes a chord with Turkle's analysis as quoted in the previous chapter, where she describes how 'the rhythm they impose' facilitate a meeting of minds between the player and the computer. Both Sudnow's and Turkle's player-body is *being incorporated* by the game – and rather violently so – instead of incorporating it into some pre-existing habitual disposition. This way of appropriating a tangible relationship resonates with Friedman's (non-tangible) 'cyborg consciousness'. On the other hand, Sudnow's 'computer within' is not a predictable system to be 'deciphered' intellectually, but an instrument to be conquered, through persistent repetition and rehearsal. *Breakout* is an intelligent but uncooperative cybernetic jam partner, an erratic automaton that is willing to join the dance only if you invest the time (and stubborn effort) to integrate its alien logic as an eccentric perceptual habit.

The instrument does not primarily require the kind of 'syntonic' learning that Papert and Gingold emphasise. While tangible interactions combine well with syntonic processes on a general level, their appropriation as *prosthetic* relationships adds a dimension of learning that must be described as something other than syntonic. The player's appropriation of a tangible relationship becomes an end in itself; the goal is to establish a habit, to incorporate the relationship as second

58 Sudnow (1983:103).

nature[59]. The eccentric stubbornness of *Breakout*, because it does not yield without a fight, serves to accentuate this distinction between syntonic learning and the incorporation of tangible relations. Papert's syntonic learning, including the variant that he labels the 'body syntonic', would be precisely what Sudnow refers to in terms of 'objects outside ourselves'; we learn about *other* bodies by putting ourselves in their place – by simulating or 'trying on', as it were, the situation as it appears from their point of view. Tangible relations may be included as a part of this learning process, but they do not in themselves carry or imply any imperative of heuristic or 'empathetic' projection. On the contrary, to the extent that they are appropriated as autotelic perceptual extensions, they do have the capacity to disturb or get in the way of syntonic learning and syntonic play.

Arcade games like *Breakout* or *Centipede* (EC Interactive 2005[1980]) appeal strongly to the prosthetic mode of competency and learning. While they simulate, in some fundamental respects, a physical space, their main appeal – and challenge – to the competent player lies elsewhere: in the hypnotic mastery of an instrument. The instrument, I will suggest, like Gingold's miniature, is a general model of computer gaming, a total metaphor, a candidate for a unifying concept that highlights what the gaming situation is all about.

It is clear that playing an instrument, like playing a game (or playing a system), is not typically a *mimetic* practice; neither instruments nor game systems are inherently models – though they can be (as would be the case with a video game guitar peripheral or a role-playing ruleset). This implies that the notion of 'fictional world' becomes, in many cases, irrelevant or misleading as a description of what is going on in the dialogue between the computer and the player. Many computer games and game modes encourage the player to 'take them on' as pure extensions, and are therefore more akin to instruments than they are to any form of mimetic practice. On today's market, the 'instrument game' is being cultivated by the rhythm-action game genre, which has re-invented and revitalised the arcade twitch-game tradition; games like *Dancing Stage MegaMix* (Konami 2003) are all about incorporating into your body, through repetition and discipline, that which is resistant and alien.

59 The point is here not to argue that information-based interaction *must* operate on the level of the syntonic – but that tangible interaction, by definition, is different from syntonicity (including the 'body-syntonic') because it has the appropriation of an extended embodied self as a basic premise. Friedman's notion of the computer as an 'extension of the self' does point to a mode of competent flow in which the systemic and information-interfaced morphs into some kind of intuitive machine, which could be seen as less cognitive and more of a 'communion' than Papert's syntonic learning (although I am not convinced the distinction would hold). However, this 'cyborgian' variant of the systemic orientation, no matter how mystical in its transparent immediacy, will in any case operate on a different level of understanding than, say, getting the hang of Mario's jumps and acrobatics.

On the other hand, while all computer games obviously offer resistance of some sort – and the majority of them also demand some degree of bodily appropriation (including games that mainly emphasise menu-based interaction) – a lot of games do not encourage any rhythm-imposing or instrument-like relationship to any significant extent. At the same time, many games that primarily emphasise other modalities of interaction, notably the contemporary action adventure genre, often also include the dynamics of Sudnow's 'microworld' to a certain extent, either as dedicated sequences or mini-games within the larger game (the so-called 'boss fights' in particular), or as a dimension of interaction that results from the generally repetitive and rhythmic patterns of the action. In the action adventure, this generalised 'rhythm-action' aspect of game play is something that may emerge from repeated (and competent) play, but which is typically undermined or at least severely weakened by the complexity and unpredictability of contemporary physics simulation and artificial intelligence routines. Traditional First Person Shooters like *Doom* or *Quake* (id Software 1996), or the *Timesplitters* series (Free Radical Design 2000) for the Playstation 2, clearly have this rhythmic and dance-like quality built into their mechanics. In *Timesplitters*, this form of play is also explicitly and officially encouraged and rewarded through speed-run game modes and score-based 'challenges'.

As noted, a microworld is a hybrid between a toy and a world. However, with respect to the dimension of tangibility, we can conclude from the above that microworlds differ; whereas some require the player to take them on as perceptual extensions, others rely entirely on symbolic interaction. System simulators, including *The Sims*, belong to the latter category. System simulators lack the perceptual extension or prosthesis that is at the heart of the avatarial relationship. They do, as Friedman argues, offer an 'extension' of the player's consciousness – and in this respect the miniature can be compared to Sudnow's instrument – but this relationship is something that grows out of a sustained (and highly focussed) process of cognitive and systems-oriented learning; because the learning process is based on symbolic rather than tangible interaction, there is no way you can reach the intuitive 'symbiosis' with the computer other than via the route of intellectual and strategic analysis and planning.

Sudnow's variant of the microworld, in contrast, is all about perceptual extension. What this kind of world lacks is not tangibility but fictionality. It may utilise privileged mediators of agency (the falling block, the paddle), but these mediating loci of player action are avatars only in a weak sense; they do not have the capacity to become significant as *models*, projecting around themselves an environment to inhabit. The instrument is tangible as a whole; there is no 'avatar' against a 'world' – only the instrument, only the focussed and unified field of the electro-umbilical hookup itself.

We may also note that the notion of the avatar, unlike the instrument, implies a relative independence between embodied competence and world-competence. You can be a bad player and still be completely in tune with or re-wired by the avatarial prosthesis. When playing *GoldenEye 007* (Rare 1997), you may be in perfect intuitive command of the avatar, but still have no idea what you are doing, and be nowhere near a 'meeting of minds' in relation to the game as a whole. Conversely, you could have an expert understanding of the goals, resources and tactics involved, but the basic configurations of the avatarial relationship (or the basic configurations of your own body) may nevertheless be working against you.

The avatar revisited

Let me sum up, based on what I have established so far, the central characteristics that define the computer game avatar. Sudnow's analysis throws light on how, in computer games, tangible information spaces may become appropriated by players as second nature. Avatarial embodiment depends on this process – and this struggle – of appropriation and incorporation. Through the avatarial prosthesis, the player acts into a fictional world even if the physical movements are arbitrary (or merely metonymic) considered as gestures. At the same time, the hypnotic unity of games like *Breakout* is distinct from the vicarious embodiment of avatar-based play. Admittedly, the humble paddle on the screen may also be seen as a privileged mediator in some sense (even if Sudnow does not emphasise this relationship specifically), but this 'avatar' has extremely limited capacities – all the player can do is adjust it left and right. More importantly: avatarhood, as a general principle of mimetic play, goes beyond the principle of the perceptual prosthesis, as I argued in chapter 4. The avatar is not a cursor or a mere instrument, but gives the player a meaningful embodied presence and agency within the screen-projected environment of the game. Because it is a model – a dynamically reflexive prop – the avatar is not just significant because of what it can do, but because of what happens to it. It is this vicarious body, this re-oriented subject-position, that establishes what we may call – following Bateson – the 'framing' of the fictional world for the player. Through the avatar, instrumental agency is replaced with fictional agency and fictional destiny; the player is incarnated as a fictional body-subject who belongs to and is exposed to the environment that it inhabits. The paddle in *Breakout*, or the falling block in *Tetris*, are able to perform this function only in a very weak sense; they mediate agency, but they hardly *incarnate* agency as embodied subjects that reside and act in a fictional world. They are more like buttons or tangents on an instrument than they are agents in an environment.

The screen-based avatar, like any avatar, is a perceptual extension, which is premised on a basic principle of tangibility. At the same time, the avatar is also

a model, capable of generating fictional truths about what happens to it. The spaceships in *Spacewar!* were the world's first screen-based avatars: privileged embodiments of the player's capacity and destiny in a fictional world. Like Shigeru Miyamoto' Mario, they provided alternative embodiment within a world of images, and connected screen-projected realistic agency to a broader tradition of avatar-based play.

Breakout and *Tetris* illustrate that, even if miniature worlds do accommodate avatars, miniatureness as a principle puts strong limitations on avatarial embodiment; miniatureness demands the incorporation of the game space as a whole, as a structured totality, and it encourages instrumental participation over fictional re-positioning. The system-oriented play of *SimCity* or *Civilization*, as well as the instrument-oriented play of *Breakout*, are both rooted in the principle of the miniature world or the microworld.

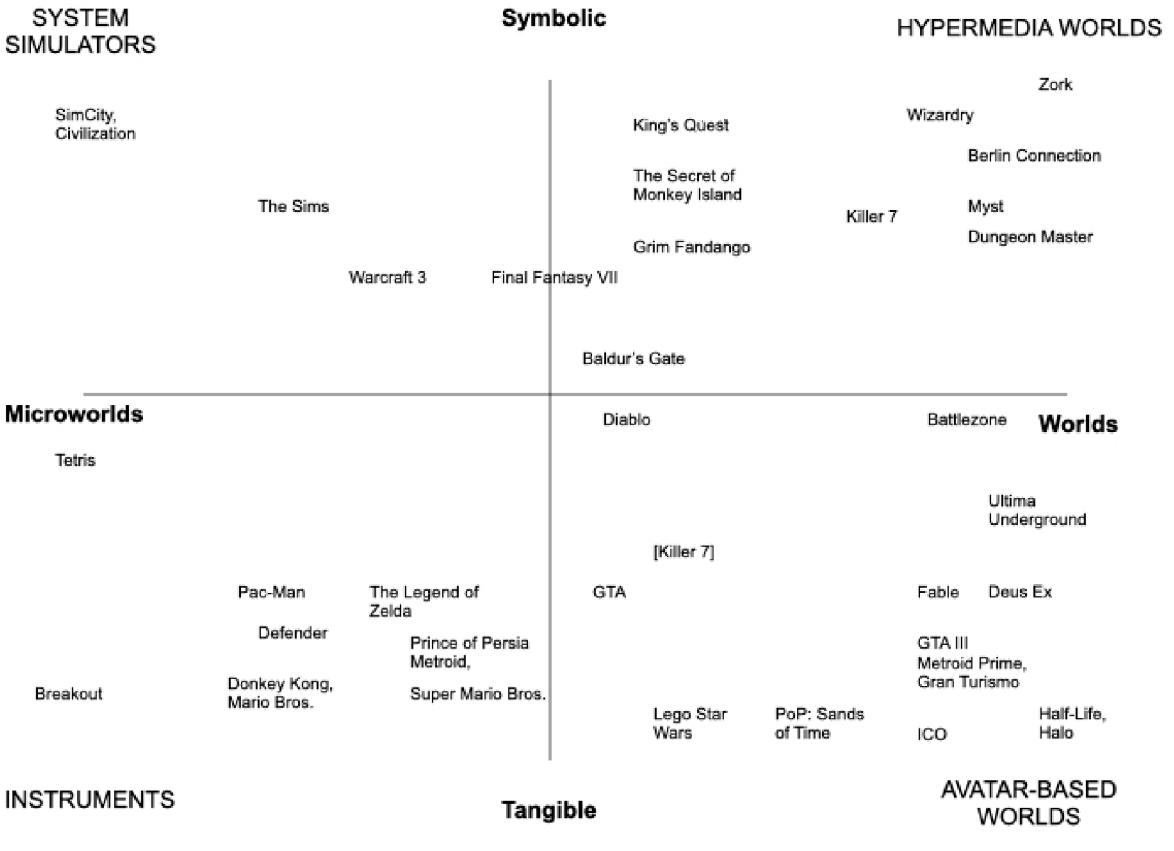
At the same time, whether they are tangibles or not, and whether they are miniatures or not, computer game worlds express, each in their different way, the paradoxical integration of realistic agency and rule-governed possibility spaces; they are systems that have been concretised as worlds. The avatar provides a unique entry point for fictional participation with these kinds of worlds. This entry-point is non-instrumental and non-systemic in nature; the avatar locks the player into a definite place or situation in the world of the game, incarnated in a body, and this body carries a motivation and a destiny. The ultimate significance of this vicarious body, this 'hardwired' situation, lies in fact that the avatar can die. When the avatar stops incarnating, when it ceases to exist, the world dies with it. In avatar-based games, the world revolves around the avatar, without which there would be no world.

Four genres of the singleplayer computer game

The relationship between the dimensions of tangibility and miniatureness in single-player computer games can be illustrated in the following model (see illustration below).

The horizontal axis indicates degrees of avatarhood in terms of subject-positioning; from the instrumental agency of microworlds to the fictional agency of inhabitable worlds. The vertical axis indicates degrees of avatarhood in terms of embodied interaction; from the indirect interaction of symbolic interfaces to the direct interaction of tangible interfaces.

The four corners of the model emerge as ideal types in relation to which specific gameworlds can be positioned. These ideal types would correspond to what Tzvetan Todorov calls 'theoretical genres' – generic categories that are deducted or 'calculated' from the assumption that miniatureness and tangibility are central



aspects that structure our participation with simulated worlds. As Todorov states: "There are a certain number of genres not because more have not been observed, but because the principle of the system imposes that number" (Todorov 1975:14).

Super Mario Bros., as noted above, illustrates that the difference between a world and a microworld is not a sharp one, but must instead be seen as a continuum between two poles. In the next chapter, I will discuss in more detail the mechanisms of perceptual positioning that distinguish between *Donkey Kong*, *Super Mario Bros.* and *Tomb Raider.* The main point here is that stronger avatarial relationships move games further to the right on the horizontal axis; Pac-Man is stronger than the falling block in *Tetris*, but weaker than Mario in *Super Mario Bros.*

The fourth ideal type, the hypermedia world, which I have not discussed so far, relies entirely on symbolic interaction, but is not a microworld. The player navigates a world of texts and depictions, which is often constructed through the combination of several different media forms (text, images, video, sound, music, animation). These hypermedia worlds are sometimes referred to as 'multimedia', 'interactive multimedia', 'interactive fiction' and so on. In the context of the model, the 'hyper-' of hypermedia refers to any navigable database of interlinked pieces of information, even of the simplest kind. Text-adventures like *Zork* (Infocom 2005[1981]) would be the 'purest' example of hypermedia worlds; worlds that are presented exclusively through verbal presentation, unlike worlds constructed through images and sounds, are by definition non-tangible. The hypermedia category would also include, however, although in slightly more ambiguous ways, graphics-based role-playing games and adventure games that rely primarily on symbolic interaction while giving the player a strong subjective point of view within the world of the game. This combination can be found in traditional first-person role-playing games like *Wizardry* (Sir-tech Software 1981), *The Bard's Tale* (Interplay Productions 1987), or *Dungeon Master* (FTL Games 1989[1987]), and in first-person interactive slide show puzzles like *Myst* (Cyan Worlds 1993) or *Berlin Connection* (Eku interactive 1999).

Fictional participation with hypermedia-based computer game world, even if entirely symbolically mediated, is still not 'reading' as one would read a novel, but a simulation, which is premised on the principle of the model. Moreover, hypermedia-based games may also give fictional agency through a controllable character, who mediates for the player a situated and restricted relationship to a larger world that is to be traversed and explored. Traditional adventure- and role-playing games fall into this category, even if they do not present their worlds from a first-person perspective; this includes the classic text- or point-and-click adventures from Sierra and LucasArts – like *King's Quest* (Sierra On-Line 1984) and *The Secret of Monkey Island* (Lucasfilm Games 1990) – a tradition that still provides a general formula for many adventure-based games.

Fictional agency in hypermedia environments, even if premised on a minimum of model-based simulation and realistic agency, lack tangibility. In point-and-click interaction, only the relationship to the mouse and the cursor must be learned in a perceptual sense, not the relationship to the playable character. The mouse-based interface itself performs the function of a perceptual prosthesis, enabling intuitive and efficient symbolic interaction (pointing, selecting, designating).

As a commercial genre, first-person role playing games like *Dungeon Master*, or first-person slideshows like *Myst*, have been marginalised by the 3D capabilities of increasingly faster computers, just like the text adventure was marginalised by the introduction of graphics-based simulated environments. This means that the top-right corner of the model is considerably less populated today than it used to be. Non-tangible player-character relationships are hard to find in combination with a strong perceptual re-location of the player. Also, we could argue that *The Bard's Tale* and *Dungeon Master* were in one sense heading towards avatarial tangibility all along – that is, towards games like *Ultima Underworld* (Origin 1992) or *The Elder Scrolls III: Morrowind* (Bethesda Softworks 2002) – but were limited by the lack of computer power at the time. This is also why I have placed them below *Zork* in the model; there are elements that point beyond the hypertextual world of words and images, approaching instead a navigable point of view that is fluent and tangible. The pure text adventure, therefore, ends up in a relatively unique position; it is purely symbolic and maximally re-centred.

In other words, there is a certain kind of co-dependence between the two axes that the model hides: in graphics-based environments, if there is a strong re-positioning through a subjective point of view, there is also a certain gravity of tangibility and embodiment that kicks in, which works against the distinctive worldness of a hypermedia landscape. This is not an unavoidable law or regularity, but a dominant cultural and technological convention. On the other hand, as I will be discussing in chapters 7 and 8, this convention does have some support in phenomenological habit, in so far as a situated point of view addresses our sense of embodied agency more directly than a detached point of view.

As the model illustrates, tangibility is a matter of degree; the puzzle-based adventure *Grim Fandango* (LucasArts 1998) is placed below *The Secret of Monkey Island*, because there is a prosthetic extension set up through the real-time control of the playable character Manny Calavera. At the same time, this avatarial relationship is less significant than it is in the action adventure *The Legend of Zelda* (Nintendo 2004[1986]), where the avatar is more responsive and flexible, is routinely under direct threat by enemies, and must engage in battle with them. This does not mean, however, that the player's relationship to the *character* (and the story) in *Grim Fandango* is necessarily 'weaker' or less central to the experience; on the contrary, one could argue that partly because of the weaker avatarial relation, there is room for a stronger player-character connection on a different level.

In point-and-click interaction, the distinction between designating and directly controlling the movements of the playable character is not clear-cut, and the former is not necessarily less demanding on eye-hand coordination and motoric skills than the latter. In principle, however, we can distinguish real-time *control* – which simulates a physically tangible relationship – from merely real-time *interaction*, which refers to actions that the player must perform in real time, in order to control the unfolding actions of the avatar. A clear example of real-time interaction that is not real-time control would be the elaborate button-pressing sequences that are implemented in *Resident Evil 4* (Capcom 2005b) and *Fahrenheit (Quantic Dream 2005)*. These sequences are performed in real-time, are heavily action-oriented and demand fast eye-hand coordination, but are still disconnected from any 'umbilical hookup' to the playable character.

Another type of avatarial 'bypass' is found in the mouse-based and action-oriented role-playing game *Diablo* (Blizzard 1996), which requires fast – and tactically chosen – clicking to defeat enemies. However, as compared to *Resident Evil 4*'s button-pushing sequences, action-roleplaying interaction is more ambiguous in its relation to the principle of the avatarial prosthesis. Although players use the mouse cursor to select and *designate* where the playable character moves and where and how it attacks, the speed required of the real-time interaction still gives a feel that approaches a tangible relationship. This ambiguity is strengthened by the fact that players can use the mouse to pull the playable character along in a fluent motion (by keeping the mouse button pressed down) rather than directing the character to locations by clicking on them. Moreover, this slightly improvised avatarial prosthesis is also strengthened along the horizontal dimension of the model above, through a navigable isometric frame of view that also approaches a tangible relationship.

Nevertheless, the semi point-and-click interaction of *Diablo*, and its particular appeal, seems to become a thing of the past among singleplayer adventure and role-playing games, and the next game in the *Diablo* series will in all likelihood go 'full avatarial' by adopting a standard real-time controlled character-and-3D-camera configuration. This type of avatar will be discussed in the next chapter.

Certain types of non-avatar-based singleplayer games do not plot into the two-dimensional continuum. While the avatar (weak or strong) is the primary model for interacting with screen-projected tangible worlds, there are other alternatives, which abandon the notion of the avatar altogether, and therefore do not relate to the category of avatar-based play along the two dimensions of tangibility and miniatureness. In the Orisinal game *Milk the Cow* (Ferry Halim 2000) and similar kinds of browser-based games, the cursor itself is the prosthesis through with the player can poke and prod at tangible objects that appear on-screen. In a similar fashion, touch-screen technology allows the player to bypass the avatar

entirely by touching the screen, either directly or via a simple extension (a stylus), to simulate tangibility with the environment.

Finally, Virtual Reality installations can also be seen as an alternative to the avatarial approach; their aim is to escape the screen altogether and to push beyond avatarhood. Still, Mario demonstrates the advantages of vicarious embodiment over cursor-poking, touch-screen or VR interfaces: there is hardly any limit to what your body can be and what it can do (and how it can grow), or to the number of ways in which your body can be threatened, rejected and destroyed. It is this kind of malleable embodiment that avatar-based computer game fiction is all about.

The gameworld and the contest

In the final part of this chapter, I will draw attention to the ludic dimension of the body of the avatar, and attempt to give some more context to the relationship between the avatar and the systemic nature of games. As explained in the previous chapter, computer game environments integrate the explicit rules of a game system, through the principle of concretisation. This means that the structuring imperatives of the game system become translated or 'absorbed', as it were, into a world of playthings. It is this playable or ludic world that the avatar 'projects around itself'. Different kinds of bodies constitute different kinds of bodily spaces, and the body of the computer game avatar constitutes, by definition, a *gameworld*.

A gameworld is what Chaim Gingold (2003) calls a 'possibility space': the sum or the 'space' of the possible states of the world as a system. The possible variations in game state define for the player a space of possible actions and outcomes. Gingold distinguishes between three main dimensions of a possibility space: size (how many things the player can do), domain (what types of things the player can do), and, finally, *density* – how many states of the system that are interesting (2003:69). Gingold is primarily concerned with how to design possibility spaces for game making and story making authoring tools or 'magic crayons', but the concept of density may also be applied to avatar-based fictional worlds: a gameworld is more than merely a simulated environment and a fictional world; it is also made intelligible to the player as a possibility space, via the vicarious body of the avatar. A gameworld is, in Gingold's terms, "dense with interesting results" (2003:70). The avatar embodies this possibility space, giving the player a point of entry for fictional participation that is situated and non-systemic.

Brenda Laurel's concept of *dramatic* human-computer interaction (Laurel 1993) provides a conceptual parallel to the notion of the gameworld. Dramatic interaction between humans and computers, Laurel says, hides the formal structures that define and uphold it. Like in the theatre, when dramatic action unfolds, the

stage is all there is (1993:17). And like staged performances, human-computer interaction needs to have a dramatic plot; it must be carefully orchestrated and engineered according to the laws of drama, so that it can be experienced as a satisfying whole, with a beginning, a middle and an end. Dramatic action has a certain shape (a satisfying dramatic curve), and an internal structure of dramatic relationships and events. The theatre stage, according to Laurel, is the ultimate paradigm for interaction design.

> The individual incidents that make up *Hamlet*—Hamlet fights with Laertes, for instance—are only meaningful insofar as they are woven into the action of the mimetic whole. The form of a play is manifest in the pattern created by the arrangement of incidents within the whole action. (Laurel 1993:63)

As a principle for structuring make-believe, and as a metaphor for defining worldness, Laurel's 'whole action' reflects the Shakespearian model: all the world is a stage. A concrete realisation of Laurel's theatrical metaphor is the interactive one-act domestic drama *Façade* (Procedural Arts 2005). The simulation of *Façade* is primarily governed by the rules of a dramatic plot; it is a 'dramatic machine', which simulates a participatory dramatic process, and a landscape of developing relationships. Nevertheless, it is typically categorised as game (although a very different kind of game), by its 'players' as well as by the media. This makes a lot of sense; gameworlds are also governed by a formal structure that gives dramatic significance to the player's actions, only this structure is based on the model of the *contest*, not the theatrical stage. From the point of view of the avatar, all the world is a contest.

Laurel's notion of a 'mimetic whole' resonates with Salen and Zimmerman's definition of *meaningful play*:

> [Meaningful play] requires that the relationship between action and outcome is integrated into the larger context of the game. This means that an action a player takes no only has immediate significance in the game, but also affects the play experience at a later point in the game. Chess is a deep and meaningful game because the delicate opening moves directly result in the complex trajectories of the middle game—and the middle game grows into the spare and powerful encounters of the end game. Any action taken at one moment will affect possible actions at later moments. (Salen and Zimmerman 2004:35)

A gameworld is structured as a 'whole action' according to the principle of meaningful play, and, we could add, some gameworlds are more 'meaningful' in this respect than others. Salen and Zimmerman's description illustrates that meaningful play also implies a dramatic unfolding of events, a dramatic contest,

which emerges from the objective conflict that is defined by the properties of the game system.

In the article "From Game-Story to Cyberdrama" (Murray 2004), Janet Murray argues that the contest and the puzzle represent a structural similarity between storytelling, drama and games.

> Furthermore, games and stories have in common two important structures, and so resemble one another whenever they emphasise these structures. The first structure is the contest, the meeting of opponents in pursuit of mutually exclusive aims. This is a structure of human experience, of course, from parenting to courtship to war, and as a cognitive structure it may have evolved as a survival mechanism in the original struggle of predator and prey in the primeval world. Games take this form, enacting this core experience; stories dramatize and narrate this experience. [...] The second structure is the puzzle, which can also be seen as a contest between the reader/player and the author/game-designer. (Murray 2004:2)

This broad notion of the contest highlights the similarity and the overlap between the systems-oriented concept 'meaningful play' and the narrower Aristotelian model of dramatic action and dramatic plot that governs interaction in *Façade*. In the example of Chess above, a conflict-drama unfolds between the players, but this contest is not, we must assume, projected into the simulated world of kings and pawns to any significant extent. In singleplayer games, this dramatic contest is set up between the player and the game system itself; this means that there is also, as Murray says, a contest between the player and the designer[60].

However, the principle of the avatar changes, on the level of perception and embodiment, what Bateson would call the 'framing' of this contest. The avatar re-frames and re-centres the dramatic contest, taking the 'spare and powerful encounters' into a vicarious world. Salen and Zimmerman's 'meaningful play' is thereby transformed into an ontological principle, which penetrates and gives sense to the world that the avatar projects around itself. As players, then, we become contestants both actually and vicariously; through the embodied incarnation of the avatar, these two dimensions blend and mix. In other words, the 'recentring' or re-framing of the player's subject-position is a *performed* recentring.

60 It may be added here that there is also a contest between single players, either in immediately social contexts, or in a more generalised form, in the sense that players always, directly (in terms of scores, numbers and statistics) or indirectly, compete against other players who are playing the same game.

In avatar-based play, the 'ontological fusion' between the actual and the fictional is a fusion of contests, a dramatic fusion[61].

This also means that Murray's trope of the *puzzle* becomes less central to avatar-based play than the broader concept of the contest – the "meeting of opponents in pursuit of mutually exclusive aims". It is the contest that grounds the world of the avatar, not the puzzle. Consequently, avatar-based puzzle-solving needs to be embedded within a larger contest in order to have significance within a gameworld; if there is no larger contest, it makes little sense to approach the puzzle through vicarious embodiment, as an avatar.

The game-based notion of the dramatic contest is a parallel to, and therefore also competes with, the Aristotelian model of dramatic interaction and dramatic plot; the dramatic contest and the dramatic plot are, from the point of view of the avatar, different ontological principles that seek to define what the world is about, and what ultimately motivates action. In this respect, the two are not compatible, although they may be combined and balanced in relation to each other in various ways. Typically, singleplayer action adventure games furnish their gameworlds with local sequences of scripted dramatic interaction, which are subordinated to and do not compete with the contest on a larger level[62]. On a larger level, the gameworld does not need to simulate a 'world' that responds and develops according to the laws of a dramatic plot. Gameworlds are in one sense 'drama simulators' like *Façade*, but they are committed to a different kind of drama, with a different kind of rules. In *Metroid Prime* (Retro Studios 2003), for example, no interpersonal relationships are addressed and developed, and the only conflict (and love affair) that is being played out is the relationship between the avatar and the environment. This journey of conquest and exploration, in all its complexity and detail, needs no dramatic plot.

If we link the concept of the gameworld to the broader notions of play and fiction that I addressed in chapter 2, the gameworld unifies *agon* and *mimesis* in a way that has similarities with the ancient religious ceremonies and rituals that Huizinga talks about in *Homo Ludens* (1955[1950]). The dramatic contest is, if we follow Roger Caillois, a highly un-modern and highly uncivilised form of play.

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61 The concept of 'ontological fusion' between the fictional and the actual refers here to Tomas Pavel's *Fictional Worlds* (1986), which is a central influence behind Marie-Laure Ryan's theory of 're-centring'. My use of the concept here takes a cue from Jill Walker's "Performing Fictions: Interaction and depiction" (Walker 2003), which I discussed briefly in chapter 3.

62 The principles and mechanisms of dramatic scripting in the action adventure genre is a topic that would need a separate study, which goes beyond the scope of the present work. *Half-Life 2* is a good example of a game that infuses the gameworld with strong elements of 'stage-based' dramatic interaction – especially in the opening and ending sequences. These elements of 'interactive drama' are mostly crafted into dedicated sections that intersperse the contest at regular intervals throughout the game.

Caillois' perspective also finds some support in the sociological study of sport. In *From Ritual to Record. The Nature of Modern Sports* (1978), Allen Guttmann discusses how the contests of archaic and ancient cultures, which were an integrated part of religious rites and ritualistic practices, have been replaced by the secularised and rationalised phenomenon of modern sport. As the title says, Guttmann draws particular attention to the aspect of quantification; a defining characteristic of modern sport, he argues, is the quest for, and the obsession with, records. In a similar vein, Norbert Elias and Eric Dunning, in *Quest for Excitement. Sport and Leisure in the Civilising Process* (Elias and Dunning 1986), also emphasise the way in which the process of modernisation has civilised and formalised the contest. In this perspective, avatar-based computer game worlds can be seen as offering a space for dramatic yet serious contest that has been closed down or marginalised by modern games and competitions.

Avatarial learning and role playing

The different ways in which the fictional and the actual contest is being merged or fused through avatar-based play is a topic that requires more detailed study. What I want to point out here is that the fusion or re-framing of the avatar implies that the process of learning and the performance of skills are being re-framed or re-centred. In a gameworld, the player's actions are motivated in the situation of the avatar, and the player's actual skills are expressed and measured in terms of the skills of the avatar. Through the structuring of the avatarial prosthesis, this fusion typically follows a rule of radical transformation and amplification. Relatively unimpressive actual skills may translate into the most spectacular manoeuvres in the fictional world; for example, knowing how to synchronise a few button presses with a simple movement of the analogue stick means knowing how to defeat multiple enemies in an acrobatic and gracious way.

At the same time, the actual learning process of the player maps onto the learning process of the avatar as this develops in relation to the challenges that the avatar needs to overcome. The avatar embodies, therefore, what we could call a 'progressive mapping' between an actual learning process and a fictional learning process. When the player has learned to time the jumps correctly, the avatar has learned to traverse the dangerous pits. When the player fails to perform, the avatar fails to perform; when the player improves, the avatar improves. The avatar embodies a motivation and a learning experience that pulls together the actual and the fictional.

Avatarial fusion between actual and fictional skills, and between actual and fictional learning, distinguishes avatar-based interaction from role playing. Role playing, both considered as a genre (RPG) and as an element that can be added

to avatar-based games more generally, is characterised by the way in which the character's 'skills' as well as the character's 'learning' is separated from rather than fused with actual skills and actual learning. Upgrading your 'skill' in a role playing game like *Planescape Torment*, or in an avatar-based game that includes some role playing element, does not have anything to do with your actual skills as a player; it is the playable *character* that typically 'learns' or 'improves' a skill. This de-coupling of the fictional and the actual, which distinguishes role playing from avatar-based play, may create ambiguities or even conflicts when the two combine. In the FPS role playing hybrid *Deus Ex* (Ion Storm 2000), if the shooting skills of JC Denton are not developed, the player cannot be sure to actually hit what the crosshair is aiming at, even at point-blank range. When the two collide, role playing skill triumphs the skills of the avatar.

Equally, in role playing, the concept of 'learning' is linked to the character, not the avatar. In terms of the player-avatar relationship, the significance of character learning does not lie in character development itself, but in how this character development might also re-configure the actual properties and potential capabilities of the avatar – which it usually does, although typically in incremental steps. In most avatar-based games, even if not a defining feature of the form, the avatar is continually expandable with new capabilities as the player progresses, and the player is given some choice in how to prioritise between different types of capabilities[63]. Such dynamic configurations and amplifications, whether they are role-played as a character's 'learning' or not, like any property of the avatar, are not learned in the avatarial sense until they are actually learned and incorporated by the player, via the prosthetic extension. In terms of vicarious embodiment, therefore, the 'learning' of a new skill is not in principle any different from picking up a new gun – except, in most cases, a skill-capability will be more permanent and less flexible than a gun-capability.

Role playing emphasises character and narrative, and does not need any avatar. Nor does avatar-based play need role-playing. Avatars may be configurable and expandable throughout the game, but this dynamic aspect is often flexible as well as externalised in relation to character and narrative; weapons, items and equipment can be utilised and managed freely as they are collected through the course of the game, and they do not integrate with character development. In action-RPG hybrids, especially in games that do not rely on point and click interaction, like *Fable* (Lionhead Studios 2004) or *Deus Ex*, role playing and avatar-based play combine in elaborate ways. In other games, like *The Legend of Zelda* series, *Jet Force Gemini* (Rare 1999) or *Beyond Good & Evil* (Ubisoft Montpellier

63 ICO is an interesting example in this respect. The avatar in ICO is given virtually no expanded capabilities during the game, and there are no role playing elements that allow the player to configure and prioritise between different types of capabilities.

Studios 2003), role playing elements are more modestly implemented but still contribute significantly to the dynamics of avatar development. When combined with avatar-based play, role playing accentuates and elaborates the dynamic and configurable capabilities of the avatar, and integrates this aspect with character and narrative in more detailed and complex ways than what would otherwise be the case. Seen in isolation, however, as noted in chapter 5, role playing is a form of play – and form of fiction – that is independent from realistic agency; it is essentially concerned with character as expressed through numbers and statistics, as a configurable and playable *system*, not as a reified body that can be incorporated as second nature.

The role playing aspect is not reflected in the model above, which only deals with miniatureness and tangibility. If implemented in the model, we could imagine role playing as a third dimension, which reflects a concern with character and narrative independently of the principle of realistic agency that underpins the other two dimensions. As the placement of *Fable* in the model illustrates, character-based play does not exclude avatar-based play along the dimensions of tangibility and miniatureness. However it does add a new dimension and a different focus, which is concerned with exploring the possibility space of the game system more directly, freed from the implications of vicarious embodiment.