From Background to Protagonist
Spatial Concepts in 'Portal' and 'Echochrome'

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Despite obvious differences in their representation and game principle all games discussed have one thing in common: the construction of space through movement. The basis is formed by theories focusing on movement, particularly the concept of hodological space and the role of perspective. Since it defines the position of character, player and the view they are holding, central perspective plays a dominant role in game play and the construction of space. After giving a short overview of theories relevant to this paper, I will then continue to look at three different games examining the handling of space and the discussed topics.

Using *Portal* (Valve Software 2007), *Super Paper Mario* (Intelligent Systems 2007) and *Echochrome* (SCE Japan Studio 2008) as an example, the paper looks at perspectives of the image presented and its meaning for the game and the construction of space using viewpoints – like in art practice. It is also relevant to consider the relation of the player and the character regarding the control mechanisms in a spatial context. Another central argument is the shift from a three-dimensional to a two-dimensional world, and vice versa. The aim is to point out a spatial concept that moves away from passive background graphics via an experience space to an active space including characteristics of an active subject of avatar. Thus, the construction of space is an active process, a part of the game.

Construction of Space

The connection between movement and space is important, and the role of perspective might be a relevant element in this relationship. Movement and space are clearly connected as the commands of the player are mediated through movement on the keyboard or the controller. As these commands are executed, the movement of the avatar is what determines virtual depictions of space. If the avatar is walking in a certain way and direction, the game space is depicted accordingly, that means the avatar's point of view and his environment is the game space. There

are different concepts of space in computer games, but almost all of them include the movement of the player in the game.

Although I would like to look at the structure and the formal representation of a game in order to analyse the game space, it might be necessary at times to include the narrative elements, which mostly includes the game space. In *The Language of New Media* Lev Manovich describes computer games as navigable spaces that are based on a narrated journey such as the *Odyssey*. His term 'navigable space' proposes a spatial concept based on the Homerian story, thus a journey structured by several narratives. The hero of Homer and Manovich makes his way through stormy waters, past seductive sirens or murderous zombies. In both computer games and antique myths, the focus of the narration lies on the journey, the movement through a space. The story develops, as the hero/player is moving through space:

> In *Doom* and *Myst* – and in a great many other computer games – narrative and time itself are equated with the movement through 3-D space, the progression through rooms, levels, or words. In contrast to modern literature, theatre, and cinema which are built around the psychological tensions between the characters and the movement in psychological space, these computer games return us to the ancient forms of narrative where the plot is driven by the spatial movement of the main hero […]. (Manovich 2001, 214)

This concept could be applied to most games, if we stay on the narrative level. Technically, though, the player does not move through space, he moves the space itself, as Günzel (2007) says:

> Factually, he or she does not move in space, but rather primarily moves space itself. In the simulation image the line of sight is centralized and fixed, and what is steered by the interface is the virtual space around it. The simulation picture of the first person shooter type thus visualizes intentionality and, furthermore, uses it as the major basis for interaction. And this interaction derives from the image's composition alone.

This statement focuses on the genre of first person-shooter games, but could be applied to other game genres as well. The significant difference between film and computer games is interaction. Images are not only seen, but made/produced. The journey of the player in the game is the key element in the production process of the digital-virtual computer image. Perspective is an important part in this construction process. The first person-shooter is dominated by the central perspective image, and as quoted, "the line of sight is centralized and fixed" and the player moves "the virtual space around it." However, even games that are not based on

a first person-perspective depend on the perspective of the player on the game world: Either, the player continues her exploration of game space by scrolling or by moving an avatar in third person perspective, or the player remains the space defining instance in playing a game.

If we agree on the player's ability to construct and move the space within a game, there is one concept of space construction that is especially worth looking at: Michel de Certeau's concept of space in *The Practice of Everyday Life*. According to him, space is a location that you are doing something with. A space is constructed by actions or people telling stories about actions. Stories and the act of telling them are important to de Certeau's theory, which seems familiar from Manovich's concept of navigable space.

Narrations or oral descriptions of space are divided in two categories by de Certeau: *map* and *tour*. Both possibilities of descriptions are based on the corresponding verbs, actions. Describing a location from a certain point of view making the viewing process the center, the description has cartographic characteristics and therefore is a map. In contrast, walking through a location is a space constructing action:

> In other words, description oscillates between the terms of an alternative: either seeing (the knowledge of an order of places) or going (spatializing actions). Either it presents a tableau ('there are…'), or it organizes movements ('you enter, you go across, you turn…'). (De Certeau 2002, 119)

Walking through a game, playing it, constitutes the represented space. Seeing directly communicates with walking. Looking at the first person-shooter, the avatar moves because the player is altering the cross line and therefore the vanishing point of her perspective. The avatar seems to move by being steered up, down, forward, to the side, and thus, the view on the represented game world changes.

De Certeau's definition of a location or place resembles a spot; a still standing avatar could be defined as such. The visualized location is being manipulated while playing; it changes through movement (of the controller, cross hairs, direction) and becomes space. The player moves through this space and changes it continuously. Her commands trigger the creation of new spaces, and all of this happens in real time. Like de Certeau's walking people transform the street into a space through their movement.

De Certeau defines space as a web of mobile elements. In contrast to locations – constellations of fixed spots – spaces are constructed by movement in such a constellation. Spaces are not solid and steady, and they are rather a result of activity. This concept of space-constructing movement is very applicable to computer games. By moving her avatar in the game, the player creates the game space; or, as discussed before, by changing or moving her viewpoint onto the game space,

the player creates space. Different viewpoints in a game situation create a particular space. The film camera is a perfect example to explain this situation. Angles, viewpoints and the moving camera are working together to create a convincing landscape, room or other setting.

At this point, I suggest again that there is a space in videogames constructed by the player's movement in the game world. The image of a videogame is determined by those movements. Besides the image space of a computer game, which can be divided into the perspective image space and the topographical space (that I have not talked about yet), there exists another space. This space is not based on images, but on the experiences whilst playing a game: the hodological space.

The experiences of the player while playing/walking through a game is included in the term of the hodological space (adopted from the Psychology of Kurt Lewin): Stephan Schwingeler (2008, 104) defines this as a 'line of events' that construct the experience of space for the player and enable a spatial experience. Stephan Günzel (2006, 8) draws a connection between the experience of space and the spatial experience, claiming that the experience of space is created through the interaction of both representations of space, perspective image and topographical space. The game experience is influenced by both types of representation. Adding to the images and their influences on the player, the game experience and space inside the player's mind is determined by the experiences she makes while playing the game. The hodological space experience plays an important role in all games discussed in the following text. Without the experience and the player's mind, the game does not function as it should.

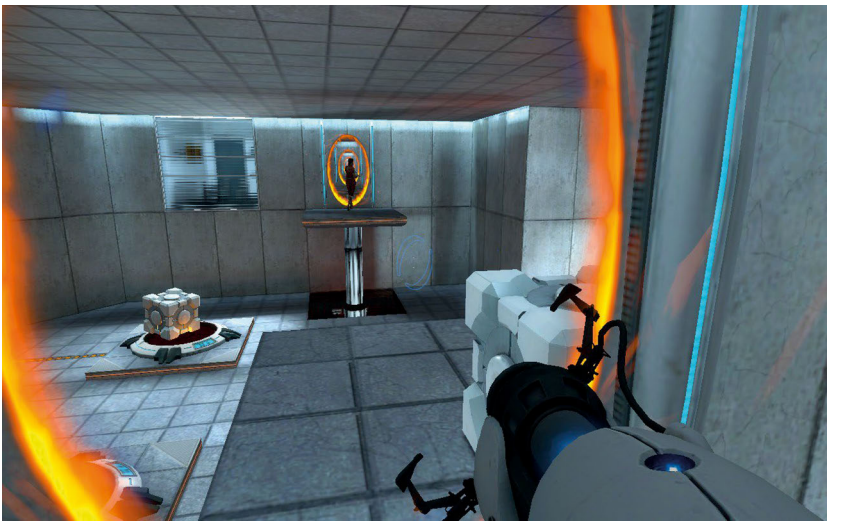
Space as Game Object I: 'Portal'

The first person-shooter puzzle *Portal* inhabits a three-dimensional game world that follows a regular first person-shooter in terms of graphics, possibilities of movement and action, as well as the construction of space. The player/avatar is moving in a first person-perspective and within a game world consisting of three axes (X, Y, and Z). The first person-perspective is essential to this game, as it defines the player's viewpoint and determines the depicted space. It is constructed through the character's movements and the actual playing of the game, as it is usual in first person shooter games.

An equally important part in playing a game is the avatar, which is the connection between game and player. The contained first person perspective defines the game space, while the implicit character, mostly only visible through a gun or a hand holding a weapon, sustains a central perspective on the game space. This perspective corresponds with the position and viewpoint of the player sitting in front of the screen, thus creating the relationship between player and implicit character.

Yet in *Portal*, this almost intimate relationship between player and implicit avatar is broken up by the appearance of the avatar's body – when two portals are located in a specific angle (fig. 1). The body becomes visible and, therefore, comments on itself, the player and the usual game structure. This might be the first time when the game highlights its self-reflexivity. There will be more moments like this.

Fig.1: Portal, *Level 7*



The central perspective also navigates the person and the aim of the weapon. In contrast to regular shooter games, which aim for fighting and destroying enemies, *Portal*'s main goal is to conquer, explore and master the space by shooting portals in walls, ceilings or floors and navigating through them. There are no real, independently moving enemies, except robots (first appearance in level 12). The mission of each level includes navigating the spaces in order to get to an elevator that literally goes to the next level. Not only is the main task a spatial one, the structure of the game is also based on space. Here, structure is corresponding to the game principle, and vice versa.

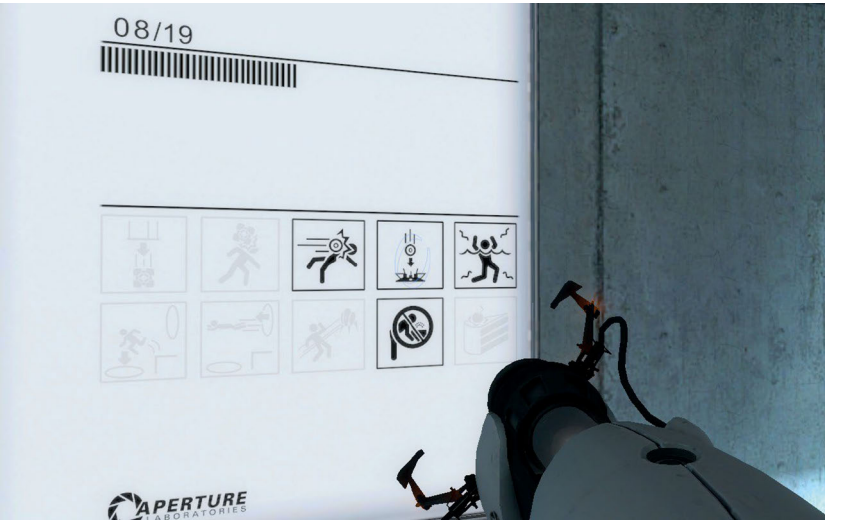
Portal enables the player to activate viewpoints and see things that she cannot see immediately from her actual position. There is not only one perspective – that of the player and at the same time the avatar – but several different viewpoints created by locating portals in particular positions. If one positions both portals opposite of each other, they are endlessly mirrored (like in video-feedback). By shooting a portal into a wall and another one into the ceiling, one can see right through the wall, and depict the spatial situation situated below the ceiling. Thus, new viewpoints and spatial situations and representations are enabled. One

could say, "I am installing new cameras by installing portals". Not only has the player the possibility to discover a perspective independent from her own, she can also install those viewpoints freely in any given position. The shooting becomes a (film-)shot. – So, the player explores the space by shooting portals, installing new viewpoints and, thus, experiences the space in a different way than a regular shooter. The handling of space as a tool to master a certain spatial situation hints to the space itself and its materiality. Teleportation via portals can be considered a self-reflexive way to deal with space in games.

In many games, it is possible to switch into a two-dimensional, topographical map to gain insight into achievable goals, persons or quests. Both spaces – the three-dimensional perspective space and the topographical space – communicate with each other and enable the player to solve problems. *Portal* does not have a map, the player explores the space by moving, that means by taking different viewpoints. There is no overview, no map, of the existing game world that could inform you about size, time or distance. The interface is reduced to the immediate view onto the space, yet including the weapon and cross hairs, towards which the objects in the game space are orientating.

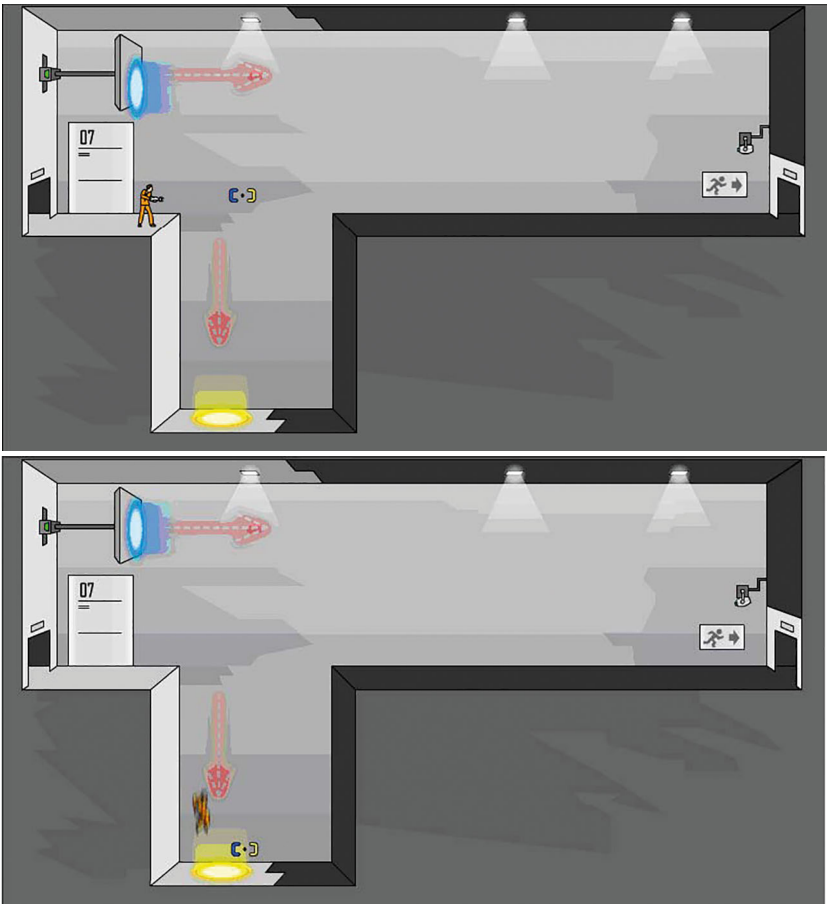
On the other hand, there is a two-dimensional image giving information about the upcoming level to the player. At the beginning of each level, the player finds an illuminated sign that shows the level number (02, 08, 15, etc.) as well as one or more pictograms. These pictograms hint to the characteristics of the level, such as obstacles or enemies, and inform the player about actions necessary to solve certain situations. They are black and white icons showing complex situations in a simple style, like directing the fireball into a technical device (see central icon on top in fig. 2).

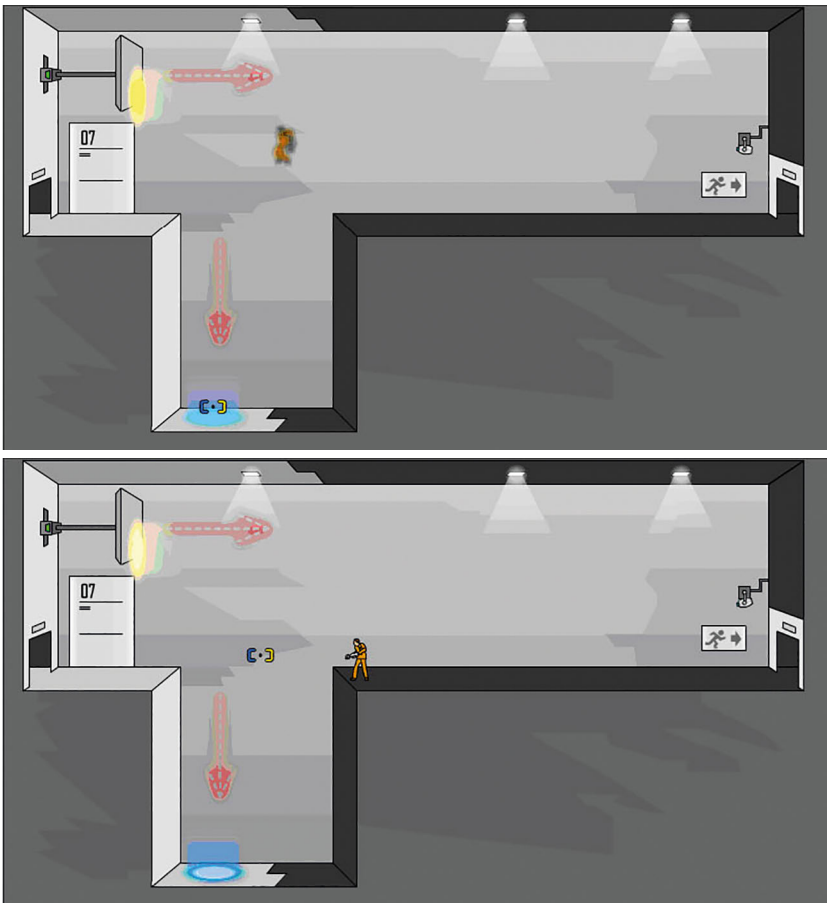
Fig. 2: Portal, *Level 8*



To conquer a huge wall, for example, the player has to remember the pictogram and use the two-dimensional graphic in the actual situation within a three-dimensional game world. Thus, the pictograms could be seen as an equivalent to the map in another game since they help to solve problems. Although *Portal* follows the construction of space in a first person-perspective, the game requires two-dimensional thinking and gameplay. The player orientates herself by moving around a three-dimensional space, the problems are only solvable applying a two-dimensional concept of space. This game principle becomes obvious when looking at *Portal: The Flash Version* (We Create Stuff 2007), which uses the same method to explore game space: teleportation through portals (fig. 3 a-d).

Fig. 3 a-d: Portal: The Flash Version, *Level 7*





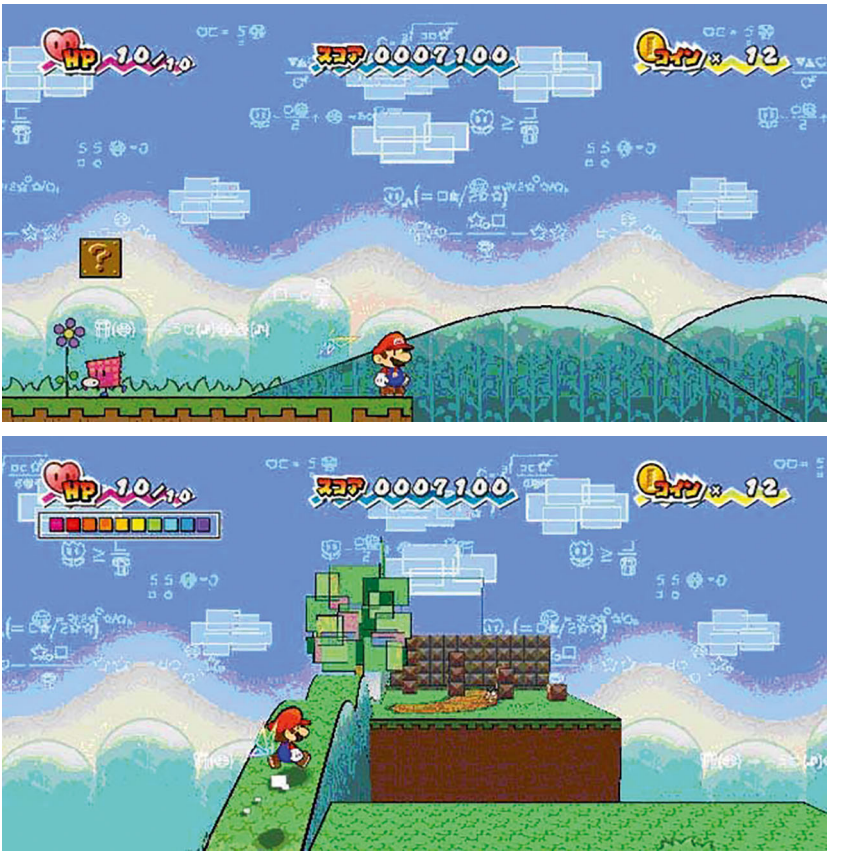
The use of the pictograms corresponds with a topographical representation, the depictions and their content, though, could be considered similar to a tour according to de Certeau: a discursive line of actions. There is no overview on structure and spatial characteristics, the player can only acquire information about dangers and ways to solve problems within the game space of a level. After observing at the icons, the player knows the necessary actions.

Space as Game Object II: 'Super Paper Mario'

Another game playing with multi-dimensional thinking is *Super Paper Mario*. In order to solve problems in a familiar Mario game world (only minimally changed to 3D-graphics), the player has to switch from the usual two-dimensional graphics to a three-dimensional world (fig. 4a-b). All levels are programmed in both worlds,

the two- and the three-dimensional. Playing in a somewhat familiar game world, the player gets to a point where the conventional Mario methods are no longer applicable. If she switches to a three-dimensional representation, the qualities and characteristics of the world change as well and obstacles, enemies or situations are easily passable. The change of game world results in a different gameplay. Besides mastering the first level of the game, the two-dimensional game world – the player can switch back and forth between two- and three-dimensional worlds to try out different solutions for each game situation.

Fig. 4a-b: Super Paper Mario, *obstacle in 2D and 3D-solution*

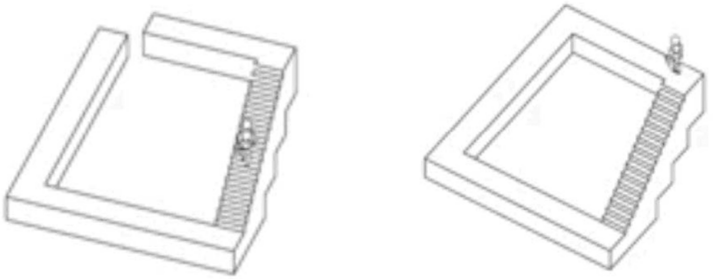


To play *Super Paper Mario* successfully, one has to be constantly conscious of the possibilities and changes in the 'other world.' The game space of *Super Paper Mario* is a variable space; however, the construction follows the conventional construction and graphics of space in two-dimensional games.

Space as Game Object III: 'Echochrome'

In this particular game, the player manipulates the space, so that the character can pass gaps, holes or obstacles by shifting the perspective from a three-dimensional world to a two-dimensional, flat view on certain elements. This switch between dimensions and the related way of thinking corresponds with the multi-dimensional gameplay in the two games discussed above. However, in *Echochrome* this action is only one of many ways to play successfully. The whole game is based on five laws concerning the perspective representation in the game, as the tutorial states. Basically, all rules follow this statement: "Change the perspective and create a path" (fig. 5 a-b).

Fig. 5a-b: Echochrome, *Tutorial: "Change the perspective and connect the path"*



The player and the character have to find a path through the elements in space to collect Echoes, shadow-like figures standing in various changing positions. The perspective, the viewpoint, of the player is equally important and dominant for the gameplay as it is in a first person-shooter, although it does not coincide with the viewpoint of the character. The player changes the view onto the space, in which her character is walking; in return, the new perspective modifies the space itself. It is not only the perspective, but also the dimensionality in the game space that changes throughout the game. In some cases, the player needs to connect two elements to reach the Echo, and the entire game space (including all spatial elements) transforms from a three-dimensional representation into two dimensions. Depth disappears and a flat view makes the solution possible.

To play *Echochrome* successfully, one has to be able to think in multiple dimensions, three with an occasional jump into two dimensions. The switch between both ways of representation resembles the map in other games, like *World of Warcraft* (Blizzard Entertainment 2004), *Doom* (id Software 1993) etc., that are being activated to receive advantages in playing. The 'map' of *Echochrome*, though, has

different qualities: There is no overview of the game world, and the player can only see a single one out of multiple perspectives. Echoes, partners or enemies are mostly not visible in this mode. By moving the spatial construction – at this point, the movement of the character is not of any interest – spaces or spatial situations are being created. Thus, the elements of the spatial construction (stairs, cuboids, holes, etc.) could be understood as single spots, which become a space through movement, following Michel de Certeau: only the execution enables the construction of space.

The conventional (game) story and the narrative so dear to de Certeau, however, takes a remarkable turn in *Echochrome*: The hero does not exist. Instead of defining the game space by moving through and exploring the space, the character – in this case a faceless doll – is rather a dull walking figure with no perspective of its own. The character can only be controlled minimally. When we start the game, the character starts its walk through the spatial construction. The player can make the character pause and think, while still moving the entire construction. Yet, time is running out and limits this break. Additionally, the player can manipulate the walking speed of the character, precisely, she can fast forward it. Generally, though, there is no intermediation between player and character. The moment in which player and character do the same thing – thinking – is limited and without any effect on the character's motion. The character only indirectly adds to achieving a goal. The direct point of action lies with the spatial construction, which immediately reacts to the commands of the player. The course of the game is influenced by directing the space, while the character continues unaltered in its walk.

The perspective and thus the power and control over the game space lies only in the player herself, therefore establishing a relation between player and character different from other perspective-based games, such as first person-shooter games. Firstly, the player might identify herself with the character; after all, it has a body, head and limbs. Nevertheless, differing from games with a character orientating itself and being controlled within the game space, like for example *Super Mario World* (Nintendo EAD 1990) or *Diablo II* (Blizzard North 2000), the assumed avatar does not react directly to the entered commands.

Perspective and positioning the space hold central roles in *Echochrome*. The spatial construction, and therefore the actual spatial situation, can be directed, manipulated and effectively altered. The character is walking through the directed space and reacts to changes. Space is not only background or playground; it significantly contributes to the experience of and success in the game. It becomes an active participant. This constellation implicates an interaction, even mediation, between player and movable space. The player might identify herself with the character; nonetheless, the actual control mechanisms relevant for the game lie with the spatial construction rather than the character.

Adding to this statement is the image of the spatial representation. There is no connection between perspective and character as we have seen in other games, especially perspective-based games like the first person-shooter. The walk of the character has no effect on the representation of space at all. The controlled space appears to be similar to an avatar in its relation to the player. In contrast to the continuously walking character, it forms the parameter that executes the commands given by the player. The spatial construction transforms from a spatial object, background or playing field, to an active subject, an agent, that represents the player, solves problems and acts as a projected spatial being. The overall perspective becomes that of a third person, and adds to the active spatial character.

Space as Game Subject: 'Echochrome'

Space is created through action: Action and interaction are essential to playing a game. The single elements in a game world (pixels, polygons, angles) come together and build a space through the motion of the player. Without action, the computer game image might depict a space, but it only becomes space by playing the game itself.

Playing with multi-dimensional representations within their game world, games like *Super Paper Mario* or *Portal* demonstrate certain self-reflexive usage of game space. Additionally, to the subtle irony in narration, *Portal* discusses the role of space, perspective and player character on a topological – structural – level. The construction of game space is literally experienced by shooting portals and using them to teleport the character from one location to another. To play a game like *Portal* successfully, the player creates a hodological space, an experience and knowledge that derive from the visual representations, the understanding of game physics and the act of playing. Space becomes a visible, and, thus, conscious main topic of the game.

This understanding of space as a main structure and theme in games is widely spread by now. Games such as the traditional analogue marble labyrinth find their equivalent on the iPhone, dealing with space as an important aspect in order to play successfully. Some of these games contain very simple graphics and focus on the understanding of construction and handling of space. This is very similar to processes taking place as discussed in *Echochrome*, whose simple black and white appearance is reminiscent of a drawing.

The construction of space through motion *is* literal in this game, as well as the function of perspective in this process. What makes it differ from other games reflecting game space, is the complete manifestation of an active space. The view on the game space is not limited, compared with, for example, *LocoRoco* (Sony Computer Entertainment 2006) where game space is visually still a background

element of the game. The spatial object in *Echochrome* is fully visible, controllable and responsible for its actions. The player finds herself looking at the space in a third person perspective comparable with the avatar in games like *World of Warcraft*. The object obtains features, which are usually linked to an avatar in computer games; it becomes a game subject, an active figure that can be played with independently from the displayed (walking) character.

Motion and interaction separate the images of computer games from images in film, photography or painting. And still, they could all have one thing in common: The creation of a conscious subject within the space of the medium. Similar to the observer of a Baroque painting becoming an active part in the spatial construction, the player takes on the same role. In games like *Echochrome*, the player might identify herself with another conscious and active subject: space.

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