Space and Narrative in Computer Games

Sebastian Domsch

> Some impasses in critical approaches to videogames might be resolved by taking a spatial turn.
> (Huber 2009, 383.)

This essay wants to look at the relation between freely navigable space and narrative potential in computer games. Computer games, especially recent ones, have put more and more effort into their narrative potential (creating individualized and believable characters, original storylines, meaningful actions). However, where in most narrative media like written text or film narrative works primarily as a sequence of events in time, one of the unique features of games is the player's free movement through space. Thus, another trend in computer games is towards the creation of open-world, or 'sandbox' games that do not restrict the player's movement, and that do not impose a (chronological) order in which different spaces are to be visited – as many first-person-shooters did and still do. The challenge for the game designer who wants to combine open worlds with narrative potential is therefore to find new forms to 'narrativise' space; to provide it with high narrativity, without linearizing it back into a sequence in time.

A few introductory remarks might be necessary in order to situate this essay and its specific focus within debates about the proper place of narratology in game studies, not least since much, if not all, of the controversy hinges on misunderstood or poorly expressed definitions. The most simplified (and seemingly incompatible) arguments run like that: Narratologists claim that videogames *are* narratives, ludologists claim that videogames are *not* narratives. In order to see that both standpoints are not mutually exclusive, one needs to specify what they actually relate to. When ludologists claim that videogames are *not* narratives, they are giving a partial answer to the question: what is the *essence* of a videogame? Their answer to this is, correctly, that the essence of a videogame, its *differentia specifica*, is not captured by cataloguing them as just another form of narrative. Or, to put it another way: what differentiates them from other narratives is not the fact that they are narratives. When, on the other hand, narratologists make

the claim that videogames *are* narratives, they are (or they should be) talking about the properties that videogames have/contain. In this sense, videogames *are* narratives because they *contain* narratives (just like a picture might be a narrative because it contains one, without losing its *differentia specifica* as a visual image).

Now, a strict ludologist perspective goes even further, claiming that not only is the element of narrative in a videogame not sufficient (saying that it is a narrative does not sufficiently describe what it *really is*), but it is also not necessary: a videogame can be a videogame without containing any narrative. As Markku Eskelinen (2001) polemically puts it: "If I throw a ball at you I don't expect you to drop it and wait until it starts telling stories." This means that the narratologist claim has to be further qualified: *some* videogames contain narrative (which makes them also 'a' narrative). The legitimization for the narratological perspective lies in the statistic relevance of the 'some.' Because an empirical overview of the existing videogames, and even more when considering the trends of videogame development, will clearly show that 'some' means 'most.' Narrative elements are almost as ubiquitous in videogames as visual elements (about which one could make the same claims of non-sufficiency and necessity), and their importance and complexity increases steadily, which has led Marie-Laure Ryan (2009, 183) to talk about an "elective affinity (rather than necessary union) between computer games and narrative."

But not only the quantity of narrative elements (many of which could be deemed as external to gameplay proper and therefore not part of what game studies are interested in) makes narratological approaches to computer games productive – even more so does the mode through which so many games are choosing to convey their gaming experience to the player: as the experience of navigating through space. Though these spaces can be presented as pure abstractions devoid of any meaning but their spatial properties, such a presentation will run counter to human cognition's tendency to semanticise spaces – to give space a meaning. As we experience spaces, whether they be real or created by computers, we read them for their meaning and the stories they contain, and as we perform these spaces through movement and interaction, we inscribe our own narrative into them. We do this all the time, and computer games reward our interest in the narrative potential of space by providing extremely dense spaces, "charged with meaning to the utmost degree," as Ezra Pound has said about great literature.

It is clear that this progressive investment with meaning is nothing that is necessary to the playing of a game. It is unimportant to successful gameplay whether we refer to the chess piece as 'the king' or 'the-piece-that-is-allowed-to-move-for-one-field-in-each-direction.' It is unimportant, and yet it constantly happens when we play, and it happens with no games more thoroughly than with videogames. Videogames are the epitome of this tendency to invest the activity of playing with a fictional frame of reference, to imagine our decisions within a

rule-bound system as narratively relevant events in a fictional world and to understand the performance of a game as the gradual development of a narrative story. Videogames are the triumph of fiction in gaming, or as Jesper Juul (2005, 162) has put it, "the emphasis on fictional worlds may be the strongest innovation of the videogame."

Game spaces, therefore, have a very high narrative potential, as they have "the ability […] to evoke the mental representation that we call story" (Ryan 2008, 412). They do so as an integral part of the gaming experience, rather than an external element like a cut scene. This is maybe the most important reminder or qualifier when talking about narrative and games: *narrative is what happens in the minds of those who experience*. As humans, we experience life – our presence and agency within it – and we make sense of it by casting it in the form of narratives. Now, it is the magic of fiction to make us experience something that is *not* us, an experience that is again cast as narrative. While classic narrative media like prose or cinema tend to de-emphasize our presence and to substitute it with the presence of the other, interactive media like computer games or role-playing stress our presence, but they still retain the element of (fictional) otherness: the player experiences her presence within the navigable space of a computer game, but it is not identical to her own space, as her avatar is not identical to her. The difference between the two is narratively relevant fiction. Game spaces are spaces that we can experience through our presence within them as *other* spaces. And this otherness is conveyed by giving this space a story of its own, a story that the player will come to understand through experience and influence through agency. In videogames, spaces tell their own stories, that is, they provoke the player to construct these stories within her mind. This provocation is achieved by different methods, which will be sketched in the following, under the general term spatial narrative.

Spatial narrative as a term is suggested as the opposite of *sequence narrative*, i.e. narrative that happens primarily as a sequence of events in time, and that is presented as a recounting of these events through sequentially arranged signs, such as words on a page. Sequence narratives are conveyed through concrete narrative artefacts that usually name states and chronicle state changes. Spatial narratives do not necessarily do so, this is why they do not look the same, though their effect in the perceiver is similar. Spatial narratives are especially dominant in computer games that use navigable space. Henry Jenkins (2004, 124) has argued for the fundamental difference between sequence and spatial narratives:

> Spatial stories are not badly constructed stories; rather, they are stories which respond to alternative aesthetic principles, privileging spatial exploration over plot development. Spatial stories are held together by broadly defined goals and conflicts and pushed forward by the character's movement across the map.

Another currently used term for spatial narrative is *environmental storytelling*, a term suggested by Don Carson and further theorized by Henry Jenkins. Carson (2000) started out from his experiences as a designer of amusement park rides, stating that

> it is my objective to tell a story through the experience of travelling through a real, or imagined physical space. Unlike a linear movie, my audience will have choices along their journey. They will have to make decisions based on their relationship to the virtual world I have created, as well as their everyday knowledge of the physical world. Most important of all, their experience is going to be a 'spatial' one.

In a very similar sense, Jenkins talks about "games less as stories than as spaces ripe with narrative possibility" and sees "game designers less as storytellers and more as narrative architects." He then enumerates four ways in which

> [e]nvironmental storytelling creates the preconditions for an immersive narrative experience: spatial stories can evoke pre-existing narrative associations; they can provide a staging ground where narrative events are enacted; they may embed narrative information within their mise-en-scene; or they provide resources for emergent narratives (Jenkins 2004, 123).

Two of Jenkins' ways are of direct relevance to this analysis of spatial narrative and will therefore be discussed here; one is discussed under a slightly different approach, while the fourth (emergent narratives) seems to rather lead away from the purely spatial focus.

Evocative Spaces

Evocative spaces, according to Jenkins, are spaces that refer to or evoke previously existing conceptions of spaces, for example by relating to certain genres like the haunted house stories, or to fictional franchises like *Star Wars*. These spaces contain narrativity because they remind the player of narratives she has already encountered:

> In such a system, what games do best will almost certainly center around their ability to give concrete shape to our memories and imaginings of the storyworld, creating an immersive environment we can wander through and interact with (ibid., 124).

While spaces, or rather: the specific look and design of spaces, trigger narrative content, this content is all derived from memory, consisting of pre-existent scripts that the player recalls and incorporates into her experience of space.

One example might be the genre of the 'foot soldier re-enactment'-computer game, where well-known large-scale fictional combats can be re-experienced by the player not through the character of one of the protagonists, but through that of a common soldier, like the *Star Wars Battlefront*-series or *Lord of the Rings: Conquest* (Pandemic Studios 2009). While not experiencing the original story events, and possibly never meeting any of the well-known characters, the players nevertheless immediately recognize the spaces they are navigating/conquering/defending as part of the larger narrative of the fictional franchise. When looking at *Lord of the Rings: Conquest*, it is obvious that the main evocative element is visual, as the spaces are carefully constructed to resemble those of the movie version rather than being faithful to the book descriptions (fig. 1).

Fig. 1: Fight against the 'Olifants' as enacted in Lord of the Rings: Conquest

Another very intriguing example is the level design of *Brütal Legend* (Double Fine Productions 2009) that is heavily inspired by the artwork of heavy metal covers (Alexander 2009). Thus, even though the settings are not directly recognizable references to narrative franchises as in the *Lord of the Rings*-game, they are still highly allusive and rich in evoking narrative potential. In this case, it is exactly their lack of a concrete and unambiguously recognizable reference that makes them so successful in evoking narrative. The setting called 'Screaming Wall,' for example, a wall consisting purely of loudspeakers, and reminiscent of heavy metal stage design (fig. 2), has won the *Escapist*'s award for 'Most Ingenious Location.' The task of the player is to go to this wall and retrieve a number of speakers as 'acoustic weapons' in the ensuing fights. It is an interesting example of how a visual scenery

that is familiar to fans of heavy metal concerts (and that has always been a merely visual symbol of acoustic power, since the actual speakers on the stage never were functional/plugged in) and therefore part of the myth of that music and the stories it tells (e.g. of sound as aggression and power) is being further enhanced and mythologized through integration into the narrative structure of the game's storyworld.

Fig. 2: A 3x6-stack of Marshall-guitar cabinets on the Tuska Open Air Metal Festival-main stage in 2008, setup of Jeff Hanneman from Slayer

Visual Clues

Another way to make spaces narratively evocative is by placing visual clues that point to narratives. In order to understand the visual clues left in game spaces, players often need to 'read the space,' that is, put elements/signs in a spatial relationship that then reveals a temporal/causal relationship, and therefore a *sequence* narrative. Visual clues are here defined as any kind of visually detectable signs within a videogame's navigable space that has narrative potential. Visual clues can relate directly to the main storyline or simply broaden and deepen the back story. In their presentation for the *GDC 2010*, Matthias Worch and Harvey Smith (2010, 16), while employing the general term 'environmental storytelling,' concentrated mainly on visual clues within material space (which they call 'player-space'): "Environmental Storytelling is the act of 'staging player-space with environmental

properties that can be interpreted as a meaningful whole, furthering the narrative of the game.'"

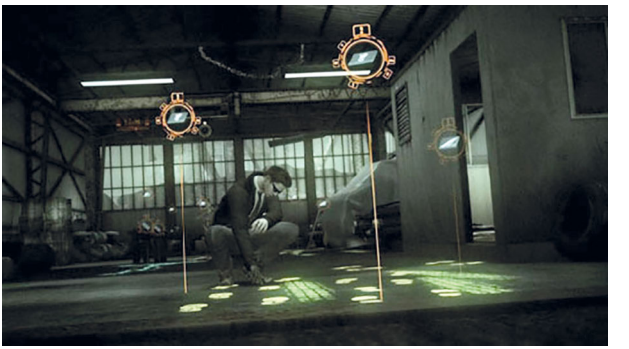
Visual clues are everywhere in modern computer games. The game spaces of the *Fallout* (Interplay Productions 1997) or *BioShock* (2K Boston/Australia 2007) games convey almost all of their back story through carefully distributed and elaborate visual clues, as do many others. Most visual clues are structured after the basic model of detective fiction, where a detective minutely searches a crime scene for clues as to the exact narrative of the crime that has happened there. According to Worch and Smith (2010, 18),

> [e]nvironmental storytelling relies on the player to associate disparate elements and interpret as a meaningful whole [and] fundamentally integrates player perception and active problem solving, which builds investment.

Thus, visual signs are distributed spatially for the player to encounter. This encounter is non-linear, since there is no (necessary) predetermined chronology in which the player perceives the different signs. But by implying that they are the traces of past events, these signs prompt the player to perform an indexical operation, concluding the past events and their correct sequence out of them.

The main premise of detective fiction that follows the archetypical model of Arthur Conan Doyle's *Sherlock Holmes*-stories is that events inscribe themselves as observable traces in space. It is the task of the detective (and the reader as well) to correctly read these spaces for the relevant signs. As these spaces are *created*, they are intentionally filled with such narratively relevant signs. Creating spaces in written text or games alike means giving them meaning. That elements within material space mean something, that they are part of the general game's narrative, is one of the main expectations that gamers bring towards their encounter with these spaces. One just needs to think of the earliest adaptations of visual forensic clues into computer games, the so-called point-and-click adventures. Their whole point was the expectation that the presented spaces were not merely abstract surfaces with geometrical properties. A recent example of the use of forensic clues that nicely shows their roots in detective fiction comes from the game *Heavy Rain* (Quantic Dream 2010), where the player has to search a crime scene (in the aptly titled chapter "Crime Scene") for clues using a futuristic enhanced reality device called 'Added Reality Interface (ARI)' (fig. 3).

Fig. 3: 'Added Reality Interface' in Heavy Rain



She can review these clues at a later stage in the form of a (non-linear) database and make further research on them in order to better construct the (linear) narrative of the crime (fig. 4).

Fig. 4: Clues-review in Heavy Rain

The *Heavy Rain* example shows how next-generation games make use of the enhanced graphics to align the investigative process with other visual media like motion pictures, while commenting on what is possibly the next step in games' narrativization of space: augmented reality games take the concept of charging spaces with additional (and narratively relevant) meaning and use it on real spaces.

Not all visual clues are isolated elements/signs that are placed within perceptible space – sometimes it is the whole ensemble of visual elements that forms this perceptible space or a part of it (the landscape) that serves as a clue to narrative meaning. In a pre-scripted way, this is the way that Henry Jenkins' evoca-

tive spaces work: landscapes that, by their design, set a mood or atmosphere that contains narrative potential. More interestingly, landscapes in computer games can also reflect, directly or indirectly, the player's actions and tell of their consequences. The most common form of visual landscape clue – one that usually contributes more to back story – is the phenomenon that is comparable to the one known to literary scholars as 'Seelenlandschaft (*soul-landscape*),' that is, landscapes that reflect the mood of a protagonist, a scene, or a whole narrative (e.g. the fact that it is raining at a funeral). Jenkins (2004, 127) has made the connection to this literary device very clear:

> Game designers might study melodrama for a better understanding of how artifacts or spaces can contain affective potential or communicate significant narrative information. Melodrama depends on the external projection of internal states, often through costume design, art direction, or lighting choices. As we enter spaces, we may become overwhelmed with powerful feelings of loss or nostalgia, especially in those instances where the space has been transformed by narrative events.

But game designers not only already use this method, they can also use it either in the static way of printed literature (the landscape represents a mood that has been predetermined by the author), but also in a dynamic way, that is whenever a landscape's visual look is representative of the emotional or ethical significance of past player choices. One example that Jenkins himself cites is the game *Black and White* (Lionhead Studios 2001), where

> the player's ethical choices within the game leave traces on the landscape or reconfigure the physical appearances of their characters. Here, we might read narrative consequences off mise-en-scene the same way we read Dorian Gray's debauchery off of his portrait (Jenkins 2004, 127).

Another, more recent example is the game *Prototype* (Radical Entertainment 2009): Manhattan Island is one of five boroughs of New York and the setting of *Prototype*. Over the course of the game, Manhattan goes from being (relatively) safe and well-guarded to being overrun by infected creatures and hives. While the military is initially successful with containing the first hives and keeping the populous calm, the situation rapidly deteriorates until the only 'safe' zones are at the very edges of the map. This deterioration of the city can be seen as the mundane advertisements are slowly replaced with quarantine posters and graffiti-ed propaganda along the walls and billboards within the city, while the military starts to take a more proactive role.

These examples are all representative of a player's *indirect* influence on the game world. As games grow ever more complex, the level of interaction with the game world (still mostly in the form of destruction) is increasing, making game spaces submit to the player's physical 'narration.' One example for this is what Carson (2000) has called 'Cause and Effect'-elements:

> 'Cause and effect' elements can also depict the passage of time. A game character may return to a place that they had become familiar with earlier in the game, only to find it completely altered. This may be due to a cataclysmic event, or the disappearance of elements remembered from a previous visit. 'Cause and effect' elements could also be triggered directly by the actions of the game player.

This can for example be found in *Dragon Age: Origins* (BioWare 2009), when, after playing the mage's origin story, one returns to the magicians' tower to find the place utterly altered. Many other fantasy role-playing games like *Fable* feature this effect. In these cases, the change of the game space happens in the player's absence and only as a result of the general story, and not the player's direct interaction. The same is true for the world-changing events that are introduced into the online-world of *World of Warcraft* (Blizzard Entertainment 2004) through the add-on "Cataclysm." But it can also happen in the presence of the player and more closely linked to his actions, as in the *Fallout 3* (Bethesda Game Studios 2008) add-on "Point Lookout." Part of the main mission of this add-on happens in a large villa that is being besieged by a group of 'tribesmen.' The owner of the villa gives the player a mission to oppose his main enemy. After returning from the mission, the villa is being blown up just as the player approaches it.

Though the influences on the game's space mentioned in these examples are direct, they are still, in a sense, static, as they still follow pre-scripted rules. Concerning the use of space in computer games, Espen Aarseth (2001, 159) has distinguished along

> player's level of influence on the gameworld, where some simulation games, such as *SimCity* or *Warcraft*, let the player change the world, whereas in other types, such as the adventure games or most 3D action games, the player has no constructive influence and the world is completely static.

This is changing rapidly, though, with the rise of game physics. By making the spatial form of the game world depend, instead of the pre-scripted decisions of the designer, on the dynamic computation of the laws of physics (however simplified) in response to the actions of the player, the whole of the navigable space becomes a plastic element into which the player can inscribe her narratives. The deformation of space becomes the (narrative) trace of the events that have happened as a

result of the player's choices, just like the heart and initials cut into a tree might be a reminder of a romantic encounter below that tree. Game physics dynamize the landscape/navigable space and make it part not only of the pre-scripted, but also of the emergent spatial narrative. So far, and with the exception of games focusing exclusively on construction like *SimCity* (Maxis 1989), the player's interaction with her environment has albeit been mainly destructive. Many recent games use the high 'destructibility' of their environment as a marketing factor, like *Just Cause 2* (Avalanche Studios 2010), *Battlefield: Bad Company 2 (DICE 2010)*, or *Red Faction: Guerrilla* (Volition 2009).

Embedded Narratives

The second method of environmental storytelling that Jenkins (2004, 126) cites is the use of embedded narratives:

> Read in this light, a story is less a temporal structure than a body of information. The author of a film or a book has a high degree of control over when and if we receive specific bits of information, but a game designer can somewhat control the narrational process by distributing the information across the game space. Within an open-ended and exploratory narrative structure like a game, essential narrative information must be redundantly presented across a range of spaces and artifacts, since one cannot assume the player will necessarily locate or recognize the significance of any given element. […] The game world becomes a kind of information space, a memory palace.

Under embedded narrative is understood all kinds of explicit narrative content that a player encounters while navigating the world of a videogame. These narratives can be either included in the conversations that the player has with non-player characters (NPC), or in artefacts that the player discovers, such as diaries, audio- and video logs, answering-machine messages, letters, scrolls, books, etc. Such textual, visual, or auditory narratives embedded into the game-world can heighten the non-linearity of the game's storytelling. Though these mini-narratives are usually all part of the storyworld and its meta-narrative (e.g. personal stories of in-game characters, news reports about the general development of the storyworld, myths that explain the storyworld's structure), the player can choose to read them whenever she wants, and the order of their encountering is often not pre-determined. Sometimes it is, as in the narrative that forms the background myth of *Brütal Legend*. Though the player encounters parts of this story in different specified places in the game-world in an order that he chooses himself, he will always find the parts in the right chronological order. Frequently, piecing the

fragments of the embedded narratives together to form a coherent whole is an important task that the player is given ("Ask around the village for more information on X"). Sometimes they trigger new quests of their own, as when the player discovers a note left by an NPC asking for help. In their non-linear form, embedded narratives are an example of *narrative as archaeology* that is one of the main principles of alternate reality games.

Depending on the type of narratives that the player encounters, gathers, and mentally orders, the result could be a very linear narrative, with only the process of gathering being non-linear, or it could remain non-linear. In the first case, the embedded narratives are just pieces of a single larger narrative, e.g. the single scattered pages that form the account of a sea voyage and shipwreck. In the second case, the player simply gathers encyclopaedic information, all of which is in itself narrative and contributes to fleshing out the storyworld, without having to fall into a necessary sequence, or having to be complete. Fantasy-themed computer role-playing games like *Dragon Age* that can rely on their players' high interest in the storyworld make heavy use of the latter form. In *Dragon Age*, the player gathers together an encyclopaedia, called the Codex, that consists of over 300 different parts. Similarly, after experiencing certain events or encountering certain enemies in *Brütal Legend*, the 'tour book' of the protagonist is updated with readable text. An interesting case can be found in the game *Alan Wake* (Remedy Entertainment 2010): during the game, Alan the protagonist discovers pages of a manuscript the he does not remember writing. The player can read these pages, and they actually foreshadow events later in the game, thus serving as important gameplay clues as well as part of the narrative and its mystery.

The use of embedded narratives can also be a way to make an engagement with the storyworld more optional. This is the case, for example, with *Dungeon Siege 3* (Obsidian Entertainment 2011), a game that emphasizes 'hack&slash'-combat gameplay. By conveying most of the narrative information about the storyworld through embedded narratives, players have the option to learn or ignore this information, in contrast to games that rely more on cut scenes. There is often (from the viewpoint of design) a limited control about the order in which embedded narratives are encountered by the player, depending on the degree of linearity that the level design provides. Therefore, in order to be enjoyable, the individual elements need to be more self-contained and not rely too strictly on a causal sequence. An example of this are the 'web of intrigue'-sequences in *Prototype*.

Enacting Stories/Event Triggers

Jenkins' (2004, 125) concept of 'enacting stories' and 'micronarratives' is somewhat fuzzy:

> Micronarratives may be cut scenes, but they don't have to be. One can imagine a simple sequence of preprogrammed actions through which an opposing player responds to your successful touchdown in a football game as a micronarrative.

A possibly better way to deal with these phenomena is by using the concept of the 'event trigger.' An event trigger is an action performed by a player that triggers a narratively relevant event that would not have occurred or started without this action. The important distinction to other player actions lies in her (usually unwitting) temporal control over the triggering. Within a combat situation, for example, the player also performs actions that trigger responses, but her actions are themselves already responses to a previously triggered event (e.g. the encounter of an enemy), and she has no options to delay her own actions without being penalized by the game – if she stops fighting, she will be killed, but if she does not walk through a door behind which an enemy is waiting, this enemy will keep on waiting indefinitely (Egenfeldt-Nielsen et al. 2008, 121). In most cases, event triggers are spatial choices, that is, the event is triggered by the player moving to a certain point in space.

In all different media, narratives happen in time and space. Videogames give the player apparently the option to control space, but not time (the exception being the pause button, but that is a complete disruption of the narrative). Navigable/material space is usually fixed in computer games (it does not shift or stretch while the player walks through it), but if time were equally fixed, the player would miss most of the narrative content that a game world provides, because she would simply not be at the right place at the right time to experience it. Therefore, most narrative games are constructed in a way that makes time variable, and ties it to the player's actions via event triggers.

This variability applies only to the extradiegetic level, though, the way the game is constructed, since the very point of the event trigger is to narratively motivate the event on the intradiegetic level. This motivation works best (most immersively) when the event trigger is not noticed as such. Most games therefore try to hide event triggers, thereby exchanging the player's perception of a pre-scripted (and therefore completely linear) event to one with a high level of contingency, while retaining the high narrativity that lies in a pre-scripted scene's perfect timing. This is done almost to perfection in big-budget 'cinematic' games like *Call of Duty: Modern Warfare 2* (Infinity Ward 2009) or *Uncharted 2: Among Thieves* (Naughty Dog 2009). In *Brütal Legend*, for example, the player in one scene has to drive her vehi-

cle across a collapsing bridge (fig. 5). Though in her experience it might feel like she barely just makes it through, most of the collapsing is triggered according to her current spatial position: the bridge will always collapse at just the right moment.

Fig. 5: Brütal Legend

While so far interest and research has been concentrated exclusively on space in computer games as an aspect of the *player's* perception and cognition, some of the more recent games make it worthwhile to consider the spatial perception of in-game characters as an interesting extension and dynamization of the concept of event triggers. Especially through the heightened emphasis on tactics of stealth in games like *Metal Gear Solid 4: Guns of Patriots* (Kojima Productions 2008) or *Assassins Creed II* (Ubisoft Montreal 2009), it becomes more and more important for the player to consider what NPCs can see, adding an interesting (and narratively relevant) dimension to his cognitive construction of the game space.

Many stealth games visually incorporate the information whether the player character (PC) is visible to other characters or not. In *Assassin's Creed II*, for example, there are signs above hostile NPCs indicating how 'interested' the NPC is in the player character (depending, among other things, on whether the PC is in the NPC's line of sight) and a colour coding on the mini-map indicating when the PC is not visible to any NPC. The 2010 game *Tom Clancy's Splinter Cell: Conviction* (Ubisoft Montreal 2010) has a feature called "the 'Last Known Position,' which occurs when the player breaks the line of sight of an alerted guard. This creates a visual silhouette of where the guard thinks Sam is, allowing the player to strategically flank his enemies" (Wikipedia 2010). This development mainly relies on the heightened efficiency of the NPCs' artificial intelligence, and it is to be expected that this feature will become more and more important in future games, dynamizing space

and the player's conception of it. For example, it will most likely dynamize the concept of the event trigger: instead of patiently waiting while the PC approaches close enough to an NPC to start a conversation and trigger an event, that NPC might start to react on his own as soon as he sees the PC, for example by waving and calling (or running away screaming).

Doubling of (Player's) Spatial Perception

One area that is not explicitly considered in Jenkins concept, but that needs to be looked at closer in order to better understand the narrativization of space and linearity, is the doubling of the player's perception of space through an experiential (first- or third-person) and a cartographic view. As Espen Aarseth (2001, 157) has noted, the fact that almost all 3D-games double the player's perception of space with a 2D-representational perspective "stands in striking contrast with the prophesies of certain virtual reality proponents who believe that the 3D interface will render all other perspectives obsolete." Representational spaces are still important for the player's understanding of material spaces, and both perspectives can contain (non-linear) narrative markers or (linearizing) directional suggestions. While narrative markers are all elements with narrative potential that refer to the intradiegetic level of the storyworld (stories that have their significance in being part of the storyworld) and that are encountered by the player's character, the directional suggestions' ultimate target are the extradiegetic, gameplay-related decisions of the player herself, e.g. narrowing her possibilities of movement by pointing towards the best direction to take.

Material space and narrative markers: Everything that appears as part of the material space must be intradiegetically motivated, and narrative markers in material space are identical to what has been discussed earlier as visual clues.

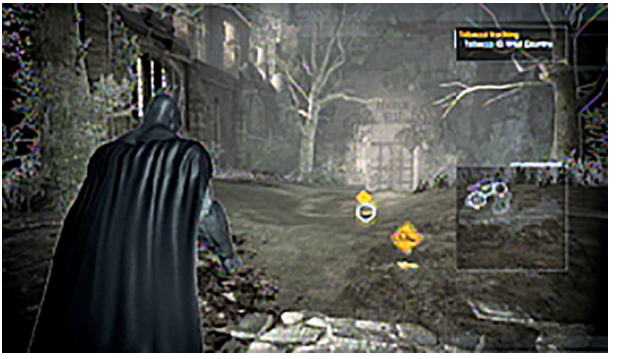
Material space and directional suggestions: Sometimes, visual clues within material space can serve as directional suggestions. The easiest form of this are road signs that the player might encounter (fig. 6 and 7), but also traces or hints left by NPCs that the player is following. Carson (2000) has called the latter form 'Following Saknussemm':

> Derived from the story *Journey to the Center of the Earth* by Jules Verne. In Verne's story the main characters follow a trail of symbols scratched into subterranean walls by their adventuring predecessor, a sixteenth century Icelandic scientist, Arne Saknussemm. In this way, the game player is pulled through the story by following 'bread crumbs' left behind by a fictitious proceeding game character. Whether you create notes scattered throughout your environments, or have the

game player follow the destructive path of some dangerous creature, 'cause and effect' elements will only heighten the drama of the story you are trying to tell.

Fig. 6: An interior in Fallout 3 *with signs leading into different directions*

Fig. 7: In Batman: Arkham Asylum *(Rocksteady Studios 2009), the player can see the environment through a 'detective mode' that enables her to follow traces, e.g. of tobacco, to find a person*



These directional suggestions linearize space, but in a less mechanic way than those that are positioned in representational space. Part of the reason for this is that diegetically they are positioned on a lower level, and have therefore less authority (the road sign could be simply wrong, or misleading), while at the same time not breaking the narrative immersion.

A borderline case, but very important as a tool for the narrativization of space are the suggestive camera movements that effectively constitute in-game mini-narratives that 'explain' certain spaces, as with certain spatial riddles in *God of War* (SCE Santa Monica Studio 2005). These are a special form of the establishing shot known from film theory (or rather, a further evolution of it) that are used to explain and narrativize the game's navigable space. Formally, the main difference to the mostly static establishing shot from film is that it involves a camera *movement* that effectively temporalizes space by continually showing parts of it in a certain order in time. The goal of these shots is usually to acquaint the player not only with the dimensions of the space she will from then on navigate, but also with the special obstacles that this room provides for her navigation, as well as possible solutions for these obstacles. These establishing shots serve as implicit directional suggestions while at the same time helping the player read the space and the story it contains (e.g. the riddle of how to cross it).

Representational spaces and narrative markers: Maps can tell stories. This is by no means restricted to maps in computer games. Topographical details can tell stories about the terrain and its possible navigation through forests, mountains, glaciers, deserts, streets, etc., the positioning of cities and villages can tell stories about how a land has been colonized etc. One thing that is rather specific to computer games is that maps are not static in what they present, but respond dynamically to the actions of the player, especially her spatial exploration. This is usually seen in the gradual filling of a previously empty or black map with markers for those spaces that the player has already explored, implying the story of that exploration. Marked places on the map are often even hyperlinked to the questlog, chronicling either done deeds, or future tasks. Moving over the symbols for side missions in this map for *Brütal Legend* will reveal information about the type of mission.

Fig. 8: Narrative markers within representational spaces are highly non-linear, as their ordering principles cannot be chronological

Representational spaces and directional suggestions: The main use of maps and other representational spaces is usually orientation, and that means: enabling the player to know in which direction she wants to go next. That is why they not only consist of iconic signs, but also of indexical signs that tend towards hierarchization and therefore linearization. While the spatial distribution of side and main missions on an in-game map is non-linear, their semantic differentiation into 'main' and 'side' already prioritizes the main missions; and since the main quest chain is usually progressive (different parts need to be solved in a pre-set order), the player, while looking at such a map, gets a number of possibilities where she *could* go (the side missions) and one markedly different suggestion where she *should* go (the next part of the main quest).

The main linearization happens in the (functional) doubling of the perspective. The view of the map only gives the player her long-term destination, but only in combination with her view of the material space does it actually tell her *where to turn/go next*. This becomes most obvious when material and representational space are combined on the screen. Below is the third-person view in *Assassins Creed II*. It contains a fragment of the map view in the lower right corner that indicates both the direction that a desired destination is at as well as the distance to it (fig. 9).

Fig. 9: Assassins Creed II

A borderline case is the compass display in Fallout 3 (fig. 10).

Fig. 10: This is the map view in Fallout 3*, where different quests will make directional markings appear on the map*

Below is the first person-view in *Fallout 3* (fig. 11). Note the compass in the lower left corner that gives directions to a point that has been marked on the map. Thus, while the information given through the compass about the cardinal direction that the player is facing can still be explained as part of the character's perception of the material space (the compass might be part of his display), the directional marking is clearly part of representational space.

Fig. 11: Fallout 3

Still, true to the game's overall structure, this linearization in *Fallout 3* is not very strong, as, additionally to the main destination (the reaching of which will trigger an event that will further the story), the compass will among other things also show the direction of areas that have not yet been discovered by the player, thus inviting for non-linear spatial exploration.

Conclusion

As this essay has hopefully shown in a first sketch, to analyse the narrative potential of computer games by considering their narratives to be 'spatial' uncovers a multitude of highly interesting narrative structures and elements that are largely unique to these games. As game development progresses and games grow in complexity, these structures will only become more, as well as more differentiated. Space is one of the dominating aspects of today's computer games, and it is those narratives that are tied to space, that are told *in* and *through* space, that mark computer games' major contribution towards the enlargement of narrative, and not just structural borrowings from other media.

References

2K Boston/Australia (2007): *BioShock*, PC: 2K Games.

Aarseth, Espen (2001): Allegories of Space: The Question of Spatiality in Computer Games, in: *Cybertext Yearbook 2000*, ed. by Markku Eskelinen and Raine Koskimaa, Jyväskylä: Research Centre for Contemporary Culture, 152-171.

Alexander, Leigh (2009): GDC: The Art of *Brutal Legend*, in: *Gamasutra. The Art & Business of Making Games*, March, 27th, gamasutra.com/php-bin/news_index.php?story=22954.

Avalanche Studios (2010): *Just Cause 2*, PC: Eidos Interactive.

Bethesda Game Studios (2008): *Fallout 3*, PC: Bethesda Softworks.

BioWare (2009) *Dragon Age: Origins*, PC: Electronic Arts.

Blizzard Entertainment (2004): *World of Warcraft*, PC: Vivendi.

Carson, Don (2000): Environmental Storytelling: Creating Immersive 3D Worlds Using Lessons Learned from the Theme Park Industry, gamasutra.com/view/feature/3186/environmental_storytelling_.php.

DICE (2010): *Battlefield: Bad Company 2*, PC: Electronic Arts.

Double Fine Productions (2009): *Brütal Legend*, PC: Electronic Arts.

Egenfeldt-Nielsen, Simon/Smith, Jonas Heide/Tosca, Susana Pajares (2008): *Understanding Video Games: The Essential Introduction*, New York, NY/London: Routledge.

Eskelinen, Markku (2001): The Gaming Situation, in: *Game Studies* 1/1, gamestudies.org/0101/eskelinen.

Huber, William H. (2009): Epic Spatialities: The Production of Space in *Final Fantasy* Games, in: *Third Person. Authoring and Exploring Vast Narratives*, ed. by Pat Harrigan and Noah Wardrip-Fruin, Cambridge, MA/London: MIT Press, 373-384.

Infinity Ward (2009): *Call of Duty: Modern Warfare 2*, PC: Activision.

Interplay Productions (1997): *Fallout: A Post Nuclear Role Playing Game*, PC: Interplay Productions.

Jenkins, Henry (2004): Game Design as Narrative Architecture, in: *First Person: New Media as Story, Performance, and Game*, ed. by Noah Wardrip-Fruin and Pat Harrigan, Cambridge, MA: MIT Press, 118-130.

Juul, Jesper (2005): *Half-Real: Video Games between Real Rules and Fictional Worlds*, Cambridge, MA/London: MIT Press.

Kojima Productions (2008): *Metal Gear Solid 4: Guns of Patriots*, PS3: Konami.

Lionhead Studios (2001): *Black and White*, PC: Electronic Arts.

Maxis (2013): *SimCity*, PC: Maxis.

Naughty Dog (2009): *Uncharted 2: Among Thieves*, PS3: SCE.

Obsidian Entertainment (2011): *Dungeon Siege 3*, PC: Square Enix.

Pandemic Studios (2009): *Lord of the Rings: Conquest*, PC: Electronic Arts.

Quantic Dream (2010): *Heavy Rain*, PS3: Sony Computer Entertainment.

Radical Entertainment (2009): *Prototype*, PC: Activision.

Remedy Entertainment (2010): *Alan Wake*, Xbox 360: Microsoft Game Studios.

Rocksteady Studios (2009): *Batman: Arkham Asylum*, PC: Eidos Interactive.

Ryan, Marie-Laure (2008): Transfictionality across Media, in: *Theorizing Narrativity*, ed. by John Pier and José Ángel García Landa, Berlin: de Gruyter, 385-417.

–––– (2009): *Avatars of Story*, Minneapolis, MN/London: University of Minnesota Press.

SCE Santa Monica Studio (2005): *God of War*, PS2: SCE.

Ubisoft Montreal (2009): *Assassins Creed II*, PS3/Xbox 360: Ubisoft.

–––– (2010): *Tom Clancy's Splinter Cell: Conviction*, PC: Ubisoft.

Volition (2009): *Red Faction: Guerrilla*, PS3/Xbox 360: THQ.

Wikipedia (2010): *Tom Clancy's Splinter Cell: Conviction*, en.wikipedia.org/wiki/Tom_Clancy%27s_Splinter_Cell:_Conviction.

Worch, Matthias/Smith, Harvey (2010): 'What Happened Here?' Environmental Storytelling, worch.com/files/gdc/What_Happened_Here_Web_Notes.pdf.