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Connie Veugen, Felipe Quérette  
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# Thinking out of the box (and back in the plane)

## Concepts of space and spatial representation in two classic adventure games

CONNIE VEUGEN AND FELIPE QUÉRETTE

Most researchers of computer games<sup>1</sup> will agree that space is one of the key concepts, or perhaps even “[t]he defining element in computer games” (Aarseth 2007 p. 44). Aarseth goes on to say that because games are essentially concerned with representing and negotiating space “the classification of a computer game can be based on how it represents or, perhaps, implements space” (Ibid). Babic also emphasises the importance of space: “More than time, events, and goals, almost all computer games celebrate and explore spatial representation as their central theme” (2007)<sup>2</sup>. It would therefore be logical to assume that the way we play a game is influenced by the way this “digital environment” is realized. Here, however, researchers do not agree. Frans Mäyrä, for instance, defines gameplay as “what doesn’t change when you change the surface: the rules” (2008, p. 16) and goes on to specify that “It’s not the interface [...], it’s not the graphics and it is not the story” (Ibid). Here he separates gameplay from the audiovisual representation of the gamespace; a position adopted by other researchers, notably those that represented a more ludological<sup>3</sup> standpoint like Aarseth and Järvinen. Others like Stockburger and Jenkins do not agree. Axel Stockburger stresses that “particular types of rules and gameplay result in very distinctive forms of audiovisual representation.” (2006, p. 129). While Henri Jenkins, focussing on spatially oriented narratives, observes: “However a game’s narrative is expressed, it is always influenced by the way the game creators designed and organized the gamespaces” (2004, p. 60). As the latter standpoints seem to oppose the former, we were interested to see if a close examination of gamespace in two instalments of the same game would clarify matters. In this article we will therefore look at two games that belong to the same classic adventure game series<sup>4</sup>, but which use different audiovisual representations of their gamespace. The first game *Gabriel Knight Sins of the Fathers (GK1)* was published in 1993. It presents space one screen at a time, a style that defined the classic adventure game on the personal computer. The second game *Gabriel Knight Blood of the Sacred Blood of the Damned (GK3)*, released in 1999, uses the, at the time, new technique of 3D. These are the first and the third game in the series. The second game called *Gabriel Knight the Beast Within (GK2, 1995)* uses pre-recorded video scores with overlaying graphics. However, as space is still presented one screen at a time, we will leave this game aside.

### The classic adventure game

To better understand the difference in gameplay the users’ experienced between *Sins of the Fathers (GK1)* and *Blood of the Sacred Blood of the Damned (GK3)*, it

helps to have some idea of how graphic adventure games came about. The first adventure game<sup>5</sup> dates back to 1975-76<sup>6</sup> when the game (*Colossal Cave*) *Adventure* was created by Will Crowther and Don Woods (Adams R.). Crowther's game was designed in a time when text input (keyboard) and output (screen or printer) were common, so it did not use any graphics<sup>7</sup>. Three years later the adventure game moved to the home computer when Scott Adams' created *Adventureland*, a version of *Adventure* written in BASIC (Montfort, 2003). To distinguish them from arcade style games, text adventure games were promoted as interactive fiction. They were even discussed in the *New York Times Book Review*.

The first adventure game to use graphics was *Mystery House* (1980) designed by Roberta Williams<sup>8</sup>. In *Mystery House*, the black and white linear contour graphics were, however, just illustrative and not interactive. *Valhalla* (Legend, 1983) released for the ZX Spectrum was the first adventure game to offer "interactive" animations. It used split screen technology showing the graphics in the upper part of the screen and a text command box in the lower part. The graphics were animated and the player could see his character move as a result of typing valid commands<sup>9</sup>. Despite the fact that *Valhalla* was the earlier game, *King's Quest I: Quest for the Crown* (Sierra, 1984) is usually seen as the first graphic adventure game using animation and third person point of view. *King's Quest I* was especially designed for the IBM PCjr by Roberta Williams, to show off the machine's graphic capabilities, most notably the use of 16 colours (DeMaria & Wilson, 2002). In *King's Quest I* the gamespace consists of a grid of 8x6 screens which wraps-around<sup>10</sup>. It introduced a new technique which later would be called 2½D, where the avatar can move "behind things like trees and rocks and stuff." (Williams cited in DeMaria & Wilson, 2002, p.138). But the player still has to interact with the game through typed commands. This remained so until the introduction of the point-and-click interface by LucasFilm Games<sup>11</sup> in 1987 in their adventure game *Maniac Mansion*. Now actions like `push`, `pull`, `give`, `open`, `close`, `use`, `unlock` etcetera, were shown on the screen so that the player could select them using her mouse or keyboard<sup>12</sup>. This avoided typing errors and having to work out which commands worked and which not. This did, however, take away some of the fun as, apart from solving puzzles, figuring out a game's vocabulary was very much part of the enjoyment of playing (text) adventure games<sup>13</sup>.

## Modalities of Space

Before we take a closer look at the *Gabriel Knight* games, we will briefly clarify Axel Stockburger's (2006) modalities of space, as they form the basis of our analysis. Stockburger proposes to view gamespace as the interplay of five distinctive spatial modalities: user space, narrative space, rule space, audiovisual representational space and kinaesthetic space. User space refers to the material physical space where the player and the device the game is played on are located. Both *Gabriel Knight* games are played on a personal computer in a home setting. Simplifying matters greatly, the second modality narrative space, refers to spatial elements that evoke pre-existing narrative associations<sup>14</sup> (such as particular locations); frame narratives (i.e. the extra-diegetic back-story: packaging, previews, marketing, booklets, etc.) which provide a thematic setting; and the spatial narrative which

emerges while the game is being played (potential areas to be explored, boundaries, distribution of objects and functions, etc.)<sup>15</sup>. The third modality, rule space, consists of both explicit and implicit game rules that influence how the player moves through gamespace. A common sense explicit rule in a racing game is, for instance, to avoid hitting obstacles as this will slow you down. Implicit rules are there to be discovered during gameplay like the purpose of the mushrooms, flowers and stars in the Mario games. As we will see uncovering the internal rules of the gamespace is essential to successful gameplay. Because of the now predominant graphical nature of computer games, the fourth modality, audiovisual representational space, dominates most debates on gamespace. To classify the visual representation of the gamespace many researchers use the categories defined in Wolf (2001); which classify gamespace according to technical developments and the metaphor of the film camera<sup>16</sup>. The fifth and final modality, kinaesthetic space, refers to the embodied experience of the gamespace. Whereas the material side of the interface, the keyboard, mouse, joystick, etc., is located in the user space; the effects it has on the player are part of the kinaesthetic modality of space. And although both *Gabriel Knight* games use a mouse, we will see that *pointing* and clicking in *Sins of the Fathers* (GK1) is different from *moving* and clicking in *Blood of the Sacred Blood of the Damned* (GK3).

### Location and Space in *Gabriel Knight Sins of the Fathers*

The first *Gabriel Knight* game (GK1) was released in 1993. The title character in the game, Gabriel, is a writer, self styled private eye and investigator of the supernatural. In GK1 Gabriel explores voodoo related murders in his hometown New Orleans. In doing so he becomes aware of his family history and his destiny as a "Schattenj  ger", a shadow hunter, a hunter of (supernatural) evil. Because his ancestor G  nther lost the family talisman to the voodoo queen Tetelo, as explained in the accompanying graphic novel, Gabriel now has to reclaim it from her descendant Malia Gedde to literally end his nightmares and take up his Schattenj  ger role.

The game was released for the DOS operating system, Windows 3.x and Macintosh<sup>17</sup>. It was created using *Sierra's Creative Interpreter* (SCI) also used to create other familiar Sierra games like the *King's Quest* series. For the Sierra fans the game therefore had a familiar look and feel, with it's 640x480 pixel graphics with either 16 (VGA) or 256 (Super VGA) colours) and the by then well known 2½D point-and-click interface. As it used a CD-Rom for storage, all music and dialogue was recorded<sup>18</sup>. Contrary to what was usual at the time the game did not use amateurs or low-budget voice actors but well known actors like Tim Curry (as Gabriel) and Mark Hamill (as inspector Mosely). An advertisement in *Interaction* (Spring, 1994) even quoted the *Hollywood Reporter* stating that this was "the first time an all-Hollywood cast of name actors ha[d] been assembled for an interactive movie..."<sup>19</sup>.

Jane Jensen, the creator of the games, uses narrative space consciously by placing GK1's action in New Orleans<sup>20</sup>. This city not only evokes atmosphere but also calls on pre-existing knowledge we have of its links with Voodoo<sup>21</sup>. In this way Jensen puts to practice what Carson calls environmental storytelling "[t]he trick to play on [...] memories and expectations to heighten the thrill of venturing into [the] created

universe” (Carson, 2000)<sup>22</sup>. Most places Gabriel visits in New Orleans have historic and/or Voodoo connections. There is a Voodoo shop, a Voodoo museum and Gabriel attends a Voodoo ritual on St Johns Eve in Bayou St. John. His investigations also take him several times to Jackson Square, Saint Louis Cathedral and Saint Louis Cemetery #1. During the course of the game we see that these places are more than simple tourist attractions, they are essential to the narrative and incorporated in the gameplay. In the cemetery Gabriel has to write coded messages on the tomb of Marie Laveau (New Orleans’ most famous Voodoo queen) and under the cathedral he discovers the honfour (Voodoo ceremonial site) of Malia Gedde. Jackson Square with its wheel-within-a-wheel design<sup>23</sup> ties many story elements together. It represents the Vévé (Voodoo religious symbol) of Tetelo and Malia<sup>24</sup>. Furthermore, it is the place where Gabriel discovers essential puzzle information. But *GK1* is also a detective game, so Gabriel visits suspects’ and witnesses’ houses or other places where he can get information related to his investigations like Tulane University, where he learns more about Voodoo and the police station, where he gets information about the Voodoo murders. There are two exceptions: his bookshop<sup>25</sup> and his grandmother’s house, both of which reveal essential information about his personal history.

So we see that in *GK1* the place of action and the game fiction interlock. But New Orleans does not only form the backdrop of the story and the primary source of puzzle information, it also sets the game’s boundaries. To make New Orleans interactive the game uses “adjacent spaces displayed one at a time.” (Wolf, 2001, p. 59). Each screen shows a whole unit of space<sup>26</sup> and has a fixed third person point of view<sup>27</sup>, with varying heights within different screens, ranging from the height of the characters (most common) to an oblique bird's-eye view – like the Jackson Square screens. Jackson Square is depicted as four different screens, each showing one of its quadrants (image 1)<sup>28</sup>.



Image 1: *GK1* one quadrant of Jackson Square

In *GK1* the player’s avatar moves from one screen to another without scrolling, but with a cut, somewhat like a film cut. In Jackson Square, for instance, Gabriel leaves one quadrant at the edge of the screen and reappears in the next screen in the adjacent quadrant, respecting the movement direction and space continuity rules set by film<sup>29</sup>. By dividing Jackson Square in four sections, *GK1* not only cleverly works around technical limitations, but also prevents the player from recognizing the important wheel-within-a-wheel pattern of the Vévé too soon.

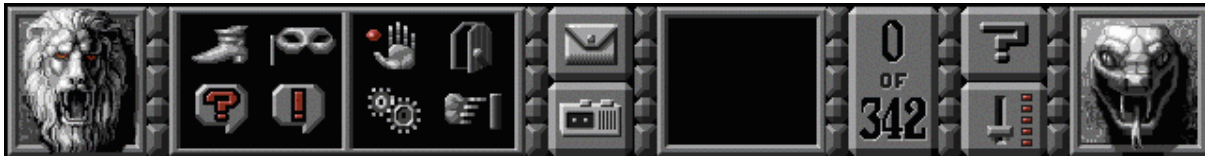


Image 2: GK1 Icon Bar

Because *GK1* uses an icon-bar (image 2) avatar control is indirect, i.e. the input from the player is not meaningfully related to the action (Wilhelmsson, 2003). So unlike more modern computer games in which the player presses right and the character goes to the right, in *Gabriel Knight* (and most other adventure games at the time) the player clicks on an area (with the walk cursor, the boot) and then the character goes to that area. This gives the designers strict control not only of which locations are shown within New Orleans, but also what and how much is shown. By merely not offering clickable areas, limits are set. Boundaries are either passageways (such as doors) or the edge of the screen. In a particular scene in *GK1*, the in-game world boundaries are broken once for the sake of the narrative: in this scene Gabriel and Malia are talking in New Orleans' famous St. Louis Cemetery #1. After the conversation Malia leaves using a path that Gabriel cannot take (image 3). In other moments of the game, clicking in that area does not do anything, whereas in that particular scene, clicking makes Gabriel say that he needs to give Malia some space.



Image 3: GK1 Malia walking away from Gabriel

Verbally refusing to do something is another way of setting limits in gamespace. In fact, both games make use of the avatar's speech to determine that places (and also actions) are out of reach, either to protect narrative coherence (for instance Gabriel cannot see what is in that place just yet) or because that location is not detailed in the game at all. These often witty remarks of the game avatar are a common feature in adventure games.

Both games also make use of mapped spaces: "not spaces in and of themselves, but rather simplified schematic versions of spaces designed to orient the player." (Wolf, 2001, p. 67)<sup>30</sup>. In fact all three *Gabriel Knight* games use navigational maps where the player does not control the avatar movement, but merely chooses the next location she wants the character to go to. These maps serve to link different locations

where the story takes place, on the one hand suggesting distance between them and on the other hand keeping overall unity. The player's global understanding of the gamespace is to some extent shaped by these maps. They start with a basic set of places and new locations are added only when they become relevant to the story, consistent with the character's knowledge. These kinds of mapped representations are a typical feature of adventure games. Since solving the game involves locating and using objects and locating and interacting with characters placed somewhere in the game, the player has to move between locations in order to do what is required of her. Mapped spaces as a "travelling device" allow the player to go straight to a location without having to stop at every other place on the way.

Both games also make use of in-game spatial representations as part of puzzles. In *GK1*, Gabriel uses a tracking device to find the ritual site in Bayou St. John. This device shows the position of the place in relation to Gabriel in a radar-like fashion. In *GK3*, Grace (the other playable character in the game) uses equipment to find a possible digging spot by combining precise coordinates found in the game. In both cases, the device gives feedback after the player's actions.

### **Location and Space in *Gabriel Knight Blood of the Sacred Blood of the Damned***

The third *Gabriel Knight* game was released in 1999 for Windows95. The minimum screen resolution of the game is 640x480 pixels. A higher resolution will increase the graphic details of the game. This will on the one hand affect game speed – players with low-end systems are advised to use the lowest resolution – and on the other hand it will affect gameplay, as smooth camera movement will give the player the opportunity to play the game in a 1<sup>st</sup> person like mode, as we will see further on. *GK3* was going to be Sierra's first fully 3D game; therefore the design team had to build a new 3D engine from scratch (Bilas, 2000). So contrary to *GK1* the user, as well as the design team, could not fall back on a familiar look and feel from previous games. In *GK3* Gabriel and his assistant Grace are investigating the kidnapping of a noble baby, as described in the accompanying graphic novel, and the possible involvement of vampires, secret societies, the quest for the Holy Grail, the history of the French village of Rennes-le-Château, where the story takes place, and the origins of Gabriel's destiny as "Schattenjäger".

Akin to the first game, in *GK3* Rennes-le-Château and the surrounding area were carefully chosen to fit in with the Grail theme of the narrative. In the game the Gabriel – Grace team re-enacts the search for the Holy Grail presented in such books as *The Holy Blood and the Holy Grail*<sup>31</sup>, including the reconstruction of a pentagram using geographical information of the area. However, as the game uses an interactive 3D environment what we see of Rennes-le-Château and the surrounding area is notably different from the way New Orleans was presented in *GK1*. This is because it is no longer a forced perspective stage-like representation, but a "freely" explorable 3D environment<sup>32</sup>. Gabriel and Grace can walk around in Rennes-le-Château and some of its key buildings, as well as in interesting areas in its vicinity (as soon as these are available on the map). So effectively the player sees more of the locations they visit than was the case with New Orleans.

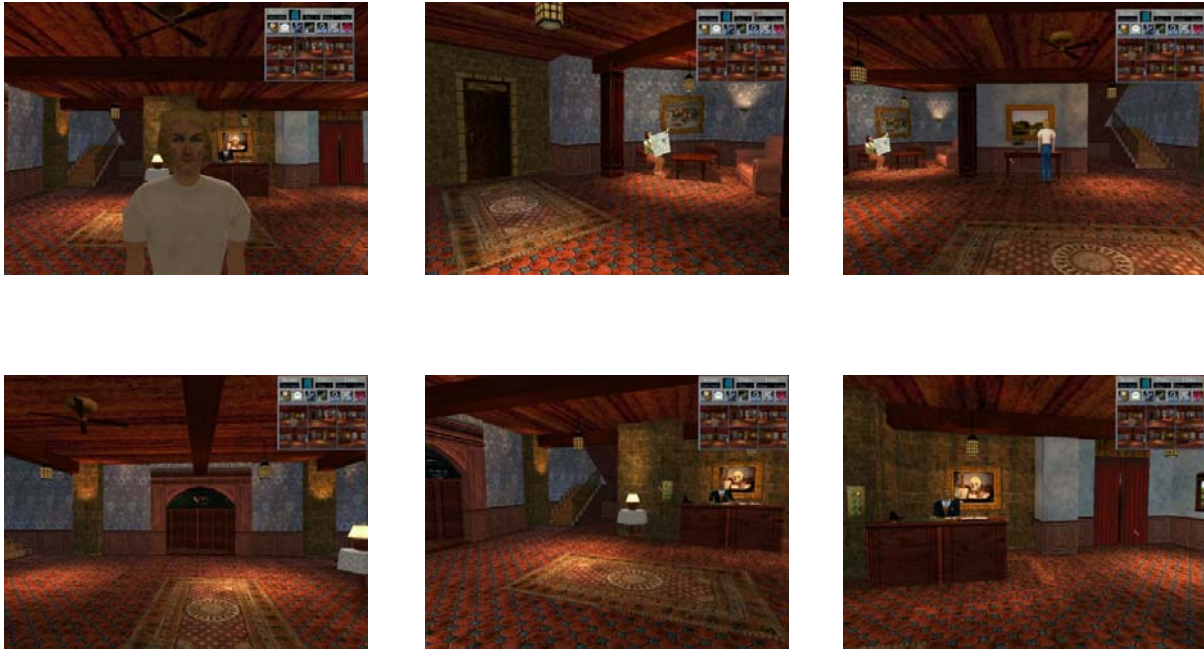


*Image 4: GK3 Gabriel inside the church in Rennes-le- Ch  teau*

But Rennes-le-Ch  teau's connection with the Grail Story is less universally known than New Orleans' connection with Voodoo. So the evocative use of the narrative space is less pronounced in *GK3* than it was in *GK1*. Furthermore, Gabriel's own interests in the mystery are not as marked as in the other two games, hence a lack of locations that are significant to his personal life<sup>33</sup>. Combined with the many sub-narratives<sup>34</sup>, this makes the connection between the narrative and the places Gabriel visits in *GK3* feel more fluid but less immersive than in *GK1*.

The major difference between *GK1* and the *GK3*, however, is the in-game camera in the latter game. To operate the camera the player can either choose from a set of preset camera angles (images 5a-5f)<sup>35</sup> or she can customize the camera angle at her own choice (image 6)<sup>36</sup>.





*Images 5a - 5f: GK3 preset room camera positions*



*Image 6: GK3 Self chosen camera position*

As the camera allows for a more or less fluent traversal of the gamespace, boundaries work differently in *GK3*. Although, as in *GK1*, doors are the way to enter closed locations (buildings), open areas can be just walked into. However, to economize computing the modelled space, large open areas are divided and processed separately. This means that Gabriel or Grace can walk freely in a particular area and then reach an invisible wall<sup>37</sup> where the cursor becomes an arrow and the player can choose to cross to and explore the “next” area. Because the camera can move seemingly independently of the avatar, the player can also move the camera to the limits of the rendered area where the camera automatically stops. The fact that the experience of space is not episodic but fluid and larger in a way, also means that the player has to be able to navigate this space, knowing which way

to go, based on the visual cues of the surroundings. In *GK3*, this need for orientation is not a challenging feature, but cannot be completely disregarded.

Player movement of the camera is not accounted for in Wolf's gamespace categories as these are based on the metaphor of the film camera, as an alternative Stockburger (2006) proposes the game-camera model. Camera movement is one of the properties of the game-camera. The camera in *GK3* is predominantly player controlled, but as we will see, sometimes the game takes over. The player can move, pan, zoom and tilt the camera by using the mouse or cursor keys. Another property of the game-camera model is the concept of point of perception by the player<sup>38</sup>. Stockburger, in accordance with J  rvinen (2003), prefers point of perception to point of view because it not only includes what the player sees, but also what she hears<sup>39</sup>. This adds a new and interesting element to the narrative: off-screen space. Off-screen space is what lies outside of the visible field (on-screen space). Unlike cinema, off-screen space in computer games doesn't exist but has to be actively created (Wolf, 2001). Before the use of 3D, off-screen space was used mainly as part of a logical construction of the diegetic world (being acknowledged, but not actively used) or to give the player an idea of what lay ahead. Nevertheless it was only relevant to the game action when – revealed by scrolling – it became on-screen space<sup>40</sup>. While in *GK1*, what you see is what you get and off-screen space is not pertinent to game action, *GK3* uses off-screen space differently. One example is when Gabriel enters the phone area. When he steps into one of the cubicles at a specific time he can hear a telephone conversation in Italian in the next cubicle. He (the player) has to tape this conversation so that it can be translated afterwards. As this action is time dependent, it is not crucial to progress in the story (although it also triggers other events later in the game), but it helps the investigation and – most of all – produces the illusion of a complex autonomous world, adding much to the player's immersion.

According to Stockburger immersion is also enhanced by the constant presence of the avatar. He reasons that third person perception (as in the *Gabriel Knight* games) leads to more interest and complexity in character design and consequently to stronger narratives. One can also reverse this argument and say that it only seems natural that games heavily based on narrative like the *Gabriel Knight* series would choose to constantly show the avatar mediating the player's participation in the story. But although *GK3* uses third person perception it shows a world no longer seen from a certain distance as in *GK1*, but "from within". Since the camera is always inside the scene, the player can't see a whole room anymore, but has to browse and explore the space as if she actually were part of it. This solves a particular incongruence of player/character awareness. In *GK1* and other games like it, the visual field of the character is not the same as that of the player. There are times in which the player can see an object that the character would not be able to see taking normal viewing space and perspective into account. *We see, therefore he knows* can be seen as a game convention (which is so intuitive that it goes unnoticed by most). In 3D games like *GK3* this incongruence is less of an issue, as the camera (the player's sight) is placed inside the scene. Moreover it is aligned with the avatar's sight, thus blurring the separation between character and player, which produces a stronger game ego<sup>41</sup>.

Finally, in *GK3* the game-camera also allows the game experience to become more personal as it supports different styles of play, and a different involvement with the gamespace:

The gamer is not only playing to accomplish the mission but also actively involved in framing the game visually. S/he not only has to conceive and execute the best strategies for successful gameplay, but must also keep in mind the best positions to situate the camera for a tactically advantageous – and perhaps also aesthetically pleasing – viewpoint. (Tong & Tan, 2002, p. 106)

Some players will try to recreate the familiar settings of the previous games by using one general camera angle, trying to play the scene as an observer, scanning the screen for important information; in this way emulating the indirect avatar control of the familiar point-and-click interface. Other players will simply leave the avatar behind and explore the gamespace using game camera movement, navigating through the space as if in first person perspective, only seeing the avatar when actually interacting with the world. Both styles of play were confirmed by actual players contacted through Sierra's *Gabriel Knight* forum<sup>42</sup>. Perhaps predicting this specific use of the game camera, the avatar in *GK3* always seems to be in the immediate off-screen space, so one doesn't have to wait for Gabriel or Grace to come walking all the way from their last on-screen position.

The camera's flexibility, however, poses a possible new problem. As camera control now belongs to the player, how does the game take it back without offending? For the player it can be frustrating when after choosing to perform an action using a particular camera position, the game takes back control. In a way, this can cause a rupture in the player's involvement with the world; it “disrupts the feedback link between player and game-camera and avatar.” (Stockburger, 2006, p. 160). At the end of *GK3* this can be even irritating, for example, when the player has to perform skill based actions and the program dictates angles for the beginning of each task, such as crossing an abyss. The automatic angle shows Gabriel from behind. Although the player can position the camera at will, as soon as Gabriel takes his first step the game takes over and again shows him from behind. Apart from the awkwardness of changing the camera back to the position preferred by the player, there is a time issue. The tiles Gabriel steps on dissolve so the player has to act fairly quickly before Gabriel falls to his death<sup>43</sup>.

## Visual conventions: rules and their representation

Espen Aarseth is probably the first game researcher to separate gameplay and the audiovisual representation of gamespace. While discussing the transition of text adventure games to graphic adventure games he notes:

The ergodic structures invented by Crowther and Woods twenty years ago are of course far from dead but in stead persevere as the basic figure for the large and growing industrial entertainment genre called [...] “interactive games.” [...] It is a paradox that, despite the lavish and quite expensive graphics of these productions, the player's creative options are still as primitive as they were in 1976. (Aarseth, 1997, pp. 102-103)

In his earlier writings Juul also separated “a formally defined level, *the program*” from “a sign-based level *the material*” (1999, p. 5)<sup>44</sup>. However, if we examine their statements more closely we see that what they, and M  yr  , are actually describing is the type of game<sup>45</sup>. Basically what they say is that changing the audiovisual representation of a game will not change the rules that define the game type<sup>46</sup>. Yet by equating game type with gameplay and, especially in M  yr  ’s case, game rules they refute technical developments that in our opinion do change the way we play the game. As Aarseth points out: “The adventure game user cannot rely on imagination (and previous experience) alone but must deduce the non-fictional laws of the simulated world by trial and error in order to complete the game” (Aarseth, 1997, p. 50). In a classic adventure game, she does this by searching for objects and clues that help solve the game’s puzzles. As we will argue changing the audiovisual representation of *GK3* did change the way the player searches for these objects and clues. Moreover, not all skills acquired during the playing of previous adventure games will benefit the experienced player as one would expect. On the contrary, some will even hinder the player’s progress.

In the above we have already pointed out several changes in gameplay the transition to 3D in *GK3* brought about; most notably the fluid transition of gamespace as opposed to the episodic one screen at a time model; the player controlled game camera as opposed to a game controlled stage-like view; the ability to traverse space in first person mode and the new possibilities of off-screen space. Now we will focus more particularly on the way the player finds the clues and objects that help her solve the games’ puzzles.

Until the release of the 3D games the adventure game player generally could not zoom in on a particular part of the screen<sup>47</sup>. So to help the player find clues and objects the design team had to come up with a way to make them stand out, given the technical possibilities at the time. One way *GK1* achieves this is by giving them slightly more detail as opposed to other items in the vicinity. For instance the objects Gabriel will need to carry out his investigation are a magnifying glass and a pair of tweezers. In image 7 we can clearly see that these objects are more defined than the books that are also on the table<sup>48</sup>. The same goes for the daily newspaper that will give Gabriel valuable information for his investigations<sup>49</sup>.

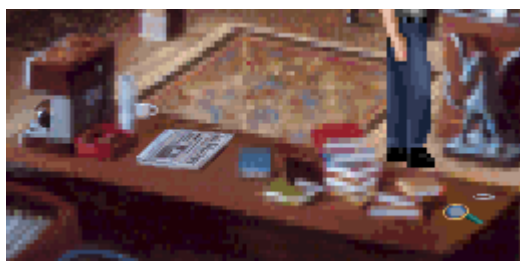


Image 7: *GK1* notice the objects on the desk

Inspecting these objects before picking them up will not give extra information on their possible usefulness, so the way the objects graphically stand out is the only clue the player gets. A different example can be found at the first crime scene. The object

the player has to find is a piece of snake skin. To do so she gets another visual hint: instead of the subtly curved lines representing the grass blades, the pixels have alternating colours in a chequered pattern imitating a snake-skin as best as possible (image 8).



Image 8: GK1 notice the pattern in the grass

Given the present day graphical details these clues in the visual representation of the gamespace look crude, for the experienced adventure player at the time however, they were common ground. Before looking at the way gameplay is changed in the 3D game, we must stress this matter of *familiarity* based on previous experience. In this we have to bear in mind that *GK3* was one of the first fully 3D adventure games. As table 1 shows other adventure games at the time still used 2½D.

Game series	Release dates 2½D versions	Release dates of 3D versions
<i>Broken Sword</i>	1996, 1997	2003, 2006
<i>Gabriel Knight</i>	1993, 1995	1999
<i>King's Quest</i>	1984, 1985, 1986, 1988, 1990, 1992, 1994	1998
<i>Leisure Suit Larry</i>	1987, 1988, 1989, 1991, 1993, 1996, 1998	2004, 2008
<i>Monkey Island</i>	1990, 1991, 1997	2000

Table 1 Release dates of some well known adventure game series (source Mobygames.com)

And as we observed earlier even recent players of *GK3* try to emulate the point-and-click playing style of *GK1*, attempting to view the screen as a whole in search of the most detailed objects. It stands to reason that at the time *GK3* was released even more players would be unfamiliar with a flexible game camera and would therefore rely on the visual clues they had learned thus far.

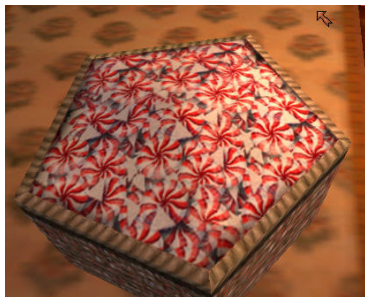
To the (un)trained eye *GK3* seems, at first glance, to use the familiar convention of detailing. For example, Gabriel can find a box of sweets in the hotel lobby, from

which he can take one. The box appears to be open and one can see the sweets inside (image 9).



*Image 9: GK3 note the box in the foreground.*

The player will take in the graphic details of the box and conclude that since the box stands out it must be somehow significant<sup>50</sup>. Because of the game-camera she can now zoom-in to take a closer look at the box and see the individual sweets (image 10).



*Image 10: GK3 Box top view*



*Image 11: GK3 Box "take-action"*

However, the details of the textured area now depend greatly on the technical capabilities of the player's computer<sup>51</sup>. They are therefore no longer a reliable means to indicate a possible puzzle element. Note furthermore that a separate sweet will only really stand out after a "take-action" (image 11), whereas in *GK1* the important objects stood out immediately. In more recent adventure games graphical detail has become even more pronounced, countering any deliberate visual difference in the same gamespace. So the player has "to deduce [new] non-fictive laws [...] to finish the game" to paraphrase Aarseth's words.

One way to help the player to find objects is by changing the mouse-cursor. In *GK3* the tip of the normal orange mouse-arrow is given a yellow and red highlight when the avatar can interact with an object. More recent adventure games like the latest

*Broken Sword* game *The Angel of Death* (2006, THQ)<sup>52</sup> use similar techniques; here the cursor changes into a cross-hair. But 3D in *GK3* not only means that all objects are graphically more or less alike, it also means that Gabriel can interact with almost all of the objects, even non vital ones. Waiting for the cursor to change could therefore not only lead to a new kind of “pixel-hunting”<sup>53</sup>, it will also frustrate the experienced adventure player because it suggests that if the cursor changes, the object is useful. This, however, is certainly not always the case. Next to the box of sweets, in image 9, we see a vase of flowers. The flowers are as detailed in texture as are the sweets. This suggests that further action is called for. The idea that Gabriel should take a flower is enhanced because the cursor changes and the context sensitive menu shows a “take-action” when the flowers are clicked. But then Gabriel will just reply: “I’m not the type to give flowers or take them for that matter”<sup>54</sup>. So in this instance the player is not only let down when she relies on the visual grammar of the earlier games, but also when she relies on what seem to be helpful visual hints in the 3D game.

The real change in the visual grammar the 3D game uses is much more subtle. If we look at image 9 again we see that the box of sweets stands out because of the way it is lit. Highlighting the box became possible because of the advancements in graphic technology. This not only meant more graphic detail but also more colours. For the game designers it meant that they could now borrow some of the lighting techniques used in film and photography. Yet, although the players would be familiar with these techniques in other media, they were unfamiliar in a gaming context as the players were trained on the cruder graphics of the previous adventure games. At the time therefore many players simply would not have noticed the play with light and shadow. As graphic technology has advanced even more over the last ten years it is not strange that present day adventure games, like *The Da Vinci Code* (2006, 2K Games) still use this technique<sup>55</sup>.

## Reasons for choosing 3D

As we saw above, making the game 3D not only affected the audiovisual representation of the gamespace but also had consequences for the narrative and the way the game was played. Given the fact that there was no formal need<sup>56</sup> to use 3D why did the designers not stick to the familiar point-and-click interface? According to Jane Jensen: “...the decision to use a 3D engine for the game was due mainly to the fact that it was “the hot thing” for companies to do so. “There was no question of doing it any other way”” (cited in Wallis, 2007). The enormous impact 3D had on the gaming scene at the time was also remarked upon by other designers like Roger Rouse III who noted that 3D was deemed a prerequisite “so that [a] game would be able to compete technologically with other games” (1998, p. 64).even if it did not benefit gameplay nor would “have improved the player’ experience in any meaningful way.” (Ibid).

Nevertheless, although 3D in *GK3* was a strategic choice for the publisher, the development team’s ambition was directed otherwise:

GK3 offers a freely roaming camera that lets players go where they please and zoom in on whatever they like. This isn't just a gimmick -- this single feature

changes the game radically, making it more like an interactive movie and less like an interactive comic book. [...] (Bilas, 2000)

Here it is interesting to note that Bilas (technical lead on *GK3*) picks out the in-game camera as the most radical change the transition to 3D brought about. Yet, although *GK3* was successful despite its new gameplay, it was not enough to save the series. Economics dictated that adventure games were no longer interesting.

In recent years, however, old style adventure games are gradually making a comeback. In this changed climate, Jane Jensen will also be releasing a new adventure game called *Gray Matter*. Interestingly, the game is a “traditional mouse-controlled, 2D point-and-click adventure” (Gr  nwald, 2006). Bearing in mind that it has been almost ten years since the release of *GK3* and considering that the current trend dictates highly detailed free-roaming 3D environments this deliberate return to the older style is remarkable. One reason could be the casual gamer, a market Jensen has been developing for in the last years. But what about the numerous *Gabriel Knight* fans who have been asking for a fourth instalment of their favourite series ever since *GK3* was released? We can assume that most gamers that played *GK3*, now are familiar with 3D audiovisual cues such as the play between light and shadow and the use of off-screen space. For them reverting to the traditional interface would be a step back in time. Why then go back to it?

[I]n the end I felt that while I played I didn't use the 3D enough to warrant all the extra work. I got the feeling that most fans were pretty ambivalent about it--or even found it to be an impediment. I also think 2D, or 2.5D, art can look better than 3D. I guess I've reached the conclusion that 3D doesn't necessarily benefit an adventure game. (Jensen in Boyes, 2007)

So although having an in-scene camera which makes the game ego stronger and despite the fact that 3D now is the norm Jensen believes that the original representation of the gamespace better suits the requirements of the adventure game player.

## Conclusions

One can debate whether the changes in gameplay demonstrated above constitute a difference in the basic rules of the classic adventure game. To successfully finish *GK3* the player still has to find clues, interrogate suspects and solve puzzles, as in *GK1*. We do feel, however, that the way the player has to apply the rules has changed significantly due to the transition to 3D. Not only at the micro (highlighting in stead of detailing), but also at the macro level (open explorable in stead of closed staged). When the game was released, players of *GK3* had to learn a whole new visual grammar even though the type of game, the platform and the basic narrative did not change. We agree with M  yr   when he says that gameplay is what you do. But just because of what you have to do we cannot separate gameplay from the audiovisual representation of the gamespace. Not only because this plays down the changes technical advancements have brought to specific types of games which would implicate that “categories of gameplay remain eternally fixed” (Rehak, 2007, p. 152), but also because particular types of rules and gameplay seem to benefit from



distinctive forms of audiovisual representation. In this Jensen's remark that 3D doesn't necessarily benefit an adventure game speaks volumes.

In the above we have focussed on the way narrative space, rule space and the audiovisual representation of space influence each other and the way a game is played. This does not mean that we deem the other modalities of space proposed by Stockburger (2006) less important. No one who has played *The Legend of Zelda: Twilight Princess* (Nintendo 2007) on the Wii or *The Legend of Zelda: Phantom Hourglass* (Nintendo 2007) on the DS will put the kinaesthetic experience of its gameplay in the same category as other adventure games. And games like *Okami* (Capcom 2008) on the Wii – a game that allows the player to literally draw on the game world, thereby altering its physical properties to successfully complete the game – bring to light yet other aspects of how gameplay and gamespace are intertwined.

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## Notes

- <sup>1</sup> In this paper we use the term game or computer game to mean an electronic game played by means of text and/or images on any type of computer (mainframe, pc, console, handheld, etc.). We prefer the term computer game to video game because not all computer games were/are played on a device which uses a video display. The main part of the paper will focus on classic adventure games (see note 3) that were/are played on personal computers.
- <sup>2</sup> See Stockburger (2006) and Borries et al (2007) for recent discussions on the importance of space in computer games.

- <sup>3</sup> Of course the debate between the ludologists and the narratologists has long been laid to rest. We use the term here because it was still present in most debates we refer to.
- <sup>4</sup> A classic adventure game is a particular type of game in which narrative plays an important part. In an adventure type game the player (first or third person perspective) reaches the final goal by picking up items and clues and by solving riddles and (logical) problems. The subject matter or genre of adventure games can be quite diverse, e.g. science fiction, fantasy, detective, horror, etc. and, of course, adventure. Some of the original adventure games (for instance early *Broken Sword* games) have been ported to mobile devices like handheld game consoles, mobile phones and personal digital assistants (pda). There are also adventure games for game consoles, the most famous being the *Zelda* series, but their gameplay differs from the classic type as it was adapted to a different type of device: the console. In this article we will only address the adventure game as played on a personal computer.
- <sup>5</sup> There was an earlier text game *Hunt the Wumpus* by Gergory Yob released in 1972, but we would not classify this as an adventure game.
- <sup>6</sup> The idea was born in 1972 but Crowther put the first version on Arpanet (the forerunner of the Internet) in 1975, where it was found by Woods who, after contacting Crowther, made some changes which resulted in the basic game that made history.
- <sup>7</sup> As the game *Spacewar* (1962) shows you could hook up a screen device (in this case a CRT) to a computer but this was only done in (research) settings where (at the time vector) graphic presentation was necessary (e.g. simulation), as the technique was quite costly. And, although text could be outputted to a printing device, when *Adventure* was developed most minicomputers used screen terminals, which usually only displayed text. At home Crowther did not have a screen but used an ASR33 Teletype to connect to the PDP-10 at his workplace.
- <sup>8</sup> In 1980 Atari released a completely graphical game called *Adventure* for the Atari 2600 which was loosely based on the original *Adventure* game by Crowther. Like other adventure type games you had to collect a number of treasures and avoid monsters like dragons and a bat. But it used a joystick to move the dot representing the player around instead of text input. One could view it as a mix of arcade and adventure features as it revolved around solving a maze-like puzzle but visually instead of verbally.
- <sup>9</sup> The characters were mere stick figures; the makers of *Valhalla* therefore used upward pointing arrows and text in the text window to clarify who was who. More info on *Valhalla*, including early advertisements and magazine references can be found at the World of Spectrum:  
<http://www.worldofspectrum.org/infoseekid.cgi?id=0007152>.
- <sup>10</sup> When the user directs her game character Sir Graham to the edge of the grid, he will “walk into” the screen of the opposing edge.

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- 11 Later known as LucasArts.
- 12 *Maniac Mansion* did not have “commands” to talk or ask questions. In later point-and-click adventures conversations and interrogations were made possible by offering multiple choice sentences, questions and/or answers.
- 13 For more information on the history of adventure games see Adams S. (1990), King and Borland (2003), Montfort (2003) and Veugen (2004).
- 14 This concept is similar to iconography in film which is “particular sets of visual motifs that become associated over a period of time with one kind of film or another” (King and Krzywinska, 2006, p. 119).
- 15 Stockburger particularly stresses the interdependence in adventure games which “are often based on exploration and discovery [so that] those spatial themes are the core elements of the narrative” (p. 110).
- 16 It goes without saying that the audiovisual representation of gamespace is heavily influenced by the technical abilities of the device the game is played on. The common endeavour of most designers over the years has been to make this representation ever more realistic, with the notable exception of the Nintendo Wii which focuses on gameplay and kinaesthetic game space.
- 17 Technical game specifications for *GK1* and *GK3* were taken from *Mobygames.com*, the original info on the games’ boxes and in the accompanying booklets and Bilas (2000).
- 18 Quality depended on the audio card used. Most audio cards supported 8-bit audio at the time.
- 19 This also illustrates an interesting move from adventure games as interactive fiction, being discussed in the *New York Times Book Review*, to graphic adventure games as interactive movies discussed in *The Hollywood Reporter* and *Variety*.
- 20 Actually Gabriel does visit two other locations in the game: Schloss Ritter, Gabriel’s ancestral home in Germany and Benin in Africa. But most of the time the game takes place in New Orleans.
- 21 This seems to be culturally determined as Dutch students of Comparative Arts and Media Studies who were explicitly asked to elaborate on the use of New Orleans in *GK1*, did not associate the city as easily with Voodoo as perhaps an American audience would, even though they had seen movies that made the same link.
- 22 Henri Jenkins’ term for this use of gamespace is “evocative space” (Jenkins 2004). It also corresponds with Ernest Adams’ secondary functions of allusion and atmosphere (E. Adams 2002).

- 23 The wheel-within-a-wheel is of course a well known symbol/metaphor as in Ezekiel's vision in the Bible.
- 24 It can also be found in Tetelo's Benin honfour and in the New Orleans honfour.
- 25 There is an interesting parallel in the way Gabriel uses his bookshop (which is also his home) and the way Philip Marlow (Humphrey Bogart) uses his office (which is also his home) in *The Big Sleep*. For a discussion of the use of places in *The Big Sleep*, see Arts (1980).
- 26 This way of representing space conforms to Crawford's definition of "stage": "a location containing actors and props. Actors simply disappear from one stage and reappear on another." (Crawford 2005, p. 21).
- 27 As Järvinen (2003) points out sound has become increasingly important in gameplay and the player's perception of the gamespace. To account for this he proposes the concept of point of perception rather than point of view or perspective which only takes the visual aspects of a game into account. For now we will use the more common terms but we will return to this concept when discussing the game camera model.
- 28 This is the main way in which Jackson Square is shown in the game: the interactive way. Jackson square is also shown as a whole from an airplane window and from an observation platform at the end of the game to direct the player's attention to the wheel-within-a-wheel pattern. When Gabriel (i.e. the player) views Jackson Square interactively with a telescope from the observation platform he again can only see one quadrant at a time, just as in the rest of the game.
- 29 Wolf suggests that "adjacent spaces displayed one at a time" can add suspense to a game, since the player sees what lies next suddenly instead of progressively. Although most of the time in *GK1* there's no monster going to attack the avatar in the next screen, with the exception of a possible snake attack at the Voodoo museum and mummies in the connecting chambers in the Benin honfour, the atmosphere of the game supports the idea of choosing ways to cultivate suspense.
- 30 Stockburger diverges from this narrow view and suggests mapped spaces should be regarded as "part of the game-camera, because they are necessary elements within the visual representational apparatus that generates the spatial simulation." (Stockburger 2006, p.156).
- 31 This book is not explicitly mentioned but for those who have read the book and seen the accompanying BBC programs the landmarks and puzzles in the game are very familiar. As most modern Grail quests use the same sources, it is not surprising that part of Grace's information is also found in Dan Brown's *The Da Vinci Code*, which appeared much later.
- 32 Wolf (2001) based this category on a technical aspect (by calling it 3D) but stresses the different levels in which gamespace is navigable by the player, thus

sharing some of Stockburger's concern how space is experienced. Some 3D games give almost no control to the player, showing space through predefined points of view. Others, like *GK3*, offer the possibility of free exploration of space.

- 33 One of the side stories the game explores is the relationship between Gabriel and Grace, but all their key scenes take place in the impersonal settings of the hotel. In fact we learn more about Grace in this game than about Gabriel. But what we learn about her could be learned anywhere. It is place independent.
- 34 If one was to draw up a table of all the locations and their role in the story *GK3* would have more, not because the grail quest needs more locations, but because some locations are only connected to one of the subplots.
- 35 In the accompanying booklet players with low-end machines are advised to use the preset camera positions to move quickly around the room as these show the most important elements. However it also warns that the preset camera positions may not always show all that is important.
- 36 There are two exceptions to the third person perspective (not counting the game camera), one is when Gabriel uses the binoculars and the second is when Grace uses the computer. In both cases the player views the game in a first person perspective.
- 37 These “invisible walls” are technical restrictions caused by lack of graphic memory to render larger spaces. They should not be confused with Juul’s definition of “invisible walls” where gamespace ends without a valid reason given in the game’s fiction (Juul, 2005).
- 38 The other two properties are multiplication (*GK3* only uses one camera) and the map function (see note 30).
- 39 See note 27.
- 40 In 3D first person perspective games, what happens outside of the visible field can be as important as what is being seen on screen, since the avatar can be attacked from behind, for example. Because of this, the use of sound and shadow also grew in importance as they link the player's perception and off-screen space.
- 41 “The Game Ego can be thought of as a container in accordance with the experientalist theory of cognition. Our bodily container [...] extends into the computer and can perform actions in the game via this tactile motor/kinaesthetic link.” (Wilhelmsson 2003, p. 50)
- 42 Although the Gabriel Knight series ended in 1999, the games are still being played by fans all over the world and the official Gabriel Knight forum on the Vivendi Sierra pages is still very active. It can be found at:  
<http://forums.vgames.com/forum.jspa?forumID=152>



- 43 Even with cinematics turned off the game will take control of the camera in these tasks, choosing what the designers probably found the best camera position to accomplish the task. When the bridge challenge starts this is a good camera position, but the camera does not follow Gabriel, so for the last tiles it becomes more difficult as the player has to judge each step from an increased distance.
- 44 Juul now concludes that “space in games is a special case” as “[t]he level design of a game world can present a fictional world and determine what players can and cannot do at the same time” (2005, p. 163). He also does not equate gameplay with the rules of the game as Mäyrä does: “It is important to understand that the gameplay is not the rules themselves, the game tree, or the game’s fiction, but the way the game is actually played” (Juul 2005, p. 83)
- 45 We prefer the term gametype, referring to the rules of play, as opposed to genre which, especially in the case of adventure games, is often confused with narrative content.
- 46 Please note that their use of the term rules is not the same as Stockburger’s (2006) implicit and explicit rules that define rule space, although most of the explicit rules are game type dependant.
- 47 This does not mean that objects could not be examined more closely. But to do so the player first has to find the object and then click on it. If it is necessary for the player to take a closer look, clicking on the object will then lead to a new screen with the object in full view. Another way of examining objects more closely is picking them up (if this is facilitated by the designer) and then selecting them from the inventory.
- 48 Recently when students of Comparative Arts and Media Studies played the game it became very clear that graphic standards have improved vastly since *GK1* was made. Although explicitly instructed to pick up the magnifying glass and the tweezers, a lot of them could not find these objects.
- 49 The coffee cup also stands out. Gabriel has just finished drinking a cup. When you click on the coffee machine he will drink another cup (inconsistently you get a “cannot do that” comment when you click on the cup itself).
- 50 Even if the game is played in the lowest resolution the difference in graphic detail is clear.
- 51 Images 9 to 11 were produced on a modern day computer using the highest possible resolution of 1024x768 pixels, high texture quality and 32 bit colour mode. At the time only players with dedicated graphic hardware could achieve this type of detailing.
- 52 Also called *Secrets of the Ark*.
- 53 Pixel hunting or Hunt-the-Pixel is a term especially associated with adventure games in which it is particularly difficult to find a specific object on the screen. This was often caused by the lack of graphic detail in earlier games and the size

of the object (often only a few pixels), see also [http://en.wikipedia.org/wiki/Pixel\\_hunting](http://en.wikipedia.org/wiki/Pixel_hunting). When my 21<sup>st</sup> century students first play *GK1* this often leads to frustration and pixel hunting even when I give them an introductory playing guide, because they are not familiar with the visual language of the classic point-and-click games.

- 54 This may look like the same kind of difference noticed with the coffee cup. But with the coffee Gabriel at least drinks a cup (unless he has had enough) with the flowers he takes no action at all.
- 55 See Miriam Naves (2006) for a detailed discussion of the use of light sources in *The Da Vinci Code*.
- 56 All three games were designed for the personal computer and are classic adventure games. And although they are visually different (the second game uses full motion video, yet the portrayal of space and the way the player interacts with the game are similar to the first game) the underlying narrative structure remains the same. One could even say that the very fact that the three games in the series use three different representational strategies is a token of the stories' spatial flexibility. Moreover, *GK1* and *GK2* sold extremely well and both games received several awards. And as the ongoing lively debates on the *Gabriel Knight* forum show, the audiovisual representation of the three games still receives mixed reactions from the player community.