Editing in Video Games

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Introduction

This essay deals with the montage of moving images in 3D video games. Because this is an extremely wide field some restrictions apply. The first: we look only at editing during interactive gameplay that is somehow initiated by the player. That means, the cut has to be triggered by the player in one way or the other. In games, this is usually implemented either in a direct way – the player triggers the cut with a certain input; or in an indirect way – the game system triggers the cut in dependency to actions performed by the player inside the game space. The resulting visual assemblage of moving images is a crucial part of the game because the player's interaction and the cut are interdependent. In that way, the argument avoids a dominance of the visual side and film studies alone that would suggest some form of 'cinema envy' [11]. Indeed, this essay will argue that there is nothing to be envious about because games are not seen as derivatives of film but as the next step in the development of the moving image. Games do not have to look at film as some kind of envious superior form but as reference points for the establishing of their own audio-visual traditions. There are other visual forms in games that use montage, such as cut-scenes, but this essay will solely concentrate on cuts during moments of gameplay.

As a second limitation, this essay will only look at montage of moving images that deal with the diegetic fictional game world of the game title. This essay will not discuss special interface effects such as inventories, pause screens, or map views but concentrates on the presentation of the game world itself. A more detailed discussion of game interfaces would be laudable but is beyond the scope of this essay.

Through their dominant form of audio-visual representation, video games can be seen as part of the moving image tradition. The change – or consistency – of camera perspectives becomes an important element of pretty much any 3D game. Technically a 'change of viewpoint' in a 3D video game is the change of render data onto the virtual projection plane that is projected on the output monitor. As data continuously is fed to this output, there is no break, not 'cut' in the literal sense. But the effect of this data change resembles the effects of a cinematic 'cut' to the player. That is why this essay will continue to use the cinematic metaphor. But

editing game worlds is not a straightforward copying of cinema. Even as metaphor, interactive montage is not a cinematic technique that transfers directly from film to game. Instead, it is a principle of the moving image that is most developed in film but is developing its own specifics in video games.

An interactive cut is initiated by the player as part of playing the game. It depends on the unique performance of the player and cannot be fixed in time. Conditions of lighting, framing, virtual actors' positions, the whole mise-en-scene might change at any given moment depending on the in-game performance. This form of interactive montage has to develop its own framework, a framework that relates to cinematic approaches because both share the use of the moving image but also one that adds own dependencies. Where and how do cinematic traditions and games meet, merge, or clash in this new form of montage? What are the effects?

Background: Development of montage in games

Montage in film operates through fragmentation and assembly. The editor takes parts of recorded shots and assembles them into a new whole. It is the 'creation of a sense or meaning not proper to the images themselves but derived exclusively from their juxtaposition' [1]. Once the action is defined, semiotics differentiates between two main axes for the images: the paradigmatic (how to shoot the action) and the syntagmatic (how to present the shot). Monaco speaks of the paradigmatic connotation that affects the reading of the film shot by comparisons with not-realized shots [16].

In contrast, video games render their images in parallel to the unfolding action, which is not fixed. This technique is part of their nature as real-time simulations. This real-time image generation allows direct interactive access to the rendered event in what the Human Computer Interface community termed "direct manipulation." Because the rendered camera is always "live" the player can immediately interact with the shown situation. And because the camera is "live" games lack "existing shots." They only ever produce the one view that is rendered onto the screen. At the same time, games offer complete freedom to the virtual camera. While film stages the action optimized for one (or a few, e.g. in complex action and special effect scenes) cameras, the camera in game space can be anywhere at any time. The virtual camera might be singular, but it has a lot more freedom regarding where this position might be. A 3D game space can offer potentially unlimited perspectives and images of the event space at any given moment. Unlike film, a game can activate these perspectives in dependency to the player's interaction. In fact, the action often demands a variable camera and the syntagmatic role shifts

into the foreground. Because the camera does not have a body and can teleport to any location instantly, this selection also includes a repositioning. This is read by the player as a cut. In other words: the freedom of the camera in video games includes not only framing and movement but also cuts and the paradigmatic and syntagmatic axes also apply in games.

The question of a syntagmatic assembly in games is especially obvious in the way it deals with the presentation of virtual space. Some games do not need any montage of the fictional game space because their virtual space is so small that no second perspective is needed or even possible – see *Pong* [Bushnell, Nolan for Atari/ Atari, USA 1972] or *Tetris* [Pazhitnov, Alexey, RU 1985]. But relatively early in the history of video games, their virtual playgrounds grew too big for a single screen. The result was the invention of a more variable virtual camera. This can be traced in the scrolling effect as introduced in *Football* [Bristow, Steve for Atari/ Atari, USA 1978] – the game-counterpart to a moving virtual camera. The second option to cover the extended game space is the cut to a different viewpoint as realized in Intellivision's *World Series Major League Baseball* [Daglow, Don/ Dombrower, Eddie for Mattel/ Mattel, USA 1983]. The size and quality of the virtual playground and its contents demand editing to remain fully accessible. The complexity of the emerging game space – may it be a 2D scrolling level or a 3D world – led to the moving camera and the cut. As advanced virtual worlds often mimic real spatial conditions, the camera started to explore them in increasingly complex ways.

With 3D characters moving in perspective-drawn game settings more cinematic options became relevant for the camera world. For example, *Alone in the Dark* [Raynal, Frederick for Infogrames/ Interplay, FR 1992] offered early 3D polygonal characters moving in a technically 2D background space. On the presentation side it had to deal with typical cinematic key elements such as foreground, background, dynamic framing, blocking, and other aspects of mise-en-scène [3, 13] to create a believable world. Once both, world and character were presented in full 3D, the cut could take the player to literally any point in the game world and the camera could position itself in any relationship to the virtual hero, location, and event. This is exemplified, for example, in the various cameras in *Mario 64* [Miyamoto, Shigeru for Nintendo/ Nintendo, JP 1996]. The cut and the moving camera combined towards a visual freedom unrestricted from any physical limitations and present the player with the range of images "that could be at any given moment" and that might be needed to succeed in the game situation. Finding the appropriate and best functional image could become a fundamental part of the game play.

With enhanced spatial freedom, more visual references become projected onto the montage of images in game worlds. Issues of crossing the action axis, presentation of multiple perspectives, and spatial continuity arise specifically when the viewpoint is dynamically generated. Parallel to the growth of their spatiality, the semiotics of the moving image grew in importance for video games. As a result, montage has become a silent force in video games. "Silent" because it has largely been ignored by the academic community. Analytical work in this area is still thin and fragmented [12, 14, 18].

This might be due to some spectacular set backs. In the era of "interactive movies" hopes for a new form of cinematic assemblage surfaced. The problem with these approaches was that a good part of this interest in montage was driven by the idea of a somehow interactive and new reassembling of existing images [21]. Unlike the free cameras in 3D video games these "interactive movie" models offer selections of pre-recorded material and little to no influence on the depicted event itself. In this case montage is in danger to turn into surface play with little impact on the event itself. This was heavily criticized in the emerging field of Game Studies. In an interactive movie, the interaction affects the shot selection with no connection between the cut and the event. In a game, the interactive montage affects the visualization as well as the event itself.

With the commercial and critical pitfall of the interactive movie and the rise of 3D real-time presentations, some work looked into automated camera and editing controls [6, 20]. These AI-driven approaches did little to encourage the interactive aspects of the montage and instead searched for algorithms that would replace a human editor. With the shift of the academic debate towards the ludic the interest in montage in games faded. Montage, by many regarded as the quintessential cinematic technique, and interactivity, often emphasized as being the quintessential game technique, seemed to be rooted in two different and at times incompatible traditions. Manovich mentions an 'anti-montage tendency in GUI' [15] and even texts that acknowledged the interdependencies of camera and space argued against montage [12]. Somehow unimpressed by the academic quarrels commercial game developers had to deal with the implementation of montage in their game development practice throughout. As their game worlds grew more detailed and expressive, more and more cameras were included. Consequently the editing in game worlds often grew more complex.

On track of the argument concerning films and games, the "cinematic experience" delivered by carefully arranged game worlds and visualizations replaced the vision of the "interactive movie." But even then, montage remained underrepresented in the debate. Instead "cinematic" often referred to a narrative style, not to a representational technique. This is the

only way we can explain why a title such as *Half-Life* [Half-Life Team for Valve/ Sierra, USA 1998] has been praised as a "cinematic game" although it almost totally neglects a core cinematic tool: montage.

The growth of visual complexity becomes especially obvious in games that successfully implemented the 3D features but grew from originally 2D predecessors. The step into 3D space encouraged many designers to experiment with more elaborate montage. The *Super Mario*, *Metal Gear*, *Legend of Zelda*, *Gran Theft Auto*, and *Warcraft* series – are among the prominent game franchises that evolved from original 2D worlds into 3D spaces. Today players are used to elaborate visual style and complex forms of presentation. But what are the trademarks of this emerging form of successful use of montage in games?

Editing on space and character

The seminal editing philosophies of Eisenstein are mainly image-based editing techniques growing from his concept of a "montage of attractions" that builds on the audience's active reading and the impact of the moving image. It is the combination of the images that generates a certain relationship and engages the audience [7]. In contrast, montage in games has to focus not on the image level but on the diegetic game world level. It has to support interactive access, the player's impact on the event. There are myriad variations of this dominance from the Quick Timer Events of *Shenmue* [Suzuki, Yu for SEGA-AM2/ SEGA, JP 1999] to the free behavior in the world of *Zelda* and the strategic viewpoints of *Warcraft III: Reign of Chaos* [Pardo, Rob et. al. for Blizzard Entertainment/ Blizzard Entertainment, USA 2002]. Whatever their nature: interactive access remains at the core. While the reading of a film cut can very well be understood as an active involvement of the audience – as Eisenstein argued – the result, a new meaning between two separate images, cannot be the sole final achievement in games. Games demand the player to apply the found meaning not only of the image but also to the depicted situation and act upon it. Thus, montage in games has to support not only a meaningful assembly of images but also serve the following interaction. It is not just about active reading of the image but also about allowing the player to apply the new knowledge to the presented world in that image.

A common problem, for example, is the movement control between two shots. 3D video games can either apply the control of the character in reference to the character's body or in reference to the screen. Pressing "left" in a character-relative control scheme make the hero step or turn to her left – in a screen-relative scheme it moves her towards the left side of the image. A change of view can complicate these control schemes. What works in film does not

necessarily work in games when it comes to this edited movement. Eisenstein's *Stachka* [Eisenstein, Sergej RU, 1925] culminates in groups of workers hunted by the police. The editing present the men and women run disoriented like animals in a stampede as the picture jumps their movement axes and intercuts the killing of the workers with the slaughter of a cow. The change of direction might make a lot of sense in the movie and visualizes the hectic and entrapment but it would be very difficult to implement this technique in an interactive situation. A camera that jumps the line of action would reverse the avatar's direction and force her to run straight back into the area she emerged from before the cut.

Modern games counter this problem with a change of controls. By default *Fatal Frame* [Kikuchi, Keisuke/ Shibata, Makoto for Tecmo/ Tecmo, JP 2001] uses a screen-relative control scheme and fixed cameras. The game cuts between these fixed cameras in dependency to the spatial progress of the player. As you steer your character through the rooms of the haunted mansion you trigger new cameras along the way. The resulting montage can lead to disorientating jumps depending on the movements of the player. The solution used in *Fatal Frame* and other games is to temporarily change the control scheme. In order to keep the movement fluent, the direction of the avatar movement is kept as long as the player presses in the same direction – no matter what the relative position towards the camera might be. Once the player releases the joystick the control scheme jumps back into the default behavior. In practice, a camera might show the heroine from the back, thus, a player might press the joystick forward to steer her "into" the screen. The spatial progress might trigger a cut. The second camera can be a reverse shot positioned in front of the heroine and thus reversing the controls. According to the default control scheme, pressing "forward" should mean "into the screen." The heroine should turn around and had back to where she came from. But the adaptive scheme of *Fatal Frame* corrects this. As long as the player keeps the "forward" button continuously pressed, the avatar will continue to walk into the initial direction. During this time the heroine would walk "back" towards the camera although the player would keep the "forward" button pressed. When the player releases the button the controls fall back to the screen-relative scheme. Editing and spatial navigation are combined to a fluent experience wherein not only the image but also the controls can change. This solution points towards the two main references for interactive editing: space and character/ avatar.

Editing in games is often connected to the generation of and movement through space. It creates a game space much like editing of film generates a cinematic space [2, 4, 10]. In film, it is the task of continuity editing – or découpage classique – to provide the audience with the impression of a coherent fictional space through visual guidance [19]. However, film guides the

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player through the fictional world via its intricate assembly of images; the situation in a game is reversed. In a 3D game like *Fatal Frame* the player controls movement through the space and the cuts depend on this movement. Movement emerges as one important form on interactive control of montage that, in turn might even affect the overall character control scheme as seen in the control-reversal described above. Thesis one is based on this observation: Montage in games can be dependent on continuity of movement.

Not all editing in 3D games is connected to spatial progress. Some games or game sections simply do not deal with direct spatial control but still feature elements of montage. Rhythm games like *Space Channel 5* [Yoshinaga, Takumi for SEGA/ SEGA, JP 2000] or the Quick Timer Events (QTE) of *Shenmue* and *God of War* [Jaffe, David for SCE Studio Santa Monica/ SCEA, USA 2005] often combine editing with interactive control of the character through specific sub-actions. The character/ avatar becomes the center of interest, the surrounding space falls back into a state of illustrative scenery.

{NOTE: here maybe a shot of *Space Channel 5*?}

The accurate timing of the dance moves performed by *Space Channel 5*'s heroine, Ulala, is more important than *where* she dances; the player's quick reactions to a QTE trigger Ryo's actions in *Shenmue* by asking the player to perform *onto* the avatar and less *with* the avatar onto the space. In *Shenmue* this difference is more obvious than in rhythm games like *Space Channel 5*, because it changes the control scheme. During exploration phases the controls are optimized for spatial navigation but the QTE interrupts this maneuvering and shifts controls to the avatar reaction. However, within a QTE or a dance sequence the virtual cameras are constantly at work – often more accentuated than in the overall game play. From these observations grows thesis two: Montage in games can be dependent on a state or specific action of a game subject

Both theses are seen as supplementary to each other. They are also not exclusive, as there might be a number of additional factors (such as sound) that cannot be covered here. Nevertheless, they offer a first starting point for an investigation into montage in games.

Player control: direct or indirect

This section will exemplify and develop the two theses to see how montage is performed in video game worlds and to what effect. Space and character movement therein offer good reasons *why* to cut: namely for exploration of the environment. What is missing is a look at *how* such a cut is initiated. Because this essay focuses on interactive cuts, the *how* depends on the interactive spectrum at hand. In the tradition of classic Human Computer Interface research, the interactive access to the cut can be either direct or indirect (see for an early adaptation of that to cinematic presentation on different levels [8]). The player can either directly control the editing – e.g. through conscious activation of a different virtual camera perspective – or indirectly – e.g. through the movements of the avatar. The following paragraphs will attempt to exemplify the matrix set by the basic framework outlined in this essay so far:

1) *direct* (where the player has direct control over a cut)
    a. for space (that means the cut orients itself in space and not on the character); example: *Prince of Persia: The Sands of Time* [Mechner, Jordan for Ubisoft Montreal/ Ubisoft, CAN 2003] (orientation view)
    b. for character (that means the cut orients itself on the character); example: *Fatal Frame* (photo camera view)
2) *indirect* (where the player has indirect control)
    a. for space; example: *Ico* [Ueda, Fumito for SCEI/ SCEA, 2001 JP] (change of view triggered by spatial progress)
    b. for character; example: *God of War*'s QTE's

Like in film, there can be no singular way of editing in games and a discussion has to build on examples and close readings. All of the four chosen examples present, in fact, multiple visualization and montage methods but the argument will concentrate on single cuts and their operation. The range of examples hopes illustrates the richness of the field and to illustrate some effects of interactive montage as it is applied in games.

Direct control

Providing the player with direct access to the cut represents part of a development in games that often divides player control between avatar and camera work. At least since the introduction of the player-controlled following camera in *Mario 64* this distinction has become a wide-spread game convention. The camera has become an acknowledged entity of its own. That is why

Lakitu – the in-game character and camera operator of Mario in *Mario 64* – is present in the same world. He is introduced in the opening sequence and can be seen throughout the game whenever Mario faces a mirror. The player controls both characters: the hero Mario and the camera operator Lakitu. This differentiation is essential for the montage, as it allows the camera to free itself from its historical attachment to the main character. Most of the time, Lakitu circles around Mario but he shows signs of an own presence and behavior. The camera plays itself, in fact, one might doubt whether the camera in *Mario 64* is a third-person perspective and argue that it is a first person point of view – namely that of Lakitu. It is thanks to games like this one that the work of the virtual camera matured to its more advanced state.

The *Fatal Frame* series approaches the camera as device in a different but not less decisive way. Here, it is the only weapon system of the game. The *Fatal Frame* series (*Fatal Frame*, *Fatal Frame II: Crimson Butterfly* [Kikuchi, Keisuke/ Shibata, Makoto for Tecmo/ Tecmo, JP 2003] *Fatal Frame III: The Tormented* [Shibata, Makoto for Tecmo/ Tecmo, JP 2005]) is part of the survival horror genre. That means, players control characters that are trapped in some kind of horrifying and deadly situation – physically or mentally – and have to survive encounters with enemies spawning from this condition. In the case of *Fatal Frame*, these enemies are ephemeral ghosts. Ghosts attack the player's character and can only be defeated when the player activates the camera and "shoots" a picture of the attacker.

{NOTE: two screenshots of Fatal Frame? One with the third person pov one through the 1st person camera view}

The overall game uses pre-defined camera point of views that are triggered by the movement of the avatar through the game world, but when the player activates the camera/ weapon, the view switches into a first person perspective under the direct control of the player. The pre-defined cameras that show the game's exploration stages have the player looking at the avatar, the fighting stages are triggered by the player and depend on a cut. Instead of looking at the character the cut teleports the player into the characters position and at the center of the threatening situation. Furthermore, in order to fight the ghost, players have to face it and wait for the best possible moment of the shot to cause the highest impact. We have to stay in target spot of the attack. The cut and the use of the camera increase the present danger, not by adding more enemies, but by relocating the player into the most critical spot and increasing the presence of the threat.

Technically, the cut is triggered by the player through a button press. It is motivated in the diegetic game world through the introduction of the "camera obscura", a virtual photo camera that includes the affordance of a first person viewfinder perspective. Depending on the set up of the pre-defined third person point of views, the resulting moving images might be visually disorientating in the traditional cinematic sense where the audience lacks interactive access. In the case of the game, where the player controls the action and the cut, it remains fluid and logical because it is triggered by the player. Any possible disjunction can be corrected because the player is in control of the cut as well as the character. The cut reinforces the virtual character's spatial positioning as it demands from the player to re-orientate in the new role and find the approaching enemy. Mastering the switch is an essential skill of the gameplay and the visual effects increase the element of horror in the game experience. The dynamic montage intensifies both: interaction and reading of the title.

While the cut in *Fatal Frame* increases the tension and situates the player closer to the virtual danger, the panoramic view of *Prince of Persia: The Sands of Time* is a help function. *Prince of Persia: The Sands of Time* is the 3D sequel to the original 2D game *Prince of Persia* [Mechner, Jordan for Broderbound/ Broderbound, USA 1989]. Both games combine spatial puzzles and fighting sequences but the newer title features a far more complex spatial set up. It applies a number of complex camera conditions during fights as well as during the exploration sections. Here, we will focus on the panoramic view camera.

{NOTE: maybe two shot of PoP: Sands of Time? One panoramic view, one fight or standard exploration view}

This view is a pre-defined camera perspective that shows the current level independently from where the player-controlled prince is situated. Players can activate this view almost anytime. In the tradition of a cinematic establishing shot, the panoramic view operates like a help function. *Prince of Persia: The Sands of Time* features typical establishing shots in the beginning of every level but they are more fast-paced visual flythroughs through the game space. It is the panoramic view that delivers the necessary spatial overview during game play. Players have to read minute details in the space in order to navigate the prince successfully to the next level. The panoramic view offers the necessary bigger picture for this task. The cut, here, is a calling of the help function.

The function of the cut might be a help feature, but the visual impact is a reference towards epic storytelling. While most of the camera work in the exploration phase is dynamic

and in motion, the panoramic shot is always a wide open fixed shot. It slows down the pace as it does not concentrate on any action within the frame but the sheer space presentation that usually dwarfs the characters it contains. The cut to a first person point of view supports the horror element in *Fatal Frame*, the cut to a distanced overview in *Prince of Persia: The Sands of Time* supports the epic element. The game events are presented as a single long flashback narrated by the main character himself and storytelling is seen as major element of the design [5, 9]. It plays with references to swashbuckling adventure tales of the like of *The Thief of Bagdad* [Walsh, Raoul USA 1924] and presenting its game world's glory in open establishing shots helps to re-establish these references.

While *Fatal Frame* takes us deeper into the action, the helping view of *Prince of Persia: The Sands of Time* put the specific action in relation to a grander scheme. But both games apply direct control: the cut is triggered by pressing buttons on the controller. Both games make this form of player-induced montage a key element of their gameplay. Like Lakitu in *Mario 64*, the player has to control multiple levels of interaction: the hero, and the visualization. The combination of both can actively refer to film genre conventions but integrates them in a game-specific way and alters them in accordance to the interactive access.

Indirect control

The second way to control editing uses player's input in an indirect way to trigger a cut. That means, the cut is not triggered by a direct button pressing, but by events within the game world. A wide-spread approach for this in-game triggering is the spatial progress of the player through the game world. The chosen example, here, is *Ico*. Like *Prince of Persia: The Sands of Time*, *Ico* is a game full of spatial puzzles. Players control Ico, a boyish hero, who tries to escape from a seemingly endless castle together with a basic AI-controlled ghost-like girl, Yorda. The camera is exclusively a third person point of view looking at the main characters.

{NOTE: maybe here 2 shots of Ico? At least one of them should have clear visual indications e.g. taken from the top of a ladder showing the way up or from the ground up to show a ledge to reach}

However, while the Lakitu camera is active and personalized with a game character, the view in *Ico* is more one of the castle itself onto the two protagonists. Cameras swoop around the space to keep the hero in frame and their movements are pre-defined by the game and triggered by

the spatial progress of the main hero and his actions. Players have limited access over the direction of the camera and can use a basic zoom function but they cannot activate different cameras perspective for any single location or change the camera's angle around the hero as the Lakitu camera does. The restrictions of the camera control copy that of virtual CCTV cameras, the zoom in to the heroes results in a view that rarely supports any gameplay but enhances the image of the castle itself watching its prisoners or a detail of the game world. This is further supported by the audio which likewise is an external perspective and seems to be that of the camera position. When a player triggers a call from the boy Ico aimed at Yorda, then we hear this call from the distant perspective of the onlooker.

New cameras are triggered mainly through the exploration of the environment. When the player steers Ico from one location to another the game fades fast to black and back in to another view of the adjacent location. Thus, the cut depends on the player's interactions but only indirectly through spatial behavior. Alltogether the exploration of the environment appears as one continuous movement and the locations are tied together in visually engaging ways that concentrate on the specifics of the individual area. Because the player has only very limited control over the camera, the pre-defined viewpoints have to provide all the information necessary to solve the current spatial puzzle. They include the help functionality of the panoramic view of *Prince of Persia: The Sands of Time* and emphasize the spatial conditions at hand. When the Ico approaches a ladder, the camera will move into a position that indicates where the ladder leads. At times the camera also cuts directly to such a new view of the just entered location. Neither camera operation is directly controlled by the player but the camera is still interactive and dependent on the player-character's interactions. Cameras in *Ico* are usually very dynamic, following the hero along ledges, panning with him into new areas. They imply the idea of CCTV but do so in a game-like way where the cameras do not depend on fixed mounts. Like a remote surveillance controller, the player can change the direction of this view to a limited extent to explore the nearer surroundings. In these interactive options the game limits the camera behavior much stronger and draws it closer to real world surveillance camera use. The idea of a CCTV view is also implemented in the way that the hero's actions and controls are tied to camera behavior. CCTV is not a pure visual reference but an interactive design implemented. If player changes the framing and looses sight of the main hero, the interactive control of the character still guides the behavior of the camera. Players can navigate Ico while he is invisible to the camera but the camera movement is directly affected by that. The camera still traces Ico's path even though it might remain off-screen. System-driven cuts to viewpoints at other locations are rare and usually indicate danger. For example, cuts might accentuate the arrival of enemies

in the area or the ghost-girl's demise in some situations. A break in the continuity of the visualization, thus, signals a danger in the continuation of the gameplay. Dependencies between hero control and camera control in the game space and its visualization add up to an expressive as well as highly functional indirect camera control scheme driven by space.

A comparable pre-designed camera driven by players' spatial progress dominates *God of War* but here it is more based around the main actor than in *Ico*. The camera work in *God of War* is rather complex but here we will concentrate mainly on one effect. Unlike *Ico*, *God of War* uses the Quick Timer Events (QTE) technique popularized by *Shenmue*. This last example will focus on the way QTEs are included in the overall game. *God of War* uses very dynamic cameras that emphasize the agility of the main hero in numerous special moves and combo maneuvers. Most of these maneuvers demand a skilled handling of the character, the weapons, the locations, in short: of the diegetic game world. The QTEs ask for a different mastery, namely one on the level of the controller. QTEs temporarily change the whole control scheme of the game and present themselves often in the form of a flashing button icon on the screen. The player has to press the corresponding controller button immediately to trigger a predefined animation sequence of the hero. Players do not play any spatialized action. They lose control over the hero's movements and have no other choice than to react fast enough or fail this specific event. They play the interface in a test of reaction skills. Other have argued that such a punctuated interaction still draws attention to the surrounding content [17] and it might blur the borderlines towards linear movies. It also blurs the borderlines of an interactive game when applied to a 3D video game title. In many ways, QTEs are a return to the decision points of "interactive movies": depending on whether the player succeeds or fails, a different pre-defined cinematic sequence is triggered. Even though the sequence is rendered in real-time in *God of War*, it excludes direct control of the main hero.

Even though this might indicate a return to older principles this arrangement does not necessarily fall into the same trap as the "interactive movies" before. QTEs in *God of War* remain the exception in a game that is all about the mastery of movement. They are like dramatic peak points, often implemented at key moments of crucial battle sequences. In the case of *God of War* QTEs give access to very complex animation sequences as well as to possible montage sequences. Because players interact on the level of the interface and do not have to worry about spatial continuity of controls or movements, the game can cut to different camera perspectives without threatening the player's orientation or interaction. A momentary shift occurs: players are propelled out of their direct interaction with the diegetic game world while the visualization tries to draw them further into the event using cinematic action film

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conventions. In *God of War* the shift is dynamic and players return to the default control scheme of the hero in the virtual space once the QTE ends. In other titles, such as the rhythm game series *Dance Dance Revolution* or *Guitar Hero*, the control scheme stays detached from world navigation and allows for constant free montage. This essay argues, that the free montage does little to enhance the game play in both series. One way to connect it better to the game play is via a character to focus on. The flashing graphics of a *Dance Dance Revolution* game merely add visual distraction from the surface of the screen that shows the icons telling the player about the next necessary move. The editing of these backgrounds might be fast and furious, in fact, in some cases the game plays a commercial music video of the song, but it does not connect to the interactive game play in other ways. *Space Channel 5* is the counter example of a character-focused rhythm game where players control the dance moves but not the spatial progression of the heroine inside the game space. The camera is relatively free to react to this dancing, which can results into MTV-like dance battles montage sequences. The direct reimplementation of established patterns like an MTV style music video can be visually appealing but their limitations can also indicate a lack of connection between interaction and montage. *God of War* and *Space Channel 5* successfully walks the thin line between both worlds as it alternates between different control schemes and editing philosophies. They remain character-focused and the QTEs in *God of War* provide occasional dramatic peaks that support the overall action game play.

All of these examples indicate an increasing complexity in the use of montage and interaction in video games. In fact, all of the chosen example games offer more visualization techniques than the here described main views and cuts. That does not mean that they are becoming more "like films" but that they are developing their moving image traditions in the area of montage. It is in the combination of interaction with montage where they truly thrive and generate new experiences for the player.

We learn by watching

Editing films as well as editing game worlds always depends on the audience. The semiotics of montage, its paradigmatic and syntagmatic axes are not only important for the director or designer, they are also relevant for the audience/ player. If a piece leaves this matrix on the side of the audience/ player, the visualization becomes illegible. For example, it was argued that *Siren* [Toyama, Keiicho for SCEJ/ SCEJ, JP 2004] fails in that matter [18]. Numerous anecdotes

report how audiences had to learn how to read a filmic cut – the same has to be expected from the cut in a video game. The complexity and expressive range of montage in film as well as in games depends on a level of media literacy within the audience. Griffith could not apply a handheld camera style as seen in *NYPD Blue*, a player of *Pong* would be overwhelmed by the range of visualizations in the latest *Metal Gear Solid* title. It is over time that audiences develop a higher level of media literacy, which shifts the axes further and allows for more complex editing in games. It also develops a growing tradition. As the examples have shown, parts of this tradition are still referencing other moving image media formats but they also indicate new emerging constellations in the way they are combined. So where might a growing literacy lead the montage in games in the future?

One important element that is heavily underrepresented is the notion of montage as a breaking device between[16]) or operates on the associative level as we have seen in the famous match-cut from the rotating bone to the space station in Kubrick's *2001 A Space Odyssey* [Kubrick, Stanley UK/ USA, 1968]. What is needed to allow for such advanced modes is an elaborate interaction design as well as an outstanding familiarity of the player with the game – not only the specific game, but also the game culture and its visual as well as ludic traditions. Once again: This kind of montage in games is not a return to cinematic traditions but a expansion of cinematic as well as ludic ones. It ultimately adds to the player's experience and changes the engagement with the game world to new forms. Interactive montage can stimulate players to read the game world more actively and thus add depth to the video game. As this essay argued, this depth is not simply adapted from existing cinematic predecessors but emerges as a game-specific form of the interactive accessible moving image.

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