Gran Stylissimo: The Audiovisual Elements and Styles in Computer and Video Games

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Abstract

The audiovisual appearance of computer and video games is varied. Still, the interplay of sounds and images in games has not been studied in any rigorous way. In this paper the concept of audiovisual style is introduced to grasp these variations, and categorize existing games into three styles. They are called photorealism, caricaturism, and abstractionism. Moreover, elements that make up the audiovisual appearance of an individual game are defined: dimensionality, point of perception, visual outlook and soundscape. Naming and analysing different styles and elements helps us to understand both what kind of audiovisual techniques persist and what has changed in the developing field of computer and video games. A continuum is sketched that ranges from the caricaturistic Pongs *and* Space Invaders *of the 1970s to 'the year of* Doom*' (1993). The rise of three-dimensionality and photorealism during the 1990s is explored, up to recent developments where new stylistic directions have began to emerge.*

Keywords

Audiovisuality, style, digital aesthetics, game design, computer graphics, digital audio

INTRODUCTION

There are various different approaches to both the audio and visual design of computer and video games. For example, there are the so-called classic platform jumpers or shooters, where the screen scrolls in vertical direction, and the game environment is presented to the player as a cross-section, or

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directly from above. In these games we see two coordinates of objects, i.e. the width and height. The visual impression is two-dimensional, and the sound effects are projected onto this plane. Then there are games where one sees characters, houses and other objects from above, from a tilted angle, but in such a way, that the horizon is not visible and the lines of perspective do not converge. This kind of view is called isometric. Well-known examples of games representing/simulating objects from isometric perspective include the popular *Sim*-games, many role-playing games (such as the *Baldur's Gate* series) and the strategy game series *Command & Conquer.*

However, towards the end of the 1990s, game development was characterised by the movement towards the third coordinate, and thus three-dimensionality. This was apparent on both the aural and the visual elements. Technical advancements in audio and graphic accelerators allowed the rendering of seamless 3D graphics, and the sense of place could be emphasized with the use of 3D positional audio.

To sum it up, the audiovisual appearance of games is varied. It has not been studied in any rigorous way. In this paper I introduce a concept called *audiovisual style*. It will be used to discuss these variations, and categorize existing games into three styles. They are called 1) photorealism, 2) caricaturism, and 3) abstractionism. I will also define elements that make up the audiovisuality of an individual game. These stylistic categories and game elements help us to understand the audiovisuality of computer and video games more thoroughly and discern its qualities from, e.g., cinematic use of sounds and images. In this way, the paper attempts to create aesthetically conscious vocabulary with which to talk about games, analyse them, and moreover, give game design and journalism tools to work with.

How is an audiovisual style born?

'Style' has been used and theorized (e.g., by Alois Riegl) in art history to characterise dominant techniques in painting, architecture, sculpture etc. during different historical periods. Or, style is discussed in relation to certain author or 'school'. [1] We might start to look for Shigeru Miyamoto's, or Warren Spector's style of designing games, and most probably we would find common elements within their respective works. However, here audiovisual styles account for the aural and visual variations during the relatively short, approximately 40-year-old history of computer and video games.

Different elements and their design and implementation affect how the audiovisual appearance of an individual game shapes up. One can compare this with architecture, for instance: the elements and details of a building together constitute its architectonic appearance. Most buildings have elements such as windows, but their style (shape, size, ornamentation) can vary considerably. The whole architectonic style is a sum of all the individual elements. Once a certain kind of sum of elements begins to persist, i.e. there appear a number of buildings with similar appearance and design, we can discuss them together under a broader category: style.

The audiovisual appearance of a game is born in similar fashion as with buildings. Three elements can be discerned from all computer and video games: 1) space/environment (a football field, for example), 2) different objects (characters, things etc.), and 3) symbols (point counters, health meters, descriptions, help texts etc.). By making choices on how to implement these elements in the game (e.g., whether to design the game environment in two or three dimensions), game's graphic and sound designers create an audiovisual appearance for the game. In summary: an individual game has an audiovisual appearance. According to it, the game belongs to a certain style.

Audiovisual style is, as a concept, a tool for thought and discussion. It can be used to name and categorize games from an aesthetic perspective – in a similar manner the field of visual arts has been categorized into different historical stylistic periods, such as impressionism, realism, cubism, and so on. Naming and analysing different styles helps us to understand both what kind of audiovisual techniques persist and what has changed, and how, in the developing field of computer and video games. Audiovisual elements and styles are about being able to describe different games' audiovisual form in theoretical terms.

The focus here will be on games' aesthetic form. Content, or rather genre is the other component that affects audiovisual appearance. We 'know' what a game with a science fiction setting should look and sound like, because of various genre conventions that we've learned from other media. Regardless of the emphasis on form, I will refer to the ways different audiovisual motifs travel through different media (from film to games and vice versa) and how certain game genre conventions shape the audiovisual appearances of games and, respectively, styles of game genres.

AUDIOVISUAL ELEMENTS OF GAME ENVIRONMENTS

In the above, three general elements were discerned from games, with space as the most prominent one. What are game environments made of? They are built on the following: dimension, point of perception, visual outlook, soundscape and senso-motority. But what are these elements, in practice?

Dimension

Dimension affects strongly the experience a game provides, especially the sense of environment, i.e. being in another place. Environment is a keyword when discussing games at a general level. As mentioned before, it can be found in any game from *Tetris* via *Super Mario 64* to *The Sims*. Moreover, the design of game environments is something that differs from the task of designing interfaces for web pages or software applications (or game menus, even).

A three-dimensional game environment often creates a more powerful, or at least more complex sense of place than a two-dimensional does. If a game

is based on exploring and overcoming an environment (as many games are, e.g., *Tomb Raider* style 3D-adventures), the third dimension makes it possible to render a multi-layered game environment. A noteworthy example of how the choice of dimension affects the game experience is the *Grand Theft Auto* series. The series' first two instalments (Rockstar Games 1998 & 1999) have 2D top-down dimensionality, but in the third part (2001) the game's setting, Liberty City is rendered in 3D. The shift is quite notable: the added dimension is more than a technical advancement – it brings another layer to the gaming experience altogether.

On the other hand, if the game's rules demand that the environment is made into a two-dimensional or isometric grid that governs the means of moving (like in many board games, or turn-based strategy games), then two dimensions or an isometric perspective might well be the appropriate solution regarding dimensionality.

Point of perception

Point of perception is an element closely tied to dimension. Dimension does not strictly dictate the point of perception, but it particularly affects how the player experiences the auditive elements. Dimension and point of perception together make up the game environment's rough form. Point of perception is the position from which the player perceives, i.e. both sees and hears, what goes on in the game environment. It can be compared to the dominating view discussed in theories of narratives and narration, but it is not quite the same thing, because of the highly interactive and non-narrative nature of most games.

One of the reasons for this is that in games, the player is often able to manipulate the point of perception (PoP). It doesn't have to be static: 1st (like in e.g. *Doom*, the *Quake* series and other 'first-person shooters'), 2nd (text adventure games) or 3rd person (platform jumpers, Oriental fighting games, etc.), but several PoPs can be offered to the player. In other words, PoP doesn't have to be tied to the character or object (starship, car, etc.) that the player controls. Even if the PoP is fixed, the 'virtual camera' does not have to be static, like in *Shenmue* (Sega 2000) or *Ico* (Sony 2001), where the player is able to pan, tilt and zoom with the camera in order to get a better view of the game environment. In *Black & White* (Lionhead Studios 2001), the player can zoom in and out and rotate the game environment at will. As the player in the game takes the omnipotent, all-seeing and hearing role of God, the point of perception is a mix of first and third person. In many games there is an option between 1st and 3rd person points of perception, or possibility to choose from different 'cameras' (and therefore also 'microphones', one should add), as in racing and other sport games.

In addition, the player can have different, co-existing points of perception to the game environment. Typical example is a map of the game environment. Usually the player can examine it in a separate view, or as projected on top of the game environment. Often the map's dimension is different from the game environment itself: for instance, when a 3D game environment is reduced

into two dimensions in a map. The (audio)visual appearance of the map should be much less detailed than the game environment it approximates – in the end, perceptually a map is always an abstraction of a concrete and detailed space. True, all games do not have maps, or means to zoom in/out, but these games (and their audiovisual style) are usually abstract enough so that the game environment itself can be thought of functioning as a map. This is the case in games such as *Tetris*, *Pong*, and other highly abstract games.

The implementation of maps has consequences on the outcome of the audiovisual appearance, and so does the choice of PoP. The latter is also a means to govern the player's control over the game environment, and how much information s/he is able to gather of it. A first person PoP may entice stronger identification to the game events and its environment, whereas the isometric perspective employed by many 'god games' is a means to lift the player above the 'streets' to see the bigger picture, so to speak, and do omnipotent things. As mentioned before, *Black & White* is an example of a game where the combination of the point of perception and dimension allows the player to see and hear both the ground level and an overview.

Let's end the discussion on dimensionality and point of perception with examples. Here we have three different combinations of dimensionality and PoP from different game genres: 1) *Doom* (Id Software, 1993) – 3D with 1st person PoP, 2) *Virtua Tennis* (Sega, 2000) – 3D with 3rd person PoP, and 3) *The Sims* (Maxis Software, 1999) – isometric dimensionality with 3rd person PoP.

Visual outlook

Dimensionality and PoP are not enough to make up the audiovisual appearance as a whole. They are, in a sense, a stage upon which the visual outlook of the game is drawn. This happens with so-called textures and polygons. If the game characters and environments are a result of fictional settings, the visual outlook is the result of graphic design. If, on the other hand, they are based on real-life counterparts (e.g., sports stadiums, sports stars, characters from films or comics), the characters and environments are modelled on them.

The visual outlook can, and often does originate from another medium and/or product. This happens when a successful film is followed by a game adaptation. Because games are an instance of dynamic, morphing audiovisuality, these motifs travelling across different media are more than still images or static set pieces. Following this logic, we can explain the audiovisual relationships of Hong Kong action movies, *The Matrix* (1999) and the game *Max Payne* (Remedy Entertainment 2001). They all have structural similarities in their audiovisual appearance; they use similar audiovisual elements.

Audiovisual Motifs

In the case of *Max Payne* and *The Matrix*, the common element is an audiovisual motif. *Max Payne* takes the *Matrix's* famous 'bullet time' special effects gimmick and gives it to the hands of the player as a gameplay mechanism. It not only eases the game tasks (shooting the enemies and dodging bullets) but also creates an aesthetic effect of cinematic quality that was obviously appreciated by the gamers, especially because the bullet-time effect was part of the gameplay, not the cutscenes (where it might have been frowned upon as a case of simple plagiarism).

The point is that instead of representing the bullet-time motif, *Max Payne* simulates it and gives the player a part to play – literally – in this very simulation. Actually the bullet time gimmick is similar to various 'speed boost' gameplay features that are found in numerous racing and platform games. In the case of *Max Payne*, the feature is implement in a way that slows down the action instead of temporarily accelerating it. Speed boosts etc. help gameplay tasks by giving more speed, 'bullet time' by slowing down the action and allowing the player to shoot the enemies more accurately. 'Bullet time' was a fruitful motif to borrow for *Max Payne*, because it was accepted as an innovative and audiovisually striking motif in a larger cultural context.

An audiovisual motif does not have to be a whole scene, as with the 'bullet time'. Another case of an audiovisual motif being transported from film to game is found between the film *Aliens* (1986) and the *Aliens vs. Predators* game series (originally developed for the Atari Lynx handheld in 1994, on PC 1999-2001). A set piece of the film, the motion sensor that detects movement, is implemented highly effectively into the game. Because it more specifically an audiovisual map motif, i.e. a motif having to do with exploring the game environment, it works especially well in a game setting (and has subsequently been adopted to many other games, such as Bungie Software's *Halo,* 2001).

These kinds of metamorphoses through different media do not move only in one direction, from film to games, but vice versa as well. The fight scenes in *The Matrix* are influenced by oriental fighting games such as the *Virtua Fighter* series (Sega 1994-2002). Generally, game-based films are expected to recreate the audiovisual style of a game, and failing to meet these expectations might lead to an unsuccessful showing at the box office.

To summarize, audiovisual motif can be used to explain and evaluate games' audiovisual relationships to other audiovisual media. The fundamental difference between games and film, and the metamorphosis between them, arises from the means that the audience members (viewers vs. players) are given ways to manipulate the audiovisual elements and to interact with them. Film, largely a narrative medium, allows immaterial interpretative interaction: characters and environments are represented. Game, largely a non-narrative form, allows material and consequential interaction: characters and environments are simulated. (As we see, simulation vs. representation is another important distinction regarding games and films. For more on the subject, see [2].)

Soundscape

Soundscapes in games follow closely the distinction between so-called diegetic and nondiegetic sound in film art [3]. Diegetic sound is a form of sound that originates from the game environment the game simulates, or the environment the film represents. Diegetic sound can consist of urban commotion or of birds singing. Nondiegetic sound equals the musical soundtrack that usually changes according to the events in the film, or game.

Because the sense of environment is important in games, therefore diegetic sound is very important in creating that impression – if, for example, the game takes place in a virtual city, the city's soundscape is a means to emphasize the feel of the environment. Diegetic sound is closely dependent on the point of perception. In addition, it is a necessary means to tell the player that s/he is interacting with the game environment. If one clicks on the mouse in the middle of environment simulated by *Doom* or *Half-life*, one expects the weapon in one's hand to shoot with the relevant sound effects. Both aural and visual feedback (in the form of an animation, for instance) is necessary.

On the other hand, nondiegetic sound is useful in creating atmosphere and expectations, such as drama and suspense. In a game, the relation between the nondiegetic sound and the game events and environment can be considerably more flexible – or more complex, for the composer – than in a film, where the soundtrack is composed according to the editing. We once again return to the importance of simulating space. In games, space is continuous, whereas in films it is segmented due to the fact that narrative film consists of separate scenes (which are connected to each other by the film's narrative, not necessarily by the space they represent). Changes in the nondiegetic sound, and therefore in the game's atmosphere, can be tied to certain places of the game environment. When a player approaches a corner or an open door, the music can change, hinting that there is something significant in that very location. Or, the music can change according to the nature of the location. This kind of sound design has been employed in many adventure games, and recently in titles like *Halo*.

Another usage of nondiegetic sound is found in many sports games. Pop and rock music is used as a continuous soundtrack, without having anything to do with what happens in the game. Or, the soundscape can be purely diegetic, as in simulating the sounds of a football game and the audience in the stadium. In conclusion, soundscape often runs in the visual outlook's leash. Sound is chosen according to the game environment. This means that often the soundscape of the game differs from the one in game menus and option screens, and, more importantly, from narrative cut-scenes as well.

A league of their own is made up of the different games where the gameplay is based around music or creating it according to rules (*Parappa the Rapper, Dance Dance Revolution, Vib-Ribbon, Frequency* etc.). These games thread on the border between diegetic and nondiegetic sound as they incorporate the two in real time. In them, exploring game environment shifts

towards exploring the soundscape, and often the senso-motoric element (see below) is present. Sound-wise game concepts such as these present the most inherently game-like use of sound, and therefore it is apparent that theories drawn from film theory (as in here) cannot explain them thoroughly. However, in conclusion it can be said that the soundscape of a game is always the sum of in-game-world sound (diegetic) and off-game-world sound (non-diegetic).

Senso-motorism

Senso-motorism is an element that ties (literally) the player to the game's events. Senso-motorism accounts for the means that are used to get the player's so-called haptic senses to interact with the information s/he gets through eyes and ears. This is a question of interface design: the player is given the means to play the game. For instance, the ability to guide Lara Croft in *Tomb Raider* through corridors with a gamepad and make Lara to take certain actions when pressing a button on the gamepad. Simply put, senso-motorism equals the design of means of interaction with the game environment.

One should note here that there are two, more or less separate interfaces in a game. They tend to differ audio-visually from each other. The first is the interface that allows the game to begin: a set of menus where the player can choose different options and game modes. The second is the interface to the actual game (environment). The first should comply with the principles of usability (familiar from e.g., web and software design). The other works in quite a contrary manner, because a game usually requires some sort of senso-motoric difficulty in order for the game to be challenging, and moreover, fun.

The history of game development has shown that a new design innovation in dimension and point of perception can make an old concept fascinating (like in *Doom*, 1993), but so can new means of senso-motorism. Playing a car racing game with a force feedback wheel can make the game feel 'completely new'. The senso-motoric design in a game can also become the trademark of a whole subgenre, as in the case of the 'point-and-click' adventure games that were released in numbers especially during the mid-1990s. Lately more complex gaming peripherals have arrived to the market that support various forms of senso-motority, i.e. dancing mattresses, snowboards, etc.

THE AUDIOVISUAL STYLES

There cannot be as many styles as there are games – in that case the concept would be of no use. A group of games that shares the same sum of elements forms a style. Three distinct styles can be formulated from the history of computer and video games. The first two are *photorealism* and *caricaturism*, which have their substyles called televisualism and illusionism. *Abstractionism* is the third style. It is the most marginal one, but it has long

traditions in both the visual arts and computer graphics. In relation to simulation, the styles can be described as follows: photorealism simulates environments and characters familiar from film and real life (the latter is evident especially in sports games). Caricaturism simulates environments and characters familiar from cartoons and comics. In abstractionistic games, basic aural and visual forms are simulated. Each stylistic category is discussed briefly in the following.

Photorealism

Photorealism is a term that is used in art studies to refer to photographic likeness with reality. In so-called photorealistic paintings, the painter has pursued the 'photo effect', i.e. a deep-focus shot of an actual object, scenery, etc. Photorealism has long traditions in computer graphics, as photorealism is largely about simulation, and the use of computer graphics for scientific purposes has largely consisted of simulating different events (molecular behaviour, etc.). In order to achieve fine-grained, life-like photorealism, one needs thousands and thousands of polygons. This has been one of the goals of photorealism, which has largely been technologically orientated and has led to a particular kind of aesthetic [4]. It has been characterised by an idea, 'the more photorealistic the images are, the better they are'. As an aesthetic principle in game development, the pursuit for photorealism is often highly dependent on technological factors, or even dictated by them.

The most obvious example of photorealism in the recent history of games are the numerous adventure games from the mid-1990s, where actors were filmed in actual sets and locations. These sequences were incorporated into the game's graphical backgrounds, or full motion video (FMV) was used. There were games where the environment consisted of still photographs, and the player's task was to search for 'hot spots' in the images with the help of a mouse. *The 7th Guest* (Trilobyte 1993) is an example of the first case, *X-Files – The Game* (Fox Interactive 1998) of the latter.

In computer graphics, photorealism is sought by simulating the behaviour of light on different surfaces. 'Ray tracing' technique has been used since the 1970s to produce images that simulate photorealistic paintings and photos. This tradition of rendering still-life paintings by the means of computer graphics has its successors in games as well. Popular adventure games *Myst* (Cyan 1993) with its sequels, *Riven* (1997) and *Myst III: Exile* (2001), have been based on rendering still-life images for the purposes of 'point-and-click' adventure gaming.

Televisualism

As an audiovisual style of games, photorealism has its subcategories. These are televisualism and illusionism. The first is especially apparent in sports simulators (e.g., the popular FIFA and NHL series by EA Sports). First and foremost, they simulate the aesthetics of sports event television broadcast. The dynamics of the sport becomes often secondary to the

pursuit for televisualism. The conventions of sports televising become apparent in, e.g. the instant replay and multiple camera view features in the game. In addition, simulating the soundscape of the stadium, and motion-capturing actual athletes for animating the characters, point to the pursuit for the reproduction of life-likeness, i.e. simulation of a sport event. *Gran Turismo 3* (Polyphony 2001), the 'real driving simulator' for PS2, has widely been hailed as a milestone in photorealism, and this was also visible in it's marketing campaign. Photorealism has lately been adapted to three-dimensionality as well.

Illusionism

The second subcategory, illusionism, is about using photorealism for fantastic and imaginary purposes. Similar technique is found in science fiction and fantasy films, where imaginary things are represented with photorealistic life-likeness, and the result is an illusion of unreal worlds, things and beings actually existing. *Final Fantasy*, in both its film and recent game incarnations, is a prime example. In other words, illusionism equals fictional photorealism, or "second-order realism" [5]. A point of comparison is found in the world of playing: for the duration of a game, the participants share a second-order reality where everyday things can be temporarily 'transformed' for the purposes of the game or its rules (i.e. in children's play, a room transforms into a 'bank' with 'accountants'). When the game ends, second-order reality is substituted back to everyday reality.

Another example of illusionism in games is the *Aliens vs. Predator* series. Instead of the visual outlook being in these games being caricaturistic, comics-like, it simulates the science fiction setting of its cinematic predecessors. In this way, illusionism in games has its counterparts in visual arts and early film (e.g., the special effects movies of Georges Mélies). The static worlds of the *Myst* series belong to illusionistic photorealism, and *Max Payne* threads somewhere in between illusionism and televisualism, as it uses cinematic techniques (and comics in its narrative sequences) but also corresponds to the hard-boiled detective tradition in popular fiction.

So we see that the categories' borders are not strict (this is illustrated in the Table 1 below). However, it is important to draw a line here between gameplay sequences and narrative sequences (cinematic cut-scenes etc.). In an individual game, the cut-scenes, mission briefings, interface elements etc. might adhere to the principles of televisualism, but the game environment itself is illusionistic.

Caricaturism

Caricaturism refers to caricaturistic depictions of characters and objects found in comics, cartoons and, of course, caricatures. In a caricature, the representation of a character or an object is simplified down to its most characteristic features. As an audiovisual style of games, caricaturism is about simplifying and non-photographic simulation. It is true that in early

phases the audiovisual capacities of PCs and game consoles were poor, and this left no choices other than caricaturism (or abstractionism, as we'll see). However, as the audiovisual capacities have developed, caricaturism has provided an option to photorealism when an altogether different audiovisual appearance has been the goal.

Audiovisual style can be used to focus the gaming experience to a certain direction, for instance, to a certain target group. Whereas the sports game audience seems to appreciate photorealism, children and playfully-minded go for caricaturism. Because of this, few games aimed at children opt for photorealism. Instead, their style is closer to the caricaturism of cartoons. Caricaturistic games simulate the worlds that are represented in cartoons. Even though caricaturism is about simulating things 'unrealistically', the emotional and aesthetic experiences they provide can feel, at least in the minds of children, quite lively and real [5].

Well-known examples of caricaturistic games include the *Crash Bandicoot* (Naughty Dog 1996-2001) and *Final Fantasy* (Squaresoft 1987-2001) series and also Nintendo's *Legend of Zelda: Ocarina of Time* (Nintendo 1998). Moreover, games that use comics as the origin of their audiovisual appearance (e.g. *Freedom Force* [Irrational Games 2002]) belong to caricaturism.

The style has a fashionable side to it as well. An original audiovisual appearance is a means to distinguish oneself from the crowd, and, e.g., the 'rap simulator' *Parappa the Rapper* (1997, sequel for PS2 in 2001) worked this in its favour. Smilebit Studios' *Jet Set Radio* (for Dreamcast, 2000) and the sequel *Jet Set Radio Future* (Xbox, 2001) deserve to book a place in games' audiovisual history as pioneers of the 'cel shading' movement. Cel shading achieves a cartoonesque, graffiti-like effect despite being three-dimensional. The PS2 racing game *Auto Modellista* (Capcom 2002) presents an exception to the genre dominated by photorealism (cf. the afore-mentioned *GT3*).

When talking about the *Jet Set Radio* games, it is relevant to emphasize the word audio-visual in its full meaning. A significant part of the games' fascination comes from the soundtrack with its trendy electronica and club beats. A suitable point of comparison from a different audiovisual style is the *Tony Hawk Pro Skater* series (Activision 1999-2001) which goes for similar kind of subcultural sensibility with its audiovisuality but with decidedly different stylistic combination: photorealism complemented with rock and hip-hop-orientated soundtrack.

Abstractionism

Abstractionism does not simulate characters or easily recognizable places. Abstractionism is about pure forms. *Tetris* (with its many variations) is a pioneer in this style. In the recent history of games, there are quite few abstractionistic games. In fact, pure abstractionism is very rare. Why is that? As we have noted, games simulate at least an environment, if nothing else. For example, many puzzle computer and video games, which resemble board games, emphasize forms and their relations, but often these forms are

extremely caricaturised rather than completely abstract (e.g. chess pieces, the 'racquets' in *Pong*, and the 'snake' in Nokia's game for mobile phones).

In abstractionism the border between the game's concept (rules & gameplay mechanism) and audiovisual style is almost indistinguishable. Only a highly abstract game, i.e. a game that consists of rules, audiovisual forms and the game interface, can function well in abstractionistic style, *Tetris* being the prime example.

Still, abstractionism does have its representatives. *Tempest* (with its various incarnations, originally an arcade version in 1981, for Playstation in 1997 etc.) is visual and aural forms' abstractionistic dialogue. *Sentinel* (1985) and its sequel (*Sentinel Returns*, Psygnosis 1998) are abstractionistic, both regarding their concept and audiovisual style.

Lately *Rez* (PS2 and Dreamcast, Sega 2001) has given abstractionism fresh new life, and in 3D, naturally. It is only fitting that the game, with its kinaesthetic sensations, senso-motorism in connection with aural and visual pleasure, is dedicated to Wassily Kandinsky, a pioneer of the abstract arts.

But why is abstractionism used so few and far between in games? The explanation is found in the tendency to create contexts familiar from popular fiction to frame the gameplay, complemented with efforts to tell stories through games. In these cases, the characters, objects, sounds and environments have to be concretised into something recognizable from other forms of fiction. In other words, the abstract forms of *Rez* and *Tetris* become spaceships, cities, martial arts fighters, Sims, Max Paynes, and so on. Abstractionism is about simulating pure forms, and therefore not very suitable for creating narrative contexts to accompany the gameplay, as often happens nowadays. There seems to be no end to this development, quite vice versa, and therefore abstractionism might end up as a marginal booknote in the history, and future, of an audiovisual cultural form also known as computer and video games.

AUDIOVISUAL STYLES ILLUSTRATED

A certain combination of the audiovisual elements discussed above does not lead to a certain style. This might be true if there were not the present over-abundance of 3D games. However, as the 3D has become dominant, the styles mainly come down to the sum of the visual outlook and soundscape. Photorealistic games tend to go for aural realism as well, but games like *Tetris* and *Rez* go for abstract soundscapes. In the latter, the soundscape is a combination of an electronic beat and the sound effects that the player produces and that become part of the soundscape. The difference in logic persists on the senso-motoric design as well: whereas in photorealistic games, such as rally driving games, the senso-motoric feedback is in causal relationship to the game-world (i.e. you hit a rock and feel it in your palms), in the abstractionism of *Rez* there is a constant pulse (the beat) thumping your palms.

The styles' spectrum is illustrated in the Table 1 below with well-known games presenting different styles. There are distinct contrasts between different styles: the stylised caricaturism of *Jet Set Radio* and *Jet Set Radio Future* vs. the pursuit for photorealism in the *Tony Hawk Pro Skater* series, even when both game series have to do with similar subjects (roller-skating and skateboarding). Another notable shift is the one from the 2D abstractionism of *Tetris* to the 3D audiovisuality of *Rez*.

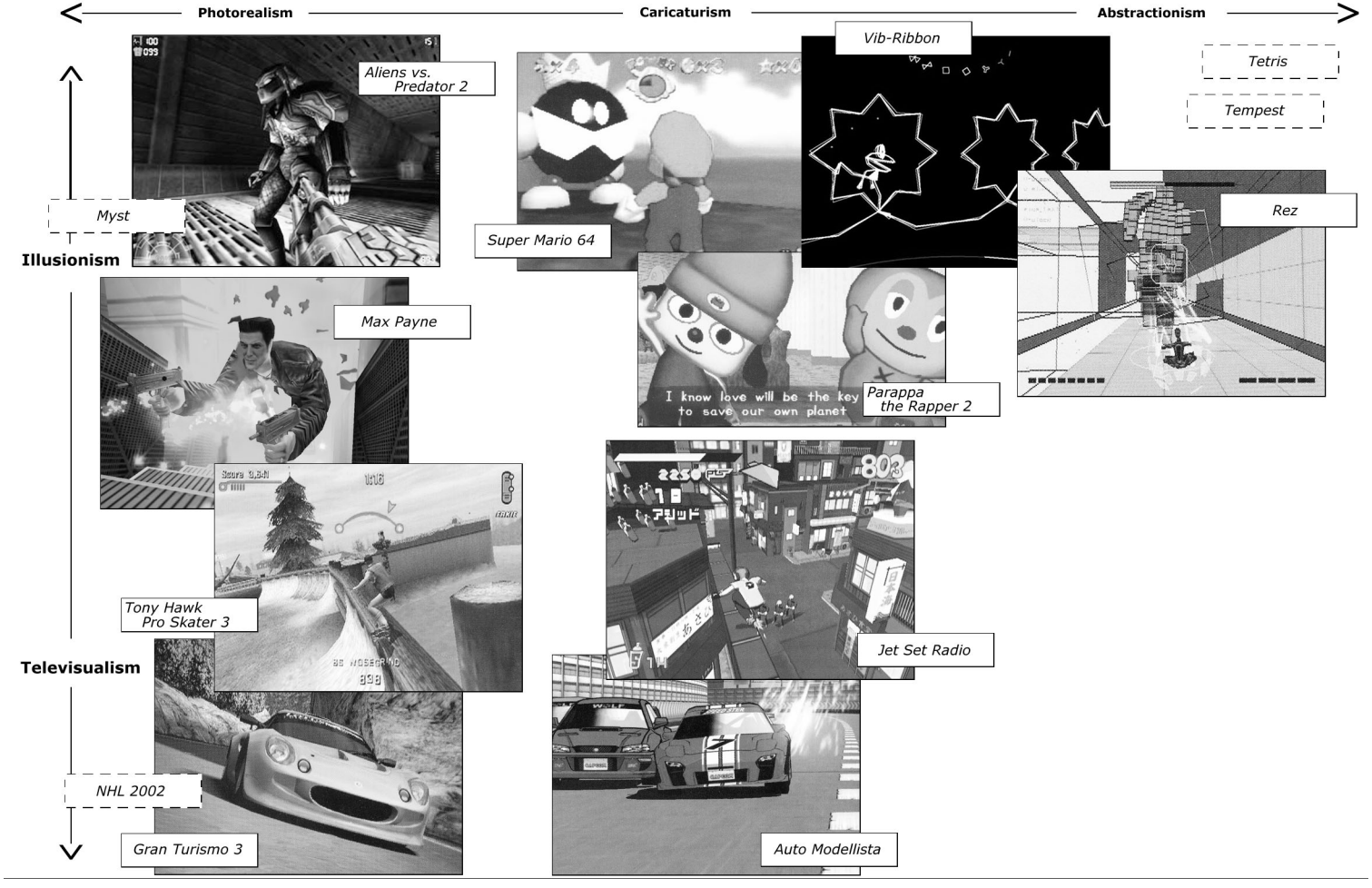
From a historical perspective, following outlines can be drawn: from the *Pongs* and *Space Invaders* of the 1970s, up to 1993, caricaturism was the norm, much due to technological limitations. For example, three-dimensional game environments consisted of wireframe graphics, which is essentially a caricaturistic technique, i.e. a multi-dimensional object simplified to its recognisable essentials. This serves to point out how, if simplified enough, caricaturism begins to resemble abstractionism. Regarding audiovisual elements, this was an era of 2D and 3rd person point of perception.

In 1993, *Doom* exploded the textured 3D environments to the domestic PC market. The rest of the 1990s was dominated by the pursuit of photorealism, also apparent in the boom of full-motion video cut-scenes. Besides 3D, the first person point of perception became much more than a curiosity: it became almost as common as the 3rd person PoP.

In 2000-2002, photorealism seems to be reaching a saturation point. This is apparent in the birth of non-photorealistic substyles, such as the cel shading aesthetic. This does not mean that photorealism goes away, but games' audiovisual field seems to be becoming more diverse. This is a sign of no less than an art form having reached the self-reflective phase, i.e. a maturing process of sorts. The outcome of which are new emerging audiovisual styles.

The table that follows presents a tool for game analysis, and offers a systematic framework for talking about games' audiovisual appearance instead of the technologically biased and vaguely descriptive methods that are presently used in game studies, design and journalism.

Table 1: Games from Different Audiovisual styles



ELEMENTS AND STYLES IN RELATION TO GENRE

To carry the work on from here, game studies would profit from a thorough discussion on the genre problematic, i.e. content in connection with style. In game (sub)genres such as horror and crime, their tradition in popular fiction is both recycled and reinvented for the means of gameplay and rule mechanisms. How do the horror & crime genre conventions used in the *Silent Hill* series (Sony 1999-2001) or *Grand Theft Auto III* affect their audiovisual style, and vice versa?

In his essay on games and genres, Mark J.P. Wolf argues that games should be classified to genres according to their interactivity [7]. This is a reasonable claim in itself. However, Wolf's 42 genres (!) cannot explain why games like *Silent Hill 2*, *Grand Theft Auto III, Jet Set Radio Future,* and *Ico* (Sony 2001) have basically a very similar control mechanism (i.e. senso-motoric design) and each uses 3D with 3rd person PoP, but still, their atmosphere, tempo and audiovisual appearance is quite different from each other. The four games lead to different aesthetic experiences.

The point is that only in abstract games the genre can be reduced to the interaction mechanism, and once conventions and audiovisual motifs start to move between media forms and their respective genres (from cinematic horror to playable horror), the equation is more complex. A subgenre might even be defined according to the audiovisual style (e.g. FPS) or senso-motoric design (point-and-click) it represents. When audiovisual elements and styles, and interaction mechanisms, become fundamental aspects of a cultural form, they can together define a genre.

Game genres are sums of interaction mechanisms and audiovisual elements. Traditional constituents of genres, i.e. characters, settings, and narrative conventions, become subordinate to gameplay and audiovisual appearance. Genre conventions do not disappear, but they can be subordinated to communicating a certain style: the *Jet Set Radio* games are rather conventional 3D-platform-jumping games by many standards, but their audiovisual style sets them apart. Besides these formalistic issues, game genres are dependent on the players' interpretations of the game's world, i.e. recognizing constituents of a genre, or style, and interpreting it as belonging to a larger genre of popular culture, such as horror or crime.

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