

Collision thrills

Unpacking the aesthetics of action in computer games

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Review Article

Collision Thrills: Unpacking the Aesthetics of Action in Computer Games

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Abstract: This article is a study of the aesthetics of action in computer games seen from the perspective of game design. It is an investigation of what constitutes the aesthetics of action. The study assumes aesthetics of action can be formally mapped out and that they inherently involve identifiable and translatable effects, reflected as sensations in players. In what follows will a specific range of techniques from computer games, play and movies be used as examples and compared in order to demonstrate a common ground for the aesthetics of action across computer games, play and movies. The working hypothesis is that the aesthetics of action and the affinities between medias centre on collision. It will be suggested that collisions produce thrills ranging from the pleasure of destruction to the experience of spatial disorientation. Following will the aesthetics of action be coined 'collision thrills'. The examination of the aesthetics of action will draw on aesthetic theory (Dewey, 2005; Burgin, 2010) and will be analysed with the game design concept of 'game feel' (Swink, 2009) and assaultive action aesthetics (Stork, 2013) from media studies.

Keywords: Game design, game feel, computer game, play, film, aesthetics, action, experience

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Introduction

Aesthetics have a long history and involve a multiplicity of perspectives, each as a rule emphasising a different aspect of the understanding of art. Often when the words 'aesthetics' and 'computer games' are used in the same sentence, their focus is the relation between art and games. To reach some sort of clarity regarding aesthetics in computer games will aspects of aesthetic theory be selected to situate this article in the discussion of art and computer games. This will be done under the heading *Situating computer game aesthetics*. It presents the first step of the current study. That section will attempt to differentiate between art and games while highlighting existing and useful ways of understanding aesthetics. This will result in a conceptual point of departure that will allow me to explore the interactive (Crawford, 2003; Burgin, 2015) and dialogical dynamics of computer games. The second step focus on Steve Swink's (2009) notion of game feel and outline it as an aesthetic concept even though it is not normally considered as such. Swink's concept of game feel reflects the dynamic between game-centric design techniques and player-centric experiences of those techniques. Of particular importance is Swink's reference to polish techniques. Discussed under the heading *Game-feel as aesthetic concept*. The third step in this study, that will present a narrow but specific set of game design techniques that belong to what could be called the catalogue of action. These techniques will be excavated from the hypothesis that the aesthetics of action evolve around thrill-producing collisions. Done under the heading *The aesthetics of action in computer games*.

It should be mentioned that the present study makes no claims to cover aesthetics in every computer game genre (McAllister, 2013; Clearwater, 2011; Arsenault, 2009; Apperley, 2006). Instead it is an attempt to flesh out the aesthetics of action as a specific and limited set of techniques associated with particular sensations namely those that produce thrilling sensations and experiences.

The fourth step of this study traces thrills of collisions in children's play. It outlines similarities between collisions in play and games. Explained under the heading *The aesthetics of play*. The fifth and final step investigates collisions thrills on action movies and compares them to both computer games and play scenarios. Uncovering the aesthetics of action in film rests on Matthias Stork's assaultive action aesthetics (Stork, 2013a) and will be done under the header *The aesthetics of action in movies*.

The aim of such a comparative approach is to establish a limited but generic framework of thrill producing techniques not restricted to computer games, play or films. It is important to note that this article will refrain from making claims as to any causal connections between computer games, play (Walz, 2010) and films (Raessens in Fuchs et al. 2014). Not even if, from the perspective of gamification (Yee, 2014; Deterding, Dixon, Khaled, Nacke, 2011), such mutual influences could or should be investigated.

The concluding section will sum up similarities in the aesthetics of action and in so doing present them as a limited and generic set of thrill producing collision techniques whether these sensations are in players and/or audiences.

1. Situating computer game aesthetics

Unlike art and aesthetics have computer games and aesthetics shared a relatively short history. Their relationship has been sparsely addressed and often from divergent and disjointed perspectives. The current section will survey these perspectives with the aim of clarifying any confusion and to present a view of aesthetics that is workable in relation to computer games.

In a recent study addresses Phillip Deen (2011) aesthetics in computer games from a pragmatic perspective. His investigation entails a discussion of whether or not computer games should or could be considered art. He discusses the commonly used spectator model of aesthetics in regard to films versus a proposed set of interactive aesthetic values to be used in computer games. Deen uses John Dewey's (Dewey, 2005; Shusterman, 2000) aesthetics to draw attention to the creation of experiences as a reflection of interaction, which is an approach well suited to computer games. While the spectator model addresses artistic works from a passive perceiving perspective, establish Dewey's aesthetics an opportunity to analyse works as resting on emergent experiences as results of interactive qualities.

Deen embraces Dewey's aesthetic inclusion of everyday commonplace emotions in relation to artistic expression. Such an approach paves the way for negating the traditional division between high and low art the latter understood as popular culture.

Deen writes: "Everyday activities may exhibit aesthetic unity while fine art may be isolated and dull. Rather, true art is that which, through craft, is able to constitute aesthetic experiences for those willing to enter into commerce with it" (2011). The quote underscores that aesthetic experiences emerge from everyday interaction and when a work is separated from everyday experiences, it is separated from life.

Deen advocates a computer game aesthetic that relies on everyday experiences in the form of emotions rising from interactional activities. He thereby places emotions at the centre of Dewey's aesthetics in relation to computer games. This is a point also made by Michele Dickey (2015) when she explains how Dewey's understanding of aesthetic experiences encapsulates "a sense of unity of the parts of the hole" (p. 2) and later on the same page that "emotions are what constitute unity in an aesthetic experience." (p.2)

Even though Deen's reading of Dewey's pragmatist position in relation to computer game aesthetics focuses on players' interactive experience at the intersection between how games are organised and how they express themselves, he says very little about the ways in which art and computer games are intertwined.

This area is elegantly addressed by John Sharp in *Works of the Game* (2015), where he presents an overview of how art and computer games intersect. Sharp breaks the relationship down to three categories: Game Art, Artgames and Artist's Games, which also correspond to the three chapters in his book.

Game art is concerned with how computer games can be used to make works of art by reorganising and redressing (Koster, 2014) existing games. Exemplified by the *ArsDoom* (Kıpcak & Urban, 1995) project, in which game mechanics (Sicart, 2008) and textures from the original *Doom* (1993) were replaced with a digital model of the Brucknerhaus exhibition hall, allowing players to traverse it while experiencing the art on the walls and responding to the pieces by using three different weapons "each in the spirit of a different artist – shooting blood inspired by Herman Nitsche, making paint marks based on Arnuf Rainer's paintings, or flipping works upside down in the manner of George Baseliz" (Sharp, 2015, p. 22).

Artgames on the other hand are often designed for a specific artistic purpose evolving around a specific theme addressed from a particular perspective. As Sharp writes, these can be about “relationships, the tyranny of time, complicity, and so forth” (p. 54). As an example, he uses Jason Rohrer’s game *Passage* (2007), which is a side-scroller game where the player controls a male character. During the game the player will meet a female character that will marry him if they touch each other. The game is a metaphor for life, relationships and transience, illustrated by the dwindling speed and the visible aging of the characters as time passes. The *Passage* is, writes Sharp, a game whose essential role is to be “a ludic memento mori” (Sharp, 2015, p. 58).

Game art and artgames correlate, in Sharp’s view, with John Hopper’s (1946) distinctions between thin and thick aesthetics, the former focusing on formal values of a work, while the latter include the cultural context of the work.

Artists’ games distinguish themselves as games and art through their focus on play. They utilize play as a catalyst for generating the audience’s experience of the work. Such an approach raises questions about the origin of the aesthetic experience. Does it derive from the player or the creator? This kind of participatory art removes “distance between artist, work and audience” (Sharp, 2015, p. 83). Artists’ games can be illustrated with a game such as *Uncle Roy All Around* (2003), where players engage in an augmented reality aimed at finding the mysterious figure, Uncle Roy. During their search players create relationships to both artificial and real-life strangers. Connecting with strangers is a theme also reflected in the game *Comfort With Strangers* (2008), which is about shared experiences of loneliness and anonymity in contemporary urban life (McGonigal, 2011).

This category of Sharp’s, artist’s games, has links to what Douglas Wilson and Miguel Sicart (2010) have termed abusive game design. It is game design that goes against the mainstream perception that games are designed for experiencing pleasure. The intention is to use play to establish a dialogue between designer and player. The case they refer to is the Danish indie game *Dark Room Sex Game* (2008) developed by Copenhagen Game Collective. It is a no-graphics co-op erotic rhythm game played only by audio and haptic cues with Nintendo’s Wii mote controllers. Players collaborate to find a mutual rhythm to reach erotic climax. The idea is to create humorous and embarrassing situations between players and onlookers (Lin & Sun, 2011) or, as Wilson and Sicart write: “*Dark Room Sex Game* is an experience optimized for maximum awkwardness” (Wilson & Sicart, 2010, p. 40). Feelings of embarrassment and/or awkwardness are emotions outside the normal scope of computer player experiences. This game’s breach of the cultural norm is one reason why Wilson and Sicart categorize its design as abusive.

Wilson and Sicart map out a definition of abusive game design that is dependent on three elements. First, there is ‘abusive game design’ as opposed to ‘abusive games’. This is to be understood as a player-centric approach that emphasises the player’s experiences as opposed to games that exhibit abusive behaviour towards someone or something. It is, however, unclear whether Wilson or Sicart would categorise a game like *DayZ* (2013 early alpha) as abusive game design or an abusive game or both. Second, they see abusive game design as a specific attitude adopted by the designer towards a specific game design. Third, inserting the designer as instigator of dialog between himself and the player in order to subvert the system-centric design paradigm where players “communicate” with a game system. Thus, placing the game as mediator between player and designer thereby creating a personal affair between designer and player. Wilson and Sicart’s definition of abusive game design takes a player-centric aesthetic stance in opposition to mainstream system-centric approaches, which highlights the role of play and player emotions. It is an understanding parallel to Sharp’s description of artist’s games.

In contrast to the views of computer game aesthetics found in Deen, Sharp, and Wilson and Sicart, sets Chris Bateman (2015) out to investigate the inherent aesthetics of mainstream computer games. He is concerned with excavating implicit value judgements in understanding or defining computer games. This approach leads him to regard Sid Meier’s statement “a game is a series of interesting decisions” (Meier, 2012) as a “decision aesthetic” (Bateman, 2015, p. 6) that functions as a demarcation line for determining what is and what is not a computer game. In other words, an aesthetic of this nature dictates that decisions have to be present before anything can be deemed a computer game. This example is only one out of a large catalogue of implicit aesthetic criteria informing various approaches to the gameness of computer games. The wider point is that Bateman equates aesthetics with value judgements or attitudes towards computer games, whereas it might have been better to replace the word ‘aesthetics’ with ideologies, attitudes or rhetoric (Sutton-Smith, 2001). A position also adopted by Karl Bergström, Staffan Björk & Sus Lundgren (2014) when they regard aesthetics as a question of taste. At the same time agrees Bateman with Dickey (2015) and Brian Upton (2015) when they associate computer games aesthetics with game-centric ordering principles. A position where aesthetics are equated with

different dimensions of the inner workings of computer games such as goals, challenges, rules, obstacles, choices, conflicts, game mechanics, win conditions, narrative, heuristics, interactivity, mastery and meaning. An approach well in line with research into ludology stretching from Johan Huizinga (1980) to Bernard Suits (2005), Bernard De Koven (2013), Chris Crawford (1984, 2003), Greg Costikyan (2002), Jesper Juul (2003), Katie Salen and Eric Zimmerman (2004), Jesse Schell (2008), Tracy Fullerton (2008), David Sirlin (2008), Frans Mäyrä (2008), Jane McGonigal (2011), George Skaff Elias, Richard Garfield & K. Robert Gutschera (2012), to Keith Burgun (2013, 2015) to mention just a few.

Divergences in the field of computer game aesthetics do not end here. In contrast to Bateman, addresses Asaf Friedman (2015) computer game aesthetics through the role of the visual in game design or the “visual game construction” (p. 292), as he calls it. Friedman stipulates that players’ game choices rest on desires for specific emotional responses motivated by visual cues. He uses Gilles Deleuze’s (2009) concept of “movement image”, which consists of three categories, 1) action image, 2) perception image, and 3) affection image as a basis for his interpretation of computer game aesthetics. In relation to computer games, Deleuze’s concept entails; 1) players’ perception of situations followed by actions/reactions, 2) players’ awareness of the game environment, and 3) players’ perception of game space limitations and possibilities and of options to transcend them. This approach formally maps out the shape and dynamic between various perceptual layers of the visual dimension in computer games. Although applying Deleuze’s movement-image to computer games is instructive in understanding structures of perception, it says very little, from the perspective of game design, about visual techniques and correlated player sensations.

Chris Solarski’s computer game aesthetics (2012, 2013) are concerned less with the structure of perception than with the relation between geometrical shapes, behaviours of character and object and their effects on players. Solarski sees game character shapes, their movements and pathways through the game space as drawing upon principles in classical art. He is focused on implicit correlations between object formation and emotional responses, and specifically on equating conceptual shapes with effects on players. Following principles of classical art, Solarski relates circles with positivity/youthful energy, rectangles with strength/stability and triangles with aggressiveness/threat.

Solarski’s approach to computer game art has much to offer, not only through its correlation with classical art but also because it points up parallels between characters and their movement and pathways through the game space, emphasising correlations between basic shapes such as circles, rectangles and triangles and their association with player emotions.

Solarski distils three aesthetic layers, each of which generates different player emotions and responses. If characters are designed in predominately circular forms, they are perceived as “good”, while triangular shapes are perceived as “evil”, rectangular shapes lying somewhere in-between. The same pattern repeats itself regarding a character’s movement. Does it follow soft, circular and gentle lines? Or does it react in sharp triangular and aggressive patterns when moving, jumping and colliding with enemies and game space borders? Solarski finds the pattern once again in the pathways through the game space and in doing so touches upon emotions associated with movement through the level’s design. Circular movements create peaceful environments, as in *Journey* (2012); rectangular movements create a stable and solid atmosphere like *Superbrothers: Sword & Sworcery EP* (2011); while triangular movement signals combative environments, as in *Vanquish* (2010). The larger point being that Solarski’s understanding of computer game aesthetics is concerned not only with character and object shapes, behaviours and movement through the game space, but also with their inherent effect on players. In other words, this is an aesthetic perspective that merges game objects with effects on players.

Solarski’s aesthetic stance echoes both Aristotle (2013) with emphasis on the correlation between expression and effect and Victor Burgin’s situational aesthetics (Burgin, 2010). Burgin’s situational aesthetics date from 1969, well before mainstream computer games. His situational aesthetics involve a relationship between two intertwined sides. As he writes, “any object formed is largely contingent upon details of the situation for which it is designed; through attention to time, objects formed are intentionally located partly in real, exterior space and partly in psychological, interior space” (Burgin, 2010, p. 7). The quote underscores aesthetics as situational objects belonging both to external and internal space. This means that meaning can be seen as a function of the dynamics between external and internal in a particular situation or context. Such a perspective is well-suited to computer games, where meanings are situational and intertwined through the act of playing.

Stepping back for a moment to conduct a brief summary, it is clear that the discussion of computer game aesthetics can be seen as oscillating between four different positions, each with its own understanding of aesthetics. The first position addresses the relationship between art and

computer games, the second highlights implicit values in theoretical perceptions of computer games, the third is broadly speaking concerned with the internal workings of computer games, while the fourth and final position investigates the relationship between game objects and players' emotional responses during the interactive activity we normally call play. This article subscribes to the fourth position. It regards aesthetics in computer games as an amalgam of Dewey and Burgin's reflections on aesthetics.

The following sections of this article are built around an understanding of computer game aesthetics as situational everyday experiences arising from interactive activity in which game objects and their behaviours create emotional responses in players through play. It involves a perception of the aesthetics of computer games that places emphasis on the intersection between game objects, their behaviours and related emotional player responses.

This way of understanding computer game aesthetics is two-sided in the same way as Dewey's pragmatic and Burgin's situational aesthetics. The advantage of this approach is that it permits a separation of the aesthetic approach into two; one concerned with techniques relating to characters, objects and behaviours and the other concerned with examining associated or derived emotional player responses.

Taken as a whole, an aesthetic approach of this kind is made up of formal techniques (content) and emotions (expression) corresponding to those techniques.

In an attempt to map out the aesthetics of action in computer games and to give an impression of the basis on which they reside a solid aesthetic concept is needed and preferably one that includes considerations of the situational dynamics between technics (content) and emotions (expressions). Even though not normally considered as such outlines Steve Swink's definition of game feel (2009) an aesthetic conceptualisation comprised of and intertwining techniques on one side and related emotions on the other. As such it constitutes a fruitful analytical point of departure for distilling the aesthetics of action in computer games.

2. Game-feel as aesthetic concept

Swink's (2009) game feel disseminates from interactive properties concerned with fluent exchanges of information between two or more participants, primarily a computer and its human counterpart. It follows Crawford's (2003) perceptions of interactivity as an approximation of the responsive and fluidness in dialogues between humans. Game feel arises out of similar vibrant and fluent relationship, thou between a human and a computer.

The core aspects of game feel is made up of three parts. The first flows from Swink's understanding of interactivity and highlights players' real-time control of virtual objects. The second emphasises context as indispensable for creating meaning, since all virtual objects require contexts to be understood. Controlling a black ball in a black space produces no distinctions (Bateson, 1987). In such a scenario players are left with no cues as to what they can or should control – if they can control anything at all. They cannot tell in which direction the ball is going, what properties it has, where the game space boundaries are or where it should be directed. A lack of relationship between character, object, boundaries, direction, force or impact power leaves players without understanding or meaning – unless, of course, that was the game's intention. The third and final part draws attention to game space properties. Are objects and game space borders breakable, solid, sticky, icy, bouncy or soft?

When all three parts are put together Swink is able to define game feel as “real-time control of virtual objects in a simulated space, with interactions emphasized by polish” (Swink, 2009, p. 6).

Swink expands his definition by highlighting the different player experiences it opens up, such as 1) aesthetic sensation of control, 2) pleasure of learning, practising and mastering a skill, 3) extension of the senses, 4) extension of identity, and finally 5) interaction with a unique physical reality within the game.

What is particularly interesting in this context is polish, or juice, as it is often referred to. Polish/juiciness is at the heart of game feel (Jonasson and Purho, 2012). It promotes sense-pleasure as described in Leblanc's taxonomy (Hunicke, Leblanc, & Zubek, 2004) or, to be more precise, it ensures clear communication of the game's “physical” reality, makes virtual characters and objects as well as game space “tangible”, which in turn creates an experience of how the game “feels”.

Swink identifies polish as “cues about the physical properties of objects through interaction” (Swink, 2009, p. 151). Methods to create polish range from animation, visuals, sound and cinematic and tactile effects. Included here are textures, shapes and the interactive properties of objects. Do textures promote a fuzzy sensation? Is objects shape thin and fragile? Or is the interactive property indicative of a heavy, bouncy or brittle object?

Seen as a whole, polish is about the motion, size, shape, behaviour and texture of objects. The primary aim is to promote the physicality of the specific game in order to communicate properties of game objects and game space tangibility. Physicality and tangibility are key words. They are guidelines that direct players' sensation of the game and how it feels.

The next section will flesh out the techniques and effects of polish with emphasis on collisions, and highlight how the workings of the aesthetics of action can be addressed from two different layers. The first layer concerns game objects inside the game space (internal), while the second focuses on the frame of the game (external). The two layers are, of course, deeply connected. Together they unfold the aesthetics of action in computer games.

3. The aesthetics of action in computer games

Polish techniques to create game feel were exquisitely dismantled by game designer Jan Nijman (2013) from the indie game studio Vlambeer at the Control Conference in Amsterdam. His presentation outlined a series of tricks on how to create game feel. It was centred on platform side-scroller action shooters, but can easily be transferred to other actions designs in computer games. These tricks amply illustrate how, following this article's distinctions, polish techniques belong to either the internal or the external layer of action aesthetics. According to Nijman's applied game feel, are polish techniques connected to objects and to their effects on players interacting with the game state. This is a view that supports the present article's understanding of computer game aesthetics.

Nijman's polish techniques can be summarised as 1) character animations (Super Crate Box, 2010), which highlight communication of character idleness, walking, running and jumping movement all closely connected with the players' experience of the game's responsiveness, 2) sound effects to underscore collisions, especially using deep bass sounds from weapons firing, explosions, and impact of colliding objects such as bullets or bombs hitting targets, 3) increase the number of enemy players, which by the way is equivalent of what Crawford (1984) calls vast resources, to propel player activity to the point where players lose control (Kücklich, 2006) over the game environment (disorientation), 4) properties of enemy players such as low health points (hp) to enable fast kill rates, 5) behaviours of player characters/enemies when hit by weapons fire or shooting themselves all done through by pushback from weapon recoil (communicating weapon power) and knockback when hit (also signal weapon power), 6) properties of player character such as high and increasing rate of fire (create more speed, more action and in turn more fun), 7) properties of player weapons like bigger and faster bullets (generating higher game speed, more action, and increased fun) 8) sleep as a embedded micro-delay before firing weapon or detonating bombs to build drama and distribute a feeling of weapon power, 9) action animations such as muzzle flash from gun barrels (communicate firing), 10) hit animations like short flashes when striking obstacles, enemies, or players to highlight successful collisions, 11) signal animations when objects are about to explode, 12) permanence marked by leaving killed enemies visible on the ground along with shell casings from weapons fire (Hotline Miami 2012; Hotline Miami 2: Wrong Number 2015) which in turn creates a history of game progression as a result of collisions, 13) camera behaviour to smooth out player motion through the game space to accelerate game responsiveness, 14) player death animations in a shape of a knockback in slow motion to underscore collision impact while at the same time creating meaning, and finally 15) frame manipulation like screen shakes when objects collide. An effect that is pregnant with collision impact, which generates thrilling effects in players.

All of these summarised polish techniques are indicative of the catalogue of the aesthetics of action in computer games. They operate internally (on game objects) and externally (on the frame of the game through screen shakes). Metaphorically speaking, the two layers of the aesthetics of action are stitched so tightly together that they become one. It is a relationship centred on polish intended to induce and enhance game feel and in the present context to create thrills through collisions.

These techniques can be translated into a not altogether uncommon game scenario, ripe with the aesthetics of action. It could look something like this: the player confronts a boss in a side-scroller game. The boss is often depicted as big. Since size, weight, and speed are correlated the player instantly understands that a big graphical representation translates to slow speed and heavy weight, which is indicative of strength that signals high collision impact power. When the boss is about to perform an attack jump the camera zoom-in along with slowing down boss speed movement to a near standstill with a short pause to build suspense followed by flashing graphics all to indicate the boss is about to hit. If the boss misses he rams into the ground resulting in a screen shake indicating that he is close to crushing the game's frame and escape the game. Not

only do these polish technics signals threat of heavy collision damage it also cues the player to perform counter-moves (Sirlin, 2008) to avoid the boss' attack.

All in all are polish techniques about responsiveness and communication of game space physics to create tangible experiences through otherwise lifeless digital objects (Perry, 2013) and they draw attention to collisions as being at the core of sense-pleasure experiences (Hunicke, Leblanc, & Zubek, 2004). Game feel is, then, the axis from which the physicality of game space and the experiences of tangible digital objects spring. Collision thrills as aesthetic player experiences are deeply interlinked with polish techniques and game feel.

The next section traces the aesthetics of action in children's play. It is chosen to demonstrate how 3-7 years old children employ collisions thrills in play and especially how these collisions depict technics parallel to polish techniques in computer games.

4. The aesthetics of action in play

Imaging a not to uncommon play scene where a kid (Author (); Sutton-Smith, 2001) picks up blocks, plastic figures, cars or other objects (Rasmussen, 2002) placing one in each hand before moving the toys slowly away from each other while enacting imagined movements with the hands. When the hands are far part a short deceleration happens just before the kid speed up movements smashing the objects together. Often one objects succumbs falling backward in slow motion just to draw its last breath before scenery begins again.

Such behavior demonstrates similar techniques as those mentioned above and correspondingly they generate sense-pleasure thrills from collisions. The behavioural pattern of the play scene can be broken down and divided into, 1) movement of toys (or just of plain everyday objects), 2) to establish a space, a scene or a level of play, 3) and building suspension by decelerating the objects, one in each hand, when pulling them apart from each other (which often happens in elevated arc like curves), 4) to "charge" them with impact power (the further apart and the larger the objects, the more impact power are being built into the movement) 5) emphasised by a short pause before 6) releasing the build in power to complete the climatic collision. 7) The subsequent clash of collision is often accompanied by sound effects to emphasize colliding impact power. 8) After collision, one object suffers a knockback while the other is sent in a controlled spin backwards in a huge pushback. 9) On the way through the air, undergoes the object a sudden deceleration into slow motion before falling defeated to the ground in a prolonged 10) death animation just like in action games.

The play scenario often extends beyond smashing objects together. Kids normally include the frame to act out collision impact power by playing both the winning and the losing side. If they play the winning side, they act out and signal strength through taunting sound effects. When playing the losing side, they mimic the object (person/creature) by enacting decelerating spinning movements through the air by throwing themselves sideways while turning and falling "dying" to the ground.

Such a scene exhibits what Roger Caillois (2001) termed mimicry (simulation) or make-believe (Walton, 1990; Paley, 2009a, 2009b; Singer & Singer, 2013; Vygotsky, 1978; Piaget, 1962) which together with the rotating and falling body often, but far not always, in slow motion exhibit loss of both balance and spatial orientation. The last part follows Caillois' (2001) description of *ilinx* (vertigo as spatial disorientation).

The play scenario described displays the aesthetics of action built upon object interaction to create a context and appropriating (Sicart, 2014) behaviour and impact effects to create thrilling collisions. The play scenario operates at the intersection between hand movements and what takes place in the make-believe scenario. It is closely associated with Graeme Kirkpatrick's (2009, 2011) description of the connection between controllers in computer games and what happens on the screen. In the play scenario presented are computer game controllers equivalent to the hands, while the screen is substituted by the enacted make-believe play space, scene or level. Or as Kirkpatrick writes, "good play is about feeling, and being able to feel what we are supposed to be feeling is, at least partly, a function of not looking at or thinking about our hands" (2009, p.130-131).

In the play scenario presented here, hands are controllers navigating colliding objects (toys). They act in the same manner as controllers in computer games. The difference lies in mediation (Bolter & Grusin, 1996, 2000). This article is not concerned with controllers, yet Kirkpatrick offers valuable insight into the tangible feeling and experience of the illustrated play scenario. Kirkpatrick illustrates how hands as mediating controllers that "disappear" (Heidegger, 2010; Malpas, 2008) when immersed (Murray, 1997; Frasca, 2006; Calleja, 2007) in play enacting action techniques and in feeling collision thrills from play objects (toys) smashing into each other.

The parallels between action in computer games and action play scenarios highlight aesthetic parallels between the two but also indicate that in each form of play work both internally (objects) and externally (frame). And that they both centre on collision thrills.

These collision thrilling aesthetics of action can be traced beyond games and play. They are also to be found in movies. The next section will sketch out similarities between computer games, play and movies before drawing these various strands together in a conclusion.

5. The aesthetics of action in movies

Contemporary aesthetics of action in movies, as Matthias Stork (2013a) describes it, are dominated by control or loss of control, particularly in urban space. In *Skyfall* (2012), identifies Stork an organized dynamic between being on and off the digital grid as a marker for control or lack thereof. Stork's aim is to identify and map out the shift in aesthetics from traditional representations of urban space to what he describes as "post-cinematic city space" (2013a), inspired by Frederic Jameson's (1992) reflections on the spatial logic of postmodernism. The key point is that traditional cinematic space has undergone a change from control or navigational space to lack of control and disorientation and in so doing it reflects themes similar to those found in action computer games and the play scenario presented above.

Stork himself draws a parallel between film and computer games when he writes, "by embracing post-cinematic logic, films, and action films particularly, can approximate the feel of gameplay, the navigation of chaotic, out-of-control space and the visceral involvement it generates. By consequence, many contemporary actions films do not ask viewers to contemplate the clarity and coherence of space but to react to its visceral force. Rather than offering long takes through continuous space that promise control, these films embrace an excessive use of montage" (Stork, 2013a, p. 9).

Here he is pointing to film approximating action computer games and outlining the difference between the traditional cinematic logic of continuous space and control versus what he (Stork, 2013b) identifies as chaos cinema. It is characterized by a "perversion" of continuity. Stork is here addressing not only the spatial but also the temporal logic of the aesthetics of action in films.

Chaos cinema revolves around the deliberate intent to create confusion in spatial and temporal organisation. Its aim is to assault the audience with the visceral spectacle. This in turn leads Stork to coin the term 'chaos cinema' to express the assaultive action aesthetics (Stork, 2013b).

Stork is of particular interest in the present context as he identifies the workings of chaos cinema on two different layers, internally and externally. The former addresses the hero's body in the diegetic space. Such a hero's behaviour is very similar to that of characters in action driven computer games. The hero's body works hard to avoid obstacles and counter challenges, for example in confronting enemies by running, jumping, crouching, and shooting in an agile Parkour like manner (*Casino Royale*, 2006; *Super Meat Boy*, 2010) while dodging bullets and escaping collapsing buildings. The latter addresses the frame through camera movements. Its aggressive motion employs two different yet interconnected techniques. One is shaky-cam and the other is crash-cam. Shaky-cam acts in similar ways to screen-shakes in computer games and to vertigo in play by disrupting an otherwise stable and easily comprehensible play space. As Stork writes is shaky-cam "a camera-eye on the run, unstable, volatile, deriving its visceral impact from its disorienting hypermediate effect" (2013b, p. 8). Crash-cam, on the other hand, is closely associated with disorientation related to lack of vision as a result of debris from collisions or explosions blocking lines of sight. It works on the same diegetic level as the hero's body in cinematic space, the computer character in the game space or play objects in the play space.

Where Stork is concerned with the cinematic audioscape as an instrument to navigate more or less safely through visual confusion and disorientation, this article is concerned with collision thrills as the primary foundation for the aesthetics of action.

The parallels between the aesthetics of action in computer games, play and films can be illustrated by the alien invasion scene from the movie *The Avengers* (2012), which exhibits the aesthetics of action both intra-diegetic (internally) and extra-diegetic (externally).

The alien force advances the invasion with vast resources (Crawford, 1984) traversing a spacebridge from somewhere in outer space to New York. Aliens fly through the black hole firing ray guns that flare up with muzzle flash when shooting. The ray guns fire rapidly with thick and clear rays to intensify action through speed. In the heat of combat heroes and enemies are often pushed back by when hit by weapons fire, explosions or debris from destroyed buildings or alien vessels. Aliens are both large and small in size to underscore agility and speed as well as

overwhelming power. The scene heavily uses crash-cam setups, where flashes from explosions, flames, smoke and dust particles and debris block lines of sight. Shaky-cam emphasises impact from weapons' fire, explosions and enemy spaceships colliding with buildings. The alien invasion scene fuses crash-cam and shaky-cam, while heroes' bodies' are grappling, swinging, running and holding on before being thrown through the air. This is all underscored by sound effects that support crash and shaky-cam effects.

All these effects distort space to the point where the audience lose orientation during the rapid deterioration of existing order, as buildings succumb to the aliens' aggressive invasion tactics. Chaos highlights the pleasure of destruction (Sicart, 2014), as multiple collisions during the scene hold the audience captivated. The scene ends with a display of extreme permanence showing dead alien bodies, destroyed alien vessels and huge alien spaceships all spread out on the streets of New York.

The scene applies the full catalogue of techniques for the aesthetics of action. They are all very similar to those employed in action computer games and play scenarios.

Concluding remarks

The aim of this article has been to narrow down and map out the aesthetics of action in computer games. To do so, it was necessary to establish a way of understanding aesthetics suitable for computer games. The aesthetic concept promoted here relies on two different yet closely interrelated parts. One highlights formal techniques; the other is concerned with associated player responses. To home in on the aesthetics of action in computer games a conceptual framework was needed. Swink's concept of game feel was particularly appropriate since it explicitly deals with the relationship between formal techniques and their effect on players. This analytical move made it possible to uncover the aesthetics of action as concerned with a tangible representation of characters and objects while communicating the game space or world's physicality. It became apparent how the aesthetics of action engage players and audiences on two different levels, internally and externally. Internally, where engagement relates to the iconography of character, to the numbers, properties and behaviours of heroes and enemies alike; it relates to weapons (and other objects of agency and it relates to world physics and, of course, communicated responses to collisions in the form of particles and/or shattering debris. Externally, the aesthetics of action play their part by staging the media's frame when objects collide, by including camera movement as part of the catalogue of action aesthetics.

Creating this groundwork also made it possible to create a comparative vantage point in order to trace the aesthetics of action across computer games, play scenarios and films. It quickly became clear that computer games, play and film share and form part of a generic set of action techniques based on thrills from colliding objects.

All three media and platforms share and form part of the catalogue of the aesthetics of action, and they are all focused on generating thrilling sensations from collisions. Each generates thrills that range from sensations of pleasure in destruction to vertigo from lack of control and spatial disorientation.

Seen as a whole, it seems that computer games, play and films occupy an equal part in the catalogue of the aesthetics of action. Furthermore, it seems likely that those aesthetics rely for their effect on collisions between objects and the thrilling sensations such collisions produce in players and audiences alike. It seems appropriate, then, to coin aesthetics of action; collision thrills.

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