TITLE

Evoking Interactivity: Film and Videogame Intermediality since the 1980s

ABSTRACT

Videogames have become a huge presence in the entertainment media landscape. From *Pac Man* (Midway, 1980) to *Grand Theft Auto* (Rockstar Games, 1997–2013), gaming has gained a level of mainstream engagement that has resulted in particular games and characters becoming reference points for popular culture in a way previously seen with iconic film and literature. How film has dealt with this growing popularity is particularly fascinating, revealing a great deal about how reproducing elements of the videogame form constitutes part of a strategy to remain relevant and compete for attention in an increasingly crowded media marketplace. Avoiding the common limitation of discussing films adapted from particular videogame properties, this paper explores films that deal explicitly with the game medium in their narratives. From *Tron* (Steven Lisberger, 1982) and *The Lawnmower Man* (Brett Leonard, 1992) to *The Matrix* (Andy and Larry Wachowski, 1999) and *Source Code* (Duncan Jones, 2011), I use the concept of intermediality to demonstrate a clear increase in the engagement with and complexity of the interaction between games and films over time.

KEYWORDS

Games, film, intermediality, interactivity, media

SHORT TITLE

Film and Videogame Intermediality

The high-profile presence of videogames in popular culture in 2015 should not be underestimated. According to the Entertainment Software Association (ESA) an estimated 155 million Americans play videogames regularly, with dedicated gaming hardware present in more than half of homes. With Americans spending well over $15 billion on gaming in each of the last three years, it is safe to say that the medium constitutes a sizeable and important part of the entertainment landscape (ESA). With this in mind, it is important to understand how the form exerts the kind of cultural influence that comes with being an integral part of the modern consumer's lived experience.

The relationship between film and videogames is a particularly interesting one due to the frequency with which the medium is evoked in discussions of gaming's own evolution. Much has been written about the way in which games have strived to be more 'cinematic', and how a drive towards photorealistic visuals have necessitated leaps in computing hardware and technology that now benefit both mediums (Newman, 2009; Stuart, 2015). The same technology that allowed gamers to experience fully interactive three-dimensional worlds for the first time in the 1990s has also been used to create some of the most famous and recognizable scenes in Hollywood's recent history, from *Jurassic Park* (Steven Spielberg, 1993) and *Toy Story* (John Lasseter, 1995) to *Avatar* (James Cameron, 2009). Similarly, it is a conspicuously 'Hollywood-style' of storytelling that dominates game narratives, particularly in the action adventure genre that forms a significant proportion of the modern gaming experience. Games like *Resident Evil* (Capcom, 1996) and *Metal Gear Solid* (Konami, 1997) explicitly foreground a considerable number of well-worn narrative tropes associated with the horror and action film genres respectively, as well as employing specifically cinematic camera angles and 'cutscenes' that provide the basis for the aesthetic and storytelling of the majority of narrative-driven games over the last twenty years.

Given this shared evolution, examples of film adapting or incorporating certain elements of the videogame medium provide a fascinating insight into the medial relationship. They can demonstrate how newer forms of media contribute fresh ideas and approaches to older ones, as well as how those older media strive to remain relevant and compete for audiences in the midst of the growing popularity of potential successors. This paper therefore seeks to map a progression in that relationship, beginning with the relatively superficial incorporation of recognizable visual elements in the 1980s and 1990s, through to the far more complex adaptation of gaming mechanics and narrative structures seen in the 2000s and beyond.

As Will Brooker has pointed out, conceptions of what constitutes a 'videogame style' in film and what connotes a 'cinematic style' in games differ greatly. In Brooker's own words, with regards to film, 'videogame aesthetics are associated with empty spectacle and cynical attempts at cross-platform marketing, both of which are presumed to take precedence over character and traditional storytelling' (Brooker, 124). While he does note that the association also carries with it a sense of playfulness with regards to narrative, and a willingness to embrace new technology and fresh approaches, it is this stigma as a 'lower status form' that dominates discussions of films carrying the licensed branding of existing particular videogames. These films often lack much of the substance of the source material in both formal and narrative terms, and instead repurpose unremarkable genre films with a recognizable brand and a headline character from the game. *Lara Croft: Tomb Raider* (Simon West, 2001) and its sequel *Lara Croft Tomb Raider: The Cradle of Life* (Jan de Bont, 2003) capitalize specifically on the cultural awareness and popularity of the central protagonist of *Tomb Raider* (Eidos Interactive, 1996), while creating an entirely new cast of supporting characters and setting out a plot that bears little resemblance to anything in the narratives of any of the games. Similarly *Resident Evil* (Paul W S Anderson, 2002) and its

numerous sequels take only the vague details of antagonist entity the Umbrella Corporation and the visual design of some of the monsters from the game. Main protagonist Alice (Milla Jovovich) and her story is an entirely original creation found only in the films, despite the games having established characters and being noted for their lengthy and detailed narratives. This general lack of engagement with the substance of the source material extends far beyond these franchises, with similarly generic action fare like *Mortal Kombat* (Paul W S Anderson, 1995), *Wing Commander* (Chris Roberts, 1999) and *DOA: Dead or Alive* (Corey Yuen, 2006) all incorporating minimal aspects of their progenitors.

These films are examples of the incorporation of transmedial features, many of which have their origins in the film inspirations of the games comprising the source material. As games moved from simple, largely narrative-free distractions towards story-driven adventures, they incorporated more recognizably cinematic aesthetics, characters and plots. These aspects remain highly transmedial, making it relatively easy to simply transpose Lara Croft or the Umbrella Corporation from the game to the film form. Features more specifically associated with the game medium, like certain mechanics (ability upgrades and branching-path dialogue for example) and narrative structures incorporating or mimicking interactivity (such as the looping structure of *Source Code*) are less transmedial, and are largely absent from films carrying the branding of specific videogames.[1]

Because of this tendency to rely heavily on the transmedial elements, I assert that it is films outside the realm of officially licensed adaptations that contain the most interesting examples of adapting particular aesthetics, mechanics and narrative structuring from games to films. Specifically, by looking at films that address the virtual space and/or videogames themselves directly within their narratives, one can see a clear increase in the engagement with, and complexity of, the relationship between the medial forms over time. From the attempts to merely recreate a commonly recognized visual aesthetic in films like *Tron* and

The Lawnmower Man, through the incorporation of gaming mechanics and behaviours in *The Matrix* and *eXistenZ* (David Cronenberg, 1999), to the narrative structuring aimed at mimicking interactivity found in *Source Code* and *Edge of Tomorrow* (Doug Liman, 2014), the development of this relationship over the last thirty years demonstrates how the medium of film has attempted to keep pace with the evolution of gaming and maintain relevance to audiences that regularly interact with the newer form.

To fully engage with this increasingly complex representation and adaptation of particularly 'game-style' aspects, the notion of intermediality provides an effective analytical framework. As the complexity of this representational adaptation increases over time intermediality notably becomes more prevalent, but in order to utilize it effectively we must first establish what is meant by this contested and multi-faceted term.

INTERMEDIALITY

Intermediality is a term that suffers from a lack of specificity. While some have described it as the process of creating an entirely new medium, some see it as reference to other media within a particular media product, but it is the latter conception of the term that is relevant to a discussion of how films incorporate elements of other medial forms. It is Irina Rajewsky's often-cited overview of the myriad approaches to intermediality, and her own definition of intermedial reference, that has formed the basis of how the term is used in the film analyses to follow. This kind of intermediality can be differentiated from other types of medial contact by a number of criteria.

Rajewsky identifies intermediality as being a 'category for the concrete analysis of texts' (Rajewsky, 51) rather than a fundamental condition of film. Film has often been described as something of a hybrid form in that it mixes photography, music and performance, among other things (Stam), but the mere presence of these features is not sufficient to constitute intermediality. Rajewsky's intermedial reference is set apart from medial transposition, which essentially describes the direct transfer of more transmedial content, such as the setting, characters or plot, something present in almost all adaptations from any medium into another. Neither is it media combination, which describes the complete presence of one medium within another, such as a painting being visible in a film scene.

Intermedial reference is specifically an instance in which a particular media product 'thematizes, evokes or imitates elements or structures of another, conventionally distinct medium through the use of its own media-specific means' (Rajewsky, 53). There have been a number of intermedial analyses of films in which a recognition of such content has proven incredibly valuable. The presence of painting in film has been examined in a number of excellent works such as Ágnes Pethő's analysis of the Alfred Hitchcock films *Rebecca*

(1940) and *Vertigo* (1958), as well as Brigitte Peucker's reading of Martin Scorsese's *The Age of Innocence* (1993). Intermediality with photography has been explored in both *The Elephant Man* (David Lynch, 1980) by Lars Nowak and *Ratcatcher* (Lynne Ramsay, 1999) by Tina Kendall. Even the evocation of literary form in film was explored by Eckart Voigts-Virchow using *A Cock and Bull Story* (Michael Winterbottom, 2005).

Importantly however, these remain isolated examples, and they deal with film's relationship with the older media that have accrued a greater amount of cultural capital by virtue of their longevity. There are relatively few examples exploring intermediality with regards to the newer media of television and videogames in film, though some thoughtful analyses do exist. Martin Herman, for example, applies Espen Aarseth's theory of 'cybertext' to the time-loop narrative of *Groundhog Day* (Harold Ramis, 1993), which he recognizes as one that specifically evokes the experience of interacting with the videogame form. However, at no point in his analysis does Herman use the term intermediality, instead drawing on the work of Jay David Bolter and Richard Grusin to label this narrative evocation 'retrograde remediation'. [2]

Another important feature shared by previous examples of intermedial analyses is that they describe features of the films that are particularly identified as 'contamination' by another medium to some extent. This can be problematic because, as Jens Schröter points out, there is a paradox at the heart of referring to any textual feature of film as something that is evoking another medium. After all, if a particular formal or narrative element can exist in both mediums, then it cannot be specific to either (Schröter).

For this reason it is important to recognise that any definition of a particular medium is based on certain conventions as well as its immutable material modality. Lars Elleström, while recognising the physical, irreconcilable differences between a generally static medium like painting and a medium of moving images like film, also identifies that there are other

ways in which one can mimic the modality of another. For example, a painting can give the illusion of movement by capturing the effects of that movement, much like a novel can give the impression of a high-speed passage of action by altering the vocabulary used and the cadence of the writing. In addition, there are 'qualifying aspects' of media that constitute expectations based on historical and cultural context rather than actually being demanded by the modality of the medium. We expect for instance that television content will be delivered serially and episodically in an ongoing manner, whereas film intended for cinematic release conventionally exists in discrete narratives of between 90 and 120 minutes, but neither of these content types is actually necessary in either medium. These conventions exist because of a traditional understanding on the part of the audience about the form each medium should take, and intermediality can be achieved by evoking these aspects as well as the actual physical modality of other media (Ryan).

In the case of videogames, one of the key facets of the medium's modality is interactivity, which is something that is impossible to completely recreate in film. Other aspects, from the particular aesthetics of specific eras of games to the trial-and-error progression through looping narratives can exist in film, they are technically transmedial, although such things would be conspicuous because of their association with games and their falling outside the scope of *expected* film content. Additionally, while interactivity cannot be recreated, it can be mimicked as a number of the following film analyses will show. However, the earliest examples of film actively engaging with the notion of videogames were almost completely focused on recreating a recognizable visual style.

THE VIDEOGAME AESTHETIC

It is somewhat appropriate that, as one of the first films to employ digital computer effects, *Tron* was also one of the first film narratives to explicitly concern videogames. Justin Morris uses Lev Manovich's idea of the evolution of computer generated imagery (CGI) to more faithfully recreate reality in order to map the progression from *Tron* to its sequel. He writes of the original:

> Designed to resemble a computer mainframe, the long lines of the literal grid that the light-cycles traverse serves to diagetically and non-diagetically represent early computer technology: the literal 'grid' makes up the computer landscape of the film, while being a marker of a pioneering technique in computer imaging. (Morris, 24)

One might reasonably ask the question of how anything can 'resemble' a computer mainframe, something we cannot actually see beyond a collection of wires and circuit boards. The clean, glowing lines and vast three-dimensional spaces are based on a *perception* of what a computer mainframe would look like, and that perception has largely been driven by the primary visual representation of computers: videogames.

The backlit lines and wireframes of *Tron*'s characters, vehicles and environments have a very close analogue in arcade games of the time. Line-vector graphics were simply how computers were represented visually for the majority of young people engaged with them on a regular basis. The early 1980s was a period in which games like *Space Invaders* (Taito, 1978) and *Pac Man* had already established themselves as icons for the entire medium of gaming. Both of these games were built on the notion of a static screen, assembled as a grid, in which the player moved along set paths (either the literal grid of *Pac Man* or laterally

in a single plane as in *Space Invaders*), which undoubtedly contributed to an association between the computer space and the 'grid' evoked by *Tron*'s light-cycles.

The glowing lines on a black background, often arranged in wireframe formations, is the clearest visual recreation of videogames of the time. *Pac Man* and *Space Invaders* both featured small, bright sprites on a black background, but *Tron* even more closely resembles the 'vector graphics' videogames such as *Asteroids* (Atari, 1979) and *Battlezone* (Atari, 1980). In the case of *Battlezone*, the use of vector graphics was considered quite a visual advancement beyond 'raster' graphics, as they replaced (or in some cases supplemented) a visualization based entirely on small coloured or uncoloured pixels with lines and polygons. This meant that objects in the game could be rendered as having angles and even curves, as they would not be constituted from a collection of squares. It also meant that the game could be moved and manipulated in a smoother manner to provide a more convincing illusion of both actual movement and, in the case of *Battlezone*, a three-dimensional space (Perry; Wolf). The backlit animation of lines on the characters' costumes, the lines left by the light-cycles, the polygons used to create the computer generated elements like the floating tanks, and the large-scale, straight-edged environments in *Tron* all utilize the same aesthetic as vector graphics videogames, as well as recreating the concept of the games themselves not only in the cycles but also in the disc-duelling.

However, the consideration of the medium of videogames, and of the computer more generally, does not go much beyond the visual style. While the narrative involves the protagonist Flynn (Jeff Bridges) being transported 'inside the computer' and the characters in that world are described as 'programs', this is little more than a surface-level appropriation of the language and iconography of computers, acting entirely in the service of what is actually a very traditional classical realist narrative. The story of Flynn helping to overthrow a totalitarian regime and its brutal dictator is one that could be transposed to any number of

time periods and environments. That the people enslaved by excessive security and subjected to gladiatorial games for entertainment are actually 'programs' makes no material difference to the narrative of Flynn's insurgency. The film creates an interesting association between the violent oppression of a society and the use of computers to monitor and control people, but from the perspective of representing the other medium it disregards much of the fundamental modality of games and the virtual world more generally.

The personification of the computer programs themselves suggests an artificial intelligence far in advance of anything even remotely possible in either 1982 or 2015, in addition to the fact that there would be no reason for those programs to resemble humans from a software design perspective. This choice helps facilitate the creation of something more traditionally accepted as 'cinema', as attempting to recreate an entirely logical algorithm as a character would jeopardize audience identification and act to distance viewers from the narrative, but it demonstrates the prioritizing of the qualifying aspects of cinema over and above the evocation of the videogame medium.

The world itself is also designed in alignment with cinematic rules rather than programming ones. The scene in which Flynn and Tron (Bruce Boxleitner) escape the light-cycle arena by blowing a hole in the wall for example, demonstrates the film's abandonment of the notion of contacting the computerised medium by misrepresenting the fundamental condition of the virtual world. In reality, if the characters were existing inside a specific program designed to be a light-cycle duel, there would be no way to physically destroy the wall. The physics involved in the wall's destruction would have needed to be foreseen, accounted for and then designed as a legitimate option by the programmer during the creation of that environment. Equally, there would be nowhere to go beyond that wall unless it had been created in advance by the programmer, having predicted the characters' actions beforehand. If there was an attempt being made to evoke the experience of using computers,

or specifically videogames, then this could have been contextualized as a visual metaphor for hacking the system, re-writing the code in order to access different areas of the mainframe. *Tron* presents these actions as literal, however, and in doing so ensures that its intermedial link to the computer medium remains entirely visual.

A decade later, Brett Leonard's 1992 thriller *The Lawnmower Man* utilizes a particular visual style that had become synonymous with (and has since become iconic of) that particular time in the evolution of the videogame form. It is the three-dimensional computer generated polygonal shapes and environments that represent everything considered to be 'in the computer' in this film. Much like in *Tron*, the lack of distinction between the discrete entities of games, computers and in this case the internet, indicates not just a surface-level engagement of a broad and complex medium, but also reflects the fact that new digital media in general was still in its infancy with regard to mainstream public understanding and acceptance at the start of the 1990s.

Sequences depicting the computer in *The Lawnmower Man* are entirely computer generated, which was still not common in Hollywood filmmaking. It is important to note also that where CGI was used in other films of the era such as *Jurassic Park* and the entirely computer generated *Toy Story*, it was intended to at least approximate the aesthetic of the 'real' world. This is CGI employed for the purpose of illusionism, and corresponds to Lev Manovich's notion of how these effects evolve over time to look more 'real'. *The Lawnmower Man* on the other hand utilizes the technology to an entirely opposite end. The computer generated imagery in the film is explicitly intended to look unreal. It is designed to represent its medium as 'other', reserving the 'real' for the majority of the feature that follows the traditional Hollywood model of live-action film.

The precise visual style chosen to achieve this differentiation is one the public were acutely aware of at the time due to the large amount of coverage of technological advances in

the field of videogames, particularly virtual reality. Not only had amusement arcades been a popular social destination for young people in the time leading up to the early 1990s, but personal computers were developing the ability to render three-dimensional models that had previously been impossible.[3] Of perhaps most direct relevance to the visual style employed in *The Lawnmower Man,* however, was the launch and popularity of Virtuality. This was a pioneering system of virtual reality that launched in 1990 in the UK, but gained much attention worldwide as the 'future of gaming' as well as reportedly having the potential to revolutionize social interaction, and even some military applications (Partridge). It is specifically the 'primary-colour cartoon world' (Millar) of Virtuality that *The Lawnmower Man* recreates visually and it is an aesthetic that would be familiar to audiences even if they had not used the system. The same visual style was used not only in early three-dimensional videogames but also commercials and music videos of the time. The Dire Straits music video *Money For Nothing* (Steve Barron, 1985) received attention for being the first fully computer generated music video, utilizing this same three-dimensional polygonal aesthetic style to form cartoonish, humanoid characters. Children's animated television series *Reboot* (ABC, 1994–1996) also used the style, and did so while explicitly contacting videogames in its narrative in a way not dissimilar to *Tron*. Nevertheless, despite appearing in a number of other media, the visual style retained its association with virtual reality and videogaming in particular, leading to it becoming the dominant visual perception of the videogame medium, even as games themselves made huge technological advances to appear more 'realistic' throughout the 1990s.[4]

Given that this enhanced 'unreality' is so integral to the way *The Lawnmower Man* constructs its opposing narrative worlds, it is interesting that its sequel, appearing four years later, abandons the aesthetic altogether. In *The Lawnmower Man 2* (Farhad Mann, 1996), the virtual world inhabited by Jobe (Matt Frewer) is distinguished merely in terms of what the

characters are physically capable of, while the visual style remains entirely grounded in 'real' live-action film. With the narrative conceit that this is, rather vaguely, 'the future', the film seems to confidently suggest that it is the natural progression of virtual, interactive media to move towards representing the world in the form of photorealistic visuals, much as film does. Like *Tron*, these films make no attempt to address the different limitations and affordances of the media, or raise questions about the artificiality of the film form in conjunction with emphasizing the unreality of the virtual space. Games, and the more nebulous 'online' world, are simply used to service a traditional action-thriller film plot with an attention-grabbing visual style. This is a medial interaction that would become far more complex towards the end of the 1990s and into the 2000s.

VIDEOGAME MECHANICS

Some 17 years after *Tron*, *The Matrix* also involves characters existing within a virtual world. Rather than represent the computer world using an instantly recognizable visual style, the use of videogame 'skills' or 'hacks' to the character avatars and environment are depicted, while the visuals remain largely realist. Each character in *The Matrix* has an avatar that has a different appearance from their own with regard to their clothes and hairstyles. Whereas in their 'real' world they are essentially refugees living in relative poverty and so have very few luxuries like clothing, in the matrix they sport stylish matching outfits and sunglasses along with styled hair and generally appear as 'idealized' versions of themselves. These avatars are actually referred to as the characters' 'residual self-image', and this is an important evocation of a feature particularly associated with videogames. In the game medium taking control of an avatar is in many ways a modal necessity as it is the means by which a player can affect and interact with the virtual environment, but there has been a considerable amount of work suggesting that the significance of the avatar is greater than that. Inhabiting an avatar is actually suggested to increase a user's immersion in a narrative because it is a way of inserting the 'idealized self' into that narrative (Nowak and Ruah, 2005; Trepte and Reinecke, 2010).

In *The Matrix* these avatars allow the characters to perform actions that would be impossible in the real world. The gravity-defying martial arts as well as the 'bullet-time' slow-motion effects for which the film became particularly noted, are all explained within the narrative by the fact that they are controlling virtual avatars. These abilities are contextualized as only possible because of the player's understanding that the virtual world has rules written in the code that can be bent or broken as a result of their ability to exist outside of it. By altering that code in small ways to achieve these skills and abilities, the characters are essentially 'modding'. Short for modification, modding is a process commonly

referred to by the videogame enthusiast community in which the player customizes the game in small ways by altering the code, often resulting in aspects being enhanced or changed to either gain an advantage or simply make the game more entertaining. As opposed to *Tron*'s simple transposition of real-world cause-and-effect logic to the computer simulated world, this demonstrates *The Matrix*'s far more in-depth understanding of the processes involved in creating and interacting with those worlds, and as such evokes the *experience* of gaming far more completely and faithfully (Elson and Quandt). Modding is not itself a modal necessity of the videogame medium, but the artificiality of the world and the ability to alter that world by changing the code in small ways has become a qualifying aspect of the medium. *The Matrix* evokes this kind of interactivity and artificiality utilizing the specific means of the film medium, which is the definition of intermedial reference and demonstrates a considerable progression in the adaptation of the form from the previous examples considered.

There are other details in *The Matrix* that further evoke specific elements of videogame structure and form, such as the characters being able to acquire skills purely by downloading them. This is commonly the way in which character and equipment upgrades are acquired in many games, particularly the action and adventure titles that would arguably be narratively closest to the plot of the film itself. One could even argue that the 'construct', the white room described by Morpheus (Laurence Fishburne) as their 'loading program', is actually an attempt to recreate the phenomenon of loading screens in the film form. A consistent feature of games, even as the technology has advanced significantly over the last thirty years, has been the inability for them to be experienced seamlessly and instantaneously. As a consequence of building large, interactive spaces, almost every game incorporates moments that force the player to wait while the next area or 'level' is loaded into the hardware's memory. Rather than directly recreate this with a still frame of film, *The Matrix*

adapts the notion into a preparatory space, the ‘construct’, and once again engages in nuanced and thoughtful intermedial reference with the game medium.

Nevertheless, it should be recognised that the game aspects of *The Matrix* are very securely ‘contained’ within the realist narrative of the film. The major plot events of real consequence to the characters take place outside the matrix, with the abilities and strangeness of the simulation fully narratively accounted for. The game form is therefore kept from contaminating the film form to any significant degree. *eXistenZ*, like *The Matrix*, focuses on evoking the structures and mechanics commonly associated with the game form, but interestingly does so with a certain amount of self-awareness of the constructed nature of film. By choosing not to keep the media as distinct and separate as *The Matrix* does, *eXistenZ* actually uses this self-awareness to explore how that artificiality might be contrasted with the clearly foregrounded ‘unreality’ of the game medium.

Once inside the game world of *eXistenZ*, the notion of there being a goal to achieve is addressed almost immediately, placing an explicit block in the storytelling that the protagonists must overcome. The narrative in this reality does not progress unless the player acts correctly. This is clearly demonstrated when Ted (Jude Law) and Allegra (Jennifer Jason Leigh) talk to the owner of the shop in which they begin the game. While their first exchange is about information regarding the ‘pod’, or controller, once Allegra asks a more specific question, the shop owner reverts to introducing himself as if they had not been speaking previously. This is jarring in a film because we expect more naturalized speech patterns, but it is an accurate recreation of the implacable ‘conversation-tree’ system employed by many narrative-driven games that allow player interaction with AI characters. These characters are only able to respond with a limited number of predetermined responses, requiring a specific set of predetermined selections from the player. If the player deviates

from the ‘correct’ path through the interaction then the tree resets to the beginning (Serdar Sali et al).

In addition, there is a question over the amount of agency the protagonists have over their game characters. The fact that Ted says something he did not intend to is explained by Allegra as an unavoidable part of the story. She says: ‘it’s your character who said it […] There are things that have to be said to advance the plot and establish the characters, and those things get said whether you want to or not.’ This lack of individual agency in the virtual world is an odd feature because one might initially see it as an obvious reference to the narrative structure of a story-driven game, but the notion of not being in control of one’s own responses actually entirely contradicts the notion of interactivity. It is possible to see this as an attempt to parallel the gaming experience with that of movie viewing, and to highlight that in reality there is not much interactivity in either form when a particular narrative is predetermined. There is also an example when Ted orders the special at a restaurant and eats it despite finding it disgusting. He then constructs a gun out of the bones without any knowledge of how to do so or what he is actually doing. This lack of player agency seems to be more in keeping with the form of a film, as does the fact that both Ted and Allegra state that they experience the cuts from scene to scene in much the same way the audience do.

The features described above all contribute to a mixing of the mediums of film and videogames in ways that accentuate the artificiality of both. By evoking the mechanics and behaviours of the videogame interaction rather than a particular visual style, *eXistenZ* is able to explore the medial boundary in a much more thoughtful and interesting way than the simple ‘othering’ of *The Lawnmower Man,* and even *Tron*. While interactivity itself is not possible in the basic medium of film, by explicitly providing that interactivity to the characters themselves in a narrative world employing both film and videogame aspects, that

interactivity is effectively imitated using purely filmic techniques. The viewers themselves may not have agency, but they can share that of the protagonists. This significantly differentiates the experience from the expected nature of linear narrative film as a direct result of that agency being explicitly foregrounded and interrogated as an element within the story.

VIDEOGAME NARRATIVE

More recently, *Source Code* has provided arguably one of the most interesting examples of intermediality with videogames, as it actually builds its own narrative structure around the concept of games' interactivity. The film's plot concerns Colter Stephens (Jake Gyllenhaal) interacting with what the film calls a 'simulation' of the final eight minutes before a bomb explodes on a train. He does this by inhabiting one of the passengers to gain as much information as possible before the simulation ends with the explosion. Following this, Colter is returned to his 'real' world and must restart the simulation from the beginning, reliving the same eight minutes but trying to approach it differently to find out more about what happened.

As in *The Matrix*, using an avatar is once again an important aspect of the intermedial reference to games here, but rather than an 'idealized self', Colter inhabits a pre-existing character. In that sense one might draw a parallel between the inhabiting of this avatar and the identification with the main protagonist of a film, but *Source Code* puts the protagonist (our focus of identification) in a situation where he is forced to inhabit another focus of identification in the form of another character, putting the two notions of protagonist and avatar together and mixing the film and videogame forms. Establishing whether this is an evocation of the act of controlling a gaming avatar to a greater or lesser degree than in the case of inhabiting an idealized self is complex due to the diverse nature of games themselves. While player-created avatars, often based on an exaggerated version of their own self-image, is common in online multiplayer games, it is rare in narrative-driven single player experiences. More commonly in that environment the player will take on the role of an established character with a predetermined narrative arc, interacting with the story only to the extent of passing certain checkpoints to reach a specific and usually inescapable conclusion.

The narrative structuring is perhaps the most explicit evocation of games though. By arranging the film into the same eight minutes repeated in a looping fashion with altered audience and character knowledge each time, the film narrative recreates the experience of playing a videogame. Interactivity is necessarily lost because the basic medium of film physically does not allow for it, but it is mimicked by building a 'fail state' into the narrative itself, and adding to the audience's knowledge along with the characters' allows for the illusion that the audience would not be able to complete the mission until the characters actually do. This is an example of intermediality that does not visually recreate a videogame on-screen and does not simply transpose the transmedial content of a videogame, instead this film translates the *experience* of gaming, which is to say the actual *playing* of the game rather than any commonly accepted audio-visual style, into the language of film.

In their article 'Videogames as Equipment for Living' Ronald Soetaert, Jeroen Bougonjon and Kris Rutten explore what is meant by the term intermediality when one considers the videogame form and astutely note that to imagine a rigid dichotomy between 'old' and 'new' media is unhelpful in an environment in which these media reference, reuse and recycle content from each other continuously. Citing the largely narrative-free turn-based strategy game *Civilization* (MicroProse, 1991) and the almost completely linear narrative-based 'interactive movie' *Heavy Rain* (Sony Computer Entertainment, 2010), they conclude that even in the face of such huge apparent disparity of content certain common elements can be identified. Particularly important in this instance is the notion that 'Part of the fun is the human fascination to play and replay the game and learn something' (Soetaert et al, 5). The suggestion here is that much of the content of the videogame is not set out to be consumed in a linear fashion as in a film or novel, but instead is contained within a structure that must be approached multiple times in different ways in order to learn enough about the overall context that one can be said to have 'experienced' the game, even if (as in the case of

Civilization) there is no actual narrative conclusion to reach. The 'win-state' of *Civilization* is simply to dominate a map of the world rather than reach the end of a story. In *Heavy Rain* the narrative is far more recognizable as that of a film story, being fully plotted and separated into acts with well-defined characters and narrative arcs. However, the story itself branches in different directions depending on the decisions made by the player, meaning that once again in order to 'experience' the game it must be played multiple times with different approaches. Reaching the end of the story in purely chronological narrative terms does not necessarily mean completion of all the content. By taking this approach, and by employing an ending that essentially collapses the boundaries between the 'artificial' simulation and the 'real' world of the film narrative, *Source Code* demonstrates an enormous progression in the representation of videogame media in film from where we began with the visual flair of *Tron*.

This paper is primarily concerned with how the videogame medium has been represented and recreated in narratives that explicitly contact it, but it should be noted that the influence of the form extends beyond that. It is remarkable, for example, that the complex narrative evocation of the videogame medium seen in *Source Code* only appears in 2011, given that, as Martin Herman has demonstrated, this kind of looping-narrative structure has been employed in popular film since *Groundhog Day* in 1993. Herman may not employ the term intermediality in his analysis, but the processes and structures he presents, supported by the use of Espen Aarseth's notion of the 'cybertext', are unquestionably similar to the ones found in *Source Code*. Herman asserts that this is due to the increasing popularity of videogames in the early 1990s and therefore the looping-narrative of this type (in which the protagonist is aware of the loop and able to learn from each attempt) only exists in film at all because of the presence of the game medium.

Edge of Tomorrow employs an almost identical structure, even employing the tagline 'Live. Die. Repeat' in the film's marketing, and has drawn significant attention from the

videogame press for its similarity to the game form. This is enhanced by a military action storyline and a visual style that bears a striking resemblance to what has become a generic formula for videogames in the 'shooter' genre over the last few years. *Edge of Tomorrow* is actually an adaptation of the Japanese short novel *All You Need Is Kill* (Hiroshi Sakurazaka, 2004), which has also inspired a graphic novel and manga to further complicate the potential relationships between source material and adapted features. Importantly however, author Sakurazaka claims to have been originally inspired to write the story by reading comments of gamers online. In an interview with *The Japan Times* he says that, having read the frustrations of gamers who had 'messed up' and had to try again, 'I thought about writing a story based not on the idea of a person playing a video game but on a hero being played over and over in a game' (Hornyak). This is clear evidence that the repeating narrative in this case is explicitly intended to evoke the experience of gaming, but furthermore demonstrates powerfully that videogames have become a vitally important part of popular culture that is now having a direct influence on the creative process of content in other media. The progression of the representation of games over the examples outlined in this work charts a considerable shift in attitudes on the part of the film medium — from treating videogames as a niche oddity characterized by an otherworldly visual style, to recognizing them as a fully-fledged competitor medium from which contemporary film can draw significant inspiration.

CONCLUSIONS

Intermediality has proven to be a useful tool in this instance with which to engage in textual analysis and explore the evolution of the representation of one medium in another. As gaming has become more popular and arguably more accepted as an artistic medium worth analysis in its own right, these examples demonstrate how the film medium has adapted its representations accordingly.

The films singled out in this article are by no means an exhaustive or comprehensive account of films that have dealt with the videogame medium in their narratives or adapted particular features from games, but they do demonstrate a clear trend towards a more complex and nuanced form of intermedial contact over time. As with so many things however, this is not an absolute rule that can be applied unilaterally. The 'videogame aesthetic' in particular is still very much a part of cultural consciousness that films can exploit. In the same way that *Tron* and *The Lawnmower Man* employ a visual style as their only real point of contact with the gaming medium, films like *Spy Kids 3D: Game Over* (Robert Rodriguez, 2003), *Scott Pilgrim vs. The World* (Edgar Wright, 2010) and *Wreck-It Ralph* (Rich Moore, 2012) demonstrate that this has remained arguably the easiest way to recognizably evoke the form. These films recreate iconography from a particular era of videogame development, specifically the 1980s and early 1990s, to make clear and obvious contact with the medium, but use it mainly as an interesting visual differentiator for otherwise unremarkable film narratives.

By applying intermediality as an analytical framework we can see beyond these surface-level interactions and identify the adaptation of the game mechanics at work in *The Matrix* and *eXistenZ*, as well as the narrative evocation of videogame structures as in *Source Code* and *Edge of Tomorrow*. These films are more reflective of the actual development of the game medium over time, recognizing that games have not retained any single visual

aesthetic or gameplay style in their evolution. Inhabiting avatars, acquiring and utilizing skills, unnatural trial-and-error dialogue and the looping nature of narratives that serve the purpose of multiple attempts are all more fundamental and unique properties of the game medium than any particular visual style. These are also features that arguably differentiate the medium most from that of film, making their adaptation to the screen an effective way for filmmakers to actively explore and interrogate the medial difference. That interactivity cannot ever be a part of film's core modality means that this medial interaction will remain a space in which creative approaches to adaptation are required.

The technology driving innovation in interactive entertainment continues to produce new forms of formal representation and narrative structuring. The recent resurgence of virtual reality has reintroduced the possibility of 360-degree immersive experiences, and as the act of playing games becomes even more inextricably linked to online social interaction, one wonders whether intermediality in film can continue to find ways of recreating, mimicking or evoking such content. As the development and evolution of videogames continues apace, it will be fascinating to see if future representations of the form in film continue to develop alongside them, or simply reinforce the cultural association with the iconography of the 1990s in order to maintain a shorthand means of reference.

NOTES

[1] Henry Jenkins (2006) popularized the term 'transmedia storytelling' with regard to how *The Matrix* and its sequels took advantage of other media like web comics and animated shorts, partially as promotion for the films themselves, but also to deliver further narrative details to fans. Similarly, one could look at the examples of *The Lord of the Rings* (J.R.R. Tolkien, 1954–1955) and *Star Wars* (George Lucas, 1977) franchises, whose fictional universes exist across films, videogames, novels and television shows.

[2] Herman recognizes that this is an extension of Bolter and Grusin's theory, as they mostly use the term remediation to refer to aesthetic reproduction. The game-like qualities of *Groundhog Day*'s looping narrative structure, in addition to some of the more speculative associations like possible 'save states', seem more in-keeping with the notion of intermediality, despite the fact that the term itself is not used.

[3] What is sometimes referred to as the 'golden age' of videogames was a period from the mid-1970s to the late 1980s that saw huge attendances and profits at amusement arcades with videogames in them, in addition to the earlier popular pinball machines. The introduction of virtual reality was a factor in reviving interest in arcades, which had declined since 1988 thanks to the increased capability of home console systems, but this can be seen as an example of film reflecting popular culture on a slight delay, following behind the crest of a wave rather than spearheading an interest (Johnson).

[4] While 'realism' is a complex term with regard to interactive media design and constitutes considerably more than mere visual fidelity, 'perceptual pervasiveness' (Ribbens, 32) remains an important goal for most mainstream game development. This is in no small part due to the intimately entwined relationship between videogame creation and the technological advancement of graphics hardware (Stuart). The 1990s in particular saw the introduction of optical disc media for game storage, meaning an enormous increase in the

amount of data constituting each game. This translated into more photorealistic visuals through higher texture quality.

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