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## A New/Old Ontology of Film

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The purpose of this article is to examine the ontological effects of digital technology, and determine whether digital films, traditional films, and pre-traditional motion pictures belong to the same category. I begin by defining the parameters of my inquiry, and then consider the two most significant consequences of the new technology. §2 proposes a decisive refutation of the causal relationship between reality and photography. §3 identifies an end to the dominance of photorealistic film over animation, and argues for an inversion of that relationship, whereby animation is paramount. Finally, I consider the implications of these consequences for film ontology, compare theories, and conclude in favour of Berys Gaut, for whom digital film is the latest incarnation of a history of moving pictures that stretches back for centuries.

### **Defining the Question: Terminology and Technology**

The fundamental problem with the question ‘what is film’ is that it presupposes a certain kind of answer. In fact, the words ‘film’, ‘motion picture’, and ‘movie’ all make the question redundant. The term ‘film’ is derived from film stock, the photosensitive chemical material used to record rebounding light. The conversion of light into film produces a negative, which is then photographed itself to produce an original print. The photochemical process has been labelled ‘traditional’, and produces both still photographs and the sequences of still images called ‘films’. So it seems that asking what *film* is limits the answer to the projection of photographic images onto screens, exhibited through the medium of cinema from 1895. Although photographic film is still used, the success of George Lucas’s *Star Wars: Episode II – Attack of the Clones* in 2002 heralded the entry of digital cinema to the mainstream market. James Cameron’s *Avatar* (2009), a three-dimensional (3D) digital production, is the most commercially successful film to date at the time of writing, and a return to photographic film in the future appears highly unlikely.

The use of ‘motion picture’ and ‘movie’ is no less prescriptive. The etymology of ‘movie’ is uncertain, but is probably an abbreviation for ‘moving image’ or ‘moving pictures’. I shall regard ‘moving image’, ‘moving pictures’, and ‘motion picture’ as synonymous for my purposes. If the inquiry concerns moving pictures rather than film, then it extends back well beyond 1895. Gaut (2010: 6-10) identifies three different categories of motion picture: object-generated, handmade, and mechanically-generated. Object-generated motion pictures have existed since at least the tenth

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century CE, in the form of Indonesian and Chinese shadow puppet plays. Handmade motion pictures include simple flip-books, magic lanterns, the thaumatrope, the phenakistiscope (1832), the zoetrope (1833), the choreutoscope (1866), and the praxinoscope (1877). Mechanically-generated motion pictures began with Edison's kinetoscope and the Lumière *cinématographe* – both of which used film stock – and the category includes subsequent electronic and digital developments.

While Gaut maintains that all three types of moving image share a common ontology, Noël Carroll (1996: 127-130) restricts motion pictures to the mechanically-generated. I wish to avoid asking a redundant question and limiting the scope of film or motion pictures without justification. I shall therefore use 'film' and 'motion picture' interchangeably, with both referring to the exhibition of moving images in the broadest possible sense, i.e. not restricted to either photochemical stock or photorealistic pictures. I include animated features in the category of traditional film due to the fact that until *Toy Story* (John Lasseter, 1995) animated films consisted of photographs of either illustrations or objects (for stop motion animation, e.g. *Wallace and Gromit* [Nick Park & Nick Rushton, 1989-2010]).

Carroll (1996: 130) distinguishes film from similar art forms like theatre and puppet shows by stipulating the moving image as two-dimensional (2D). With the post-*Avatar* revival of 3D film, this distinction might seem outdated, but 3D cinema has existed since the screening of *The Power of Love* in 1922, so the issue is neither new nor linked to digital cinema (Zone 2007: 1-2). I endorse Carroll's distinction, specifying that motion pictures *are* 2D even though they may *appear* 3D. The images are generated on a two-dimensional surface; they may be drawn on this surface directly, in the case of a flip-book or a zoetrope, or projected onto a flat screen, in the case of a shadow play or traditional film. I can now identify the question, which is 'what is film' where 'film' is the art form involving the exhibition of 2D moving pictures, and 'a film' or 'motion picture' is a specific instance of this category. I have noted the possible beginnings of the art as shadow plays, mentioned the more recent precursors to traditional film, and given a very brief description of the photochemical process. A summary of the digital revolution in film follows.

In contrast with the photographic process, where light is converted to film, digital image recording converts light into streams of binary numbers. Digital recording employs a charge-coupled device (CCD) to first convert light levels to voltages and then convert them to the number streams, which are stored in bitmaps, i.e. grids of pixels.<sup>2</sup> The bitmap is a mathematical representation and thus has no physical relation to the image, which is manufactured by the interpretation of numbers. The images can be

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<sup>2</sup> Electronic recording also uses a CCD, converting light to an electric pulse, and has been primarily employed in television and video (Gaut: 2010: 9-10). I do not discuss electronic cinema as its innovations have been overshadowed by digital technology.

recorded either on digital tape or as digital files. Aside from the use of a CCD, there are two other methods of producing digital images: by hand with a software tool, and computer synthesis. The former creates images by digital painting; the latter involves the construction of a vector graphic or 3D model to generate bitmaps. All three methods of manufacture can be combined seamlessly. The digital image does not suffer degradation when it is replicated, and duplication produces a clone rather than a copy (Gaut 2010: 12-16).

‘Computer-generated imagery’ (CGI) describes the application of pre- and post-production digital painting and computer synthesis to film, and is fundamentally ‘a form of computer animation’ (Cook 2004: 882). Steven Spielberg’s *Jurassic Park* (1993) was the first extensive use of CGI in a photorealistic film, and met with unprecedented commercial success (Cook 2004: 890-891). Two years later *Toy Story* became the first digital feature film, i.e. the first film created entirely with CGI. *Star Wars: Episode I – The Phantom Menace* (George Lucas, 1999) made even more use of CGI than *Jurassic Park*, and was exhibited in digital screenings in addition to its traditional cinema release (Gaut 2010: 10-11). The success of the sequel in 2002 ushered in a new era of motion pictures. The philosophical implications of digital cinema are both far-reaching and complex, but I believe it has finally quashed the various positions that reject photography as a representational art.

### **Another Long Goodbye: Photography as Presentation**

Gregory Currie (1993) bade a conclusive farewell to the persistent – but insubstantial – hypothesis that the ontology of film was that it constituted a particular kind of language. The argument he calls the ‘presentation thesis’ has been just as persistent, with as little substance (1995: 48). Currie describes the presentation thesis as the claim that photography presents rather than represents the world, and focuses on Kendall Walton’s transparency argument. Gaut (2010: 21-22) maintains that there are two distinct objections to photography as art within transparency – causal and reproductive – and although I disagree, I shall mention all four of the arguments opposing representation in photography.

Andre Bazin held that photography was essentially objective, by which he meant that the photographic image was (the same as) the thing itself: ‘Photography enjoys a certain advantage in view of this transference of reality from the thing to its reproduction’ (Bazin and Gray 1960: 8). For Bazin, looking at an old family photograph was to see the deceased relatives themselves, rather than to see a representation thereof. Rudolf Arnheim interpreted Charles Baudelaire’s comments on photography imitating reality as the idea that photography ‘was nothing but a mechanical copy of nature’ (1974: 155). If this is indeed the case, then photography has no capacity to express artistic intention. Roger Scruton (1981: 578-598) contrasted

photography with painting: where the latter stood in an intentional relation to its subject (due to the representational act), the former stood in a causal relation, and could not be considered a representational art. Looking at an object through a camera lens (or at the resultant photograph) was thus the same as looking at a mirror or looking through a telescope; it merely presented the reality. Finally, Walton argued that to see a photograph of X was to see X, while to see a painting of X was not: 'Photographs are *transparent*. We see *through* them' (1984: 251). This transparency causes photographs to put one in perceptual contact with the object photographed.

I believe these four theses – objectivity, reproduction, causal relativity, and transparency – all present a single challenge to photography as representational art, and I use 'presentation thesis' to describe this challenge. I shall first show why the presentation thesis does not hold – even for traditional photography – and then show the effect of digital photography on the debate before considering the implications for film. It is worth noting an observation by Currie at the outset: most advocates of the presentation thesis have limited their claims to photographic images that have not been significantly altered subsequent to exposure (1995: 48). So the presentation thesis is subject to a qualification, and even its proponents do not accept that seeing (a photograph) is always believing (the reality). Scruton is even more restrictive, limiting his observations to a 'logical ideal' (1981: 578). One could argue that if photographs are not *always* objective, reproductions, causally related, or transparent, then there *is* a capacity (of some sort) for representation inherent in the medium, but the move is not necessary.

Gaut (2010: 30-31) provides a conclusive and entertaining refutation of the presentation thesis, using the example of Jean Auguste Dominique Ingres's painting, *Madame Moitessier* (1856). He identifies a number of ideas expressed by Ingres in the work, and then imagines that the woman depicted had been painted by Oscar Kokoshka and Lucian Freud. Gaut notes the differences in intention and appearance likely to have resulted, e.g., from skin as pure as marble (Ingres) to skin that looks like raw meat (Freud). He then extends the thought experiment to photography, suggesting that parallel differences in appearance would result if the subject was photographed by Sir Cecil Beaton, Julia Margaret Cameron, and Diane Arbus. The photograph perceived by the viewer would differ significantly in all three cases – just as the painting by each artist would differ. These differences are caused by the intentions of the photographers and the capacity of photography to express these intentions indicates that it is a representational medium. I believe Gaut's thought experiment is sufficient to turn the tables on the presentation thesis. There is no justification for regarding all unaltered photographs as presentations of reality; many photographs are representations, so the presentation thesis should be confined to those depictions where the intention of the photographer is to

present (rather than represent) an object. One might acknowledge that, e.g., photojournalists and crime scene photographers typically present reality, but even this claim is debatable.

The appearance of Kevin Carter's Pulitzer Prize-winning *Starving Child in the Sudan* in the *New York Times* in March 1993 resulted in public concern for the infant portrayed (Keller 1994). When readers saw the photograph they believed that there was a real starving girl, and that the event captured in the image – a vulture awaiting her demise – really happened at a certain time and place. The assumption was correct, and would not have been made if the picture printed in the newspaper had been an illustration, no matter how life-like. When one sees a photograph in a context like a newspaper one tends to think of it as presenting reality. There seem to be degrees of realism: from actual perception, to looking at a photograph, to looking at a painting. Thus looking at Carter's photograph is not as horrific as actually being in the Sudan with the child and the vulture, but is more horrific than seeing a sketch of her. Walton (1984: 247-248) makes this point by contrasting the immediacy of Francisco Goya's 'Even Worse' (1810), part of *The Disasters of War*, with Timothy H. O'Sullivan's photograph, *Death on a Misty Morning* (1883).

Walton has selected a particularly visceral portrayal of the aftermath of a battle, but his choice is unfortunate for his argument: O'Sullivan was believed to have moved the bodies of the corpses he photographed in order to create a more dramatic effect, i.e. to express his intentions in his representations of dead soldiers.<sup>3</sup> While (most) photographs undoubtedly appear more real than (most) other pictures, even photojournalistic images do not necessarily present reality. Two of the most famous photographic images ever taken serve as examples. There is an ongoing debate about Robert Capa's *Falling Soldier* (1936). The question is not only whether the image was posed, as I have suggested in Walton's example, but where it was actually taken: on the battlefield as claimed, or at a safer position behind the front lines (Mitchell 1992: 40-43). When Dorothea Lange took the photograph *Migrant Mother* (1936) she failed to notice that her subject had grasped a tent pole in order to steady her sleeping child. The thumb and finger that appeared in the foreground of the image were subsequently edited out (Curtis 1986: 17-20).

My point is that in two paradigmatic cases of photojournalism there is room for doubt as to the reality, and room for expression on the part of the photographer. William J. Mitchell mentions the response to an international incident between the United States and Libya in January 1989 as an exemplary instance of photographic evidence being contested – contested on the very basis that it does not present reality (1992: 22-24).

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<sup>3</sup> I am not aware of conclusive evidence that O'Sullivan engaged in the practice, but several American Civil War photographers did, including his colleague Alexander Gardner. See Buser 2006: 214; Mitchell 1992: 43-45; Seels 1997: 48-51.

Hoaxes like the Cottingley Fairies (1917) and the surgeon's photograph of the Loch Ness Monster (1934) reveal that the capacity for deception afforded by photographic evidence is not a recent development. I offer these examples as a supplement to Gaut's argument, to show that there is always – and has always been – a possibility for representation in photography, even when it appears at its most transparent.<sup>4</sup> If this is true of traditional photographs, then the opportunity for representation in digital photographs is even greater, due to the increased possibilities in editing.

Gaut maintains that the digital image is correctly identified as:

a *mélange* (or blended) image – that is, it can be produced by any of three distinct techniques and each technique may vary in the proportion it has in the making of a particular image (2010: 45).

He claims that even if one restricts one's inquiry to the digital *photograph*, the software packages accompanying digital cameras allow photographers of all proficiencies a wide range of editing options. Mitchell believes that digital images should never be called photographs, even if created with a digital camera, as they differ as much from a traditional photograph as a photograph from a painting (1992: 3). Gaut rejects this radical distinction on the basis of the similar generative methods employed in traditional and digital photography (2010: 49). I agree with his assessment, though I shall show that he underestimates the impact of his own falsification of the presentation thesis.

I have considered the presentation thesis in some detail due its implications for the ontology of film. If photography could only present rather than represent reality, then photorealistic film would be similarly limited as an art form. Scruton (1981: 598-603) is convinced that a film presents a drama, and that while drama is a representative art, the filming or photographing thereof is not. He holds that photography hinders rather than assists dramatic representation, because of the limits it places on interpretation and its link to fantasy rather than the imagination. For Scruton, therefore, the ontology of film is that it is no more than photographed drama. Arnheim contemplated the consequences of the thesis for contrasting reasons, and was concerned about the inevitable and undesirable conclusion that there could be no artistic expression in film (1974: 155). With the presentation thesis refuted, however, film can take its rightful place as an art form.<sup>5</sup> The digital revolution has not only strengthened the argument for film as art, but also – I shall argue – indicated the category of art to which digital and traditional film belong.

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<sup>4</sup> Photographs created with instant cameras, the production of which was dominated by the Polaroid Corporation from 1948-2008, are a possible exception.

<sup>5</sup> Interestingly, Polavision – the Polaroid Corporation's instant movie camera – was a commercial failure, being discontinued two years after its launch in 1977.

### 3. The Digital Film: Photorealistic Animation

Gaut (2010: 14) defines digital cinema as ‘the medium of moving images generated by bitmaps’, and Lev Manovich (1995) identifies it as ‘a particular case of animation which uses live action footage as one of its many elements.’ They both note a number of essential differences between digital and traditional film (Manovich 1995; Gaut 2010: 17-18). All three types of digital image are subject to direct manipulation, with the result that the visual realism of photography has a plasticity that was formerly confined to animated film. In digital cinema, the traditional distinction between the ease of editing (a sequence) and the difficulty of image manipulation (special effects) has been eroded, and the spatial and temporal qualities of images can now be rearranged with equal ease. As there are no longer any aesthetic features linking film to film stock, digital cinema also has a purity from its physical origin. Once live action material is digitised, the existing relation to reality is lost as the digital images become raw material (grids of pixels) for manipulation. Digital technology has eroded the distinctions between creation and modification, production and post-production, as every image – whatever its source – is processed through various computer programs before the final cut. Lastly, the speed of computer processing has opened up new possibilities for interactivity in digital cinema.

Even the most cursory examination of the philosophy, theory, and criticism of film reveals an overwhelming bias in favour of photorealistic – as opposed to animated – films. Gaut states that the ‘philosophy of film has concentrated almost exclusively on traditional photographic images’ (2010: 19). Manovich takes an even stronger line, describing the marginalisation as resulting in animation being ‘cinema’s bastard relative, its supplement, its shadow’ (1995). Works of reference on film frequently pay scant attention to animated features, and many philosophers exclude them from their definitions and ontologies of film. When the American Film Institute published a list of the hundred best American motion pictures made from 1898 to 1998, it included only two animated films: *Snow White and the Seven Dwarves* (David Hand, *et al.*, 1937), forty-ninth, and *Fantasia* (James Algar, *et al.*, 1940), fifty-eighth. When the list was revised in 2007, it included *Toy Story* at a rather disappointing – given its significance in the history of film – ninety-ninth place, and at the expense of *Fantasia* (which was dropped) (American Film Institute). Animated films have nonetheless played a significant role in the film industry, from the commercial success of *Snow White and the Seven Dwarves* to the artistry of *Beauty and the Beast* (Gary Trousdale and Kirk Wise, 1991), and the groundbreaking technological advances of *Toy Story* and *The Polar Express* (Robert Zemeckis, 2004).

Gaut (2010: 17) believes that digital technology has undermined the dominance of the photograph in film. The (literal) photographic essence of traditional film, the link between film and film stock, has been severed. Live action photography is now merely one of several methods – methods which are themselves frequently combined – of producing the moving pictures that comprise a particular film. Manovich (1995) notes that digital technology has introduced the possibility of a feature film of one hundred and twenty-nine thousand, six hundred frames that is both indistinguishable from a photorealistic film, and created entirely by digital painting. He maintains that the combination of live action material, painting, image processing, compositing, 2D and 3D animation that constitutes digital film has returned the moving image to its roots, which lie in the animation used in devices such as magic lanterns, zoetropes, and praxinoscopes. For Manovich, therefore, digital film has reversed the traditional relationship between photography and animation, with the latter now dominating.

Perhaps digital film is best described by Gaut, as a *mélange*. Certainly my first thoughts on seeing a trailer for *Avatar* were, ‘what is it, a film or a cartoon?’<sup>6</sup> There seem to be two equally valid answers: ‘both’, in that it was created with live actors (using motion capture) and digital painting; and ‘neither’, because it doesn’t fit into either traditional category. David A. Cook (2004: 921-926) presents an interesting study by comparing the representation of the Japanese attack on Pearl Harbour in *From Here to Eternity* (Fred Zinnemann, 1953) and *Pearl Harbor* (Michael Bay, 2001). The former relied heavily on the use of actual documentary footage from 1941, but appeared much less realistic than the latter, which involved extensive use of CGI. Simulated reality, created by the combination of digital photography, digital painting, and computer synthesis, is thus more ‘real’ than the photochemically-recorded reality. Cook believes that the two films cannot be compared by the same standards, and agrees with Manovich that the digital revolution has created a new aesthetic where film has become a type of animation, and where production is the first stage of post-production (Cook 2004: 925-926).

Cook uses ‘photorealistic animation’ to refer to animation that resembles photography in its attention to detail, but I believe the term appropriates the sense in which animation can replicate reality more successfully than photography (2004: 883). Film can no longer be differentiated from animation because the development of digital cinema has completely blurred the distinction. Peter Jackson deliberately used CGI techniques with a strong photographic basis for *The Lord of the Rings* trilogy (2001-2003). He successfully created an appearance of reality, yet one of the main characters – Gollum – is entirely computer-generated.

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<sup>6</sup> The word ‘cartoon’, with its juvenile, trivial connotations, is a product of the peripheral status of animation in the twentieth century.



Robert Zemeckis's *The Polar Express* is an apparently clear case of an animated film, yet his paradigmatic use of motion capture brings an almost disturbing element of realism to the characters. Films like *Avatar* and *Alice in Wonderland* (Tim Burton, 2010) – their 3D aside – fall somewhere in between, and these examples of the cross-pollination of photography and painting show that the line between photorealism and animation is not only unclear, but irrelevant. The distinction may continue to be made for marketing purposes, but the two types of film have converged in a single category, digital film. Photorealism *and* animation have been replaced by *photorealistic animation*.

Whether one regards the digital film as animated (Manovich) or *mélange* (Gaut), the photograph is obviously no longer as significant to the phenomenon as it once was. I believe that film has been freed from the restrictions imposed by photography, with the result that the scope for representation has increased exponentially. Drawing on Walton's work (1970: 143-145), Gaut (2010: 37-38) elucidates the link between artistic expression and the perception of film and reality. Perceiving a film and perceiving reality diverge in a number of ways. Where the divergence is fixed, e.g. the lighting in the theatre and the 2D structure of the screen, one cannot regard it as communicating any artistic intention. Where divergence is variable, e.g. the shape of the image on the screen and the movement of the camera, one can attribute intention and expression. The point can be generalised to all art: when there is choice, there is a potential for the expression of meaning; and the greater the capacity for choice, the greater the capacity for expression.

I have mentioned the increase in choice in the change from traditional to digital photography, and the case is even more extreme for the moving image. The bewildering number of options available to contemporary film directors means that they have increased opportunities for expressing their intentions, and it is this intentional relation to the subject that makes film a representational art. Gaut (2010: 49) holds that the digital revolution has resulted in a more compelling argument for film as art; indeed, Scruton's claim that film is merely a recording of representative drama is simply implausible for the digital variety. Gaut also notes the intentionality of digital film in that it 'possesses the possibility, in its non-photographic modes, of creating expressive content that does not require the recording of any reality at all' (2010: 50). I believe, however, that he understates the importance of digital developments.

Although photographs continue to be used in film, they have become one of several kinds of mathematical representations that constitute the raw material from which the finished product is created. The photographic element of film is no longer any more significant than, e.g., computer synthesis, and Manovich has noted that even photorealism need not involve any photography. The fact that digital film does not require the recording of

reality not only means that the art form has the potential to stand in a purely intentional relation to its subject, but that it actually does so. The reason can be found in Walton's standard and variable properties, alluded to by Gaut. In photorealistic traditional film the use of photography was a standard (fixed) property, like the 2D screen, i.e. there was no other option available. In photorealistic digital film, the use of photographs has become a variable property. Live footage has become one of several options for the director, and the decision to use it has thus become an expression of intention. Digital film, like painting, is always intentional. A contemporary director who used only photographs (of either type) in a feature film would be exercising a meaningful choice, and that choice would convey his intention. The consequence of this intentionality is that digital film is indisputably a representational art.

### **What is Film in the 21<sup>st</sup> Century?**

I began by defining the scope of my inquiry as the art form of moving pictures, where the movement may be actual or apparent,<sup>7</sup> and where the picture – despite appearances – is understood in the ordinary sense of being presented on a flat surface. I have established that all four categories of traditional and digital photography and film offer possibilities for representation, and noted that the digital film is a development of traditional film characterised by what I have called 'photorealistic animation'. I shall now answer the question 'what is film', taking into account both traditional and digital varieties, and consider the restrictions an ontology of film should impose in order to make an enlightening classification of the art form.

Currie produced the first comprehensive philosophy of film in the analytic tradition with *Image and Mind* in 1995. Although the ontology of film he proposed has much to recommend it, Currie's position on non-photographic film is opaque. He cites animation as an example that 'more distant causes' of the cinematic experience need not be photographic, but subsequently excludes all reference to animated film (1995: 4). It seems that he is either concerned purely with photorealistic film or – at most – film produced with film stock. By linking film to photography, Currie is committed to the view that *Toy Story* – produced with CGI – is not a film, and that *Toy Story* and *Snow White* are therefore different phenomena. The position is clearly erroneous.

Digital technology – in the form of CGI – has been applied to photochemical film over a period of at least forty years, with notable early examples like *2001: A Space Odyssey* (Stanley Kubrick, 1968) and *Westworld* (Michael Crichton, 1973). CGI has been used incrementally, as technology developed, and even *Toy Story* was recorded onto celluloid for

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<sup>7</sup> The question of whether the images projected by a film actually move or only appear to move is much debated. See Currie 1995: 28-47 and Kania 2002 for contrasting views.

screening, and thus used photochemical material. There is some dispute over the first film produced and released without employing any photochemical process, but the success of *Star Wars: Episode II – Attack of the Clones* in 2002 popularised the fully-digital film (Gaut 2010: 11-12). It would be unfair to attribute the view that digital films are not films to Currie, and I think it much more likely that he simply failed to foresee the consequences of the digital revolution.<sup>8</sup>

Carroll was quicker to realise the implications of the new technology: in 1996, he noted the advances made in electronic cinema and predicted the possibility of films being produced on CD-ROMs (1996: 115), and the future film as ‘digitally synthesized images’ (1996: 122). He believes that the domain of film is moving images, which seems a promising start in the light of subsequent developments. He stipulates ‘moving images’ as opposed to ‘moving pictures’ in order to include abstract, non-representational, and non-objective film (1996: 126). Carroll’s ontology of moving images identifies five necessary (but not jointly sufficient) conditions: they must have the potential to appear to move, be a detached display, be 2D, and be generated by a template that is a token such that performance tokens are not works of art (1996: 130). That an image must have the potential to appear to move seems obvious. By ‘detached display’ Carroll means that the images must not contain egocentric information, i.e. tell the viewer where he is in relation to the space depicted.<sup>9</sup> Thus watching *Jurassic Park* does not tell me how to find the park in question, nor identify my position in relation to the dinosaurs roaming on screen. I have already accepted the 2D requirement, which is implied in ‘picture’ (although not in ‘image’). So far, therefore, Carroll’s ontology is applicable to digital and traditional film, and the range of motion pictures that preceded traditional film.

Carroll (1996: 127-129) uses the type-token distinction to contrast film with theatre. The play *Richard III* is a type, and its performance is generated by an interpretation. I may, e.g., have the option of seeing two *Richard IIIs*, one at the university and one at a theatre in town. The interpretation of Shakespeare’s text will differ according to the tastes and skills of the different directors and actors involved. These interpretations are themselves types, and they generate the token performances, e.g. a week of six shows from Monday to Saturday at the university. These tokens will ideally be identical, but the two interpretations may differ substantially. In a play the text, the interpretation, and the performance are all subject to artistic evaluation. Richard Loncraine’s 1995 film *Richard III* differs entirely, however. I could have seen exactly the same performance no matter what film theatre I went to because the token – the particular

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<sup>8</sup> Significantly, Currie subsequently changed his conception of ‘film’ to anything that displayed moving images (1997: 47).

<sup>9</sup> This has also been disputed, however. See Currie 1995: 22-27.

screening I did in fact see – was generated by a template, which would have been a film print in 1995, and could be a film print or a digital file fifteen years later. The template is itself a token of the type, with the result that the performance I see is a token generated by another token. Neither the template nor the performance are subject to artistic evaluation, only the type, Loncraine's *Richard III*. The interpretation, acting, cinematography, and other aesthetic elements of the film are all contained in the type. The template and the screening may be faulty, but such problems are technical rather than artistic.

It should be evident that Carroll's use of type and token differentiates plays and, e.g., puppet shows, from traditional and digital film, and is thus satisfactory in dealing with bitmap-generated motion pictures. Strangely, Carroll describes his ontology as 'overly inclusive' for 'what we typically call motion pictures' (1996: 131). He specifically excludes mass-produced flip books and the zoetrope from the art form he is attempting to identify because they 'do not seem to be the kind of phenomena that one has in mind when speaking of moving pictures in ordinary language' (1996: 131). I believe Carroll is in error here, for if he is attempting to establish an ontology of photographic film, then there should have been some reference to photography or film stock in his criteria. If he is seeking a broader ontology of moving images, however, then the ordinary usage of 'motion picture' for 'traditional film' is of little relevance. There is an inconsistency in investigating the moving image and restricting the results to its current popular incarnation.

Inconsistency notwithstanding, there is a further problem with Carroll's ontology in that it excludes both hand-crafted flip books (as he admits) and any moving picture presentation where the performance is an art. With regard to the latter, I have mentioned that the requirement that the moving image be generated by a template is an implicit link to Gaut's mechanically-generated category. While the template might apply to mass-produced thaumatropes and zoetropes – and perhaps even certain magic lantern shows – it would definitely exclude the shadow puppet plays, where the performance is not produced by a template and is itself a source of artistry. Perhaps this is not a fault in Carroll. If one considers watching *Avatar* in 3D and watching a shadow play, one might well conclude that they are not the same kind of thing. Yet Carroll's ontology includes the flip book and the zoetrope, which seem much closer to the shadow play than the digital film in category. Why can a zoetrope be a moving image, but not a shadow play; and why can a mass-produced flip book be a moving image, but not a handmade one? Though Carroll's ontology is remarkable in anticipating and including digital cinema, I believe it ultimately fails by excluding object-generated and handmade moving pictures without sufficient justification.

Manovich's characterisation of film as a particular type of animation may serve better, for animation seems to be – literally – the art of moving pictures. Manovich's ontology of film is in fact more radical than this. He maintains that the return to handmade motion pictures epitomized in digital manipulation is not merely a return to animated moving pictures, but 'a particular branch of painting – painting in time' (1995). His answer to the ontological question is thus that a film is a series of paintings. The proposal is intriguing, but while there are aspects of digital cinema that are indeed a return to handmade motion pictures, the particular synthesis between human artistry and mechanical computer production in digital images appears to be a new development rather than a return to painting. One might, e.g., possibly conceive of *Avatar* as a series of paintings, but I'm not convinced that describing Rob Marshall's *Nine* (2009) as series of paintings would be in any way enlightening. Although Guy Ritchie achieved the photorealism in *Sherlock Holmes* (2009) by animation, Manovich's answer to the question 'what is it' still seems confusing. Even if one agrees with Manovich entirely, however, his ontology excludes traditional film, and the many similarities between digital and traditional film indicate that the former is a development of the latter rather than a new art form (in the same way that digital photography is a development of traditional photography).

I believe that digital film is the same kind of 'thing' as traditional film and its predecessors, and that choreutoscopes and phenataktoscopes are similarly related to their own predecessors, magic lanterns and shadow puppet plays. They are all displays of *motion pictures* – or moving images – and while any two examples of the category may appear quite different, there is evidence of a linear development through history, particularly from the beginning of the nineteenth century. I agree with Manovich that the latest technology has asserted the dominance of animation over film, and reversed the relationship that persisted through the twentieth century. For all my criticism of Carroll, he had a seer's vision in stating, '[t]he epoch of photographic film...may represent nothing but a brief interlude in the artform' (1996: 122). Ultimately, however, Gaut's description of the many kinds of cinema is the most convincing. Cinema, and moving pictures, have existed for centuries, and the current sovereignty of animation in digital imaging serves as a reminder that the moving picture pre-dated photography. What is a film? A series of pictures in motion. What is a digital film? The latest incarnation of the motion picture. Motion pictures can, as Gaut claims, be produced by objects, hand, or machine, but nonetheless belong to the same ontological category.

The concept of film is currently in crisis, as it was eighty-odd years ago when the 'talkie' replaced the silent film. The talkie was seen by many as a threat, or a different kind of art form, but increased the opportunities for expression in the established art of film. The digital revolution has enriched the art form no less – perhaps even more so – returning the motion picture

to its roots in animation, and creating new horizons for expression. Digital technology has created new possibilities for interactivity and mass-produced virtual reality. The consequences of virtual reality ‘total cinema’ and the threat of interactivity to the traditional unity of the art work are beyond the scope of my inquiry, and may produce questions to which a contemporary answer would be premature. At this point in the second decade of the twenty-first century, however, digital film remains – like traditional film and its predecessors – the art of moving pictures.<sup>10</sup>

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