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The Black Screen
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Recent decades have seen a massive increase in the number of screens in the world, the range of contexts within which they appear, and the types of content they display. Almost all, however, at some point display full frame blackness. Though it appears irregularly and often also briefly, the black screen provides the diversity of contemporary screen media with at least one element of visual continuity. At the same time, the black screen is itself a metonym of this diversity. It can appear through different combinations of techniques: for example, it may result from filming a dark space or a black surface, it may be computer generated or colour graded. It can exist in different environments: from online platforms, through art galleries and cinemas, to shopping centres and stadiums. It can even take on different visual characteristics: for example, the dust-flecked blackness of a film print, the light-polluted blackness of a video projection, or the specular blackness of a tablet. In short, the black screen is not one phenomenon, but a range of phenomena, activated across different forms of moving image through different technologies.

The black screen itself, however, communicates nothing beyond its own blackness. To communicate more than nothing, it requires context. Precisely what it is that a black screen signifies or evokes depends on this context – as the context changes, the blackness slips between different significations and evocations. In this chapter, I argue that the black screen's privileged status as a means of imaging nothing depends on its referential ambiguity, which raises the possibility that what we are seeing is not a space, not a representation, and perhaps not even media. In order to clarify the ways in which the black screen presents absence, I juxtapose it with the white screen. Underlying this comparison is a basic question: what gives the black screen its uniquely privileged status as cinematic nothingness? As Jacques Aumont observes, white also has a strong claim to signify nothing (Aumont 2012: 72). So why did black leader and fades to black become a default, not white leader and fades to white? In this chapter, I suggest in particular that the black screen owes much of its universality and its affective power to the fact that it encompasses both surface and space.

The black screen: functions

The quintessential manifestation of full-screen blackness in cinema is the 'fade to black'. The word 'fade' implies a physically disintegrating image, whose disappearance reveals an immanent blackness. Historically, however, the black screen was a relative latecomer to the repertoire of classical film style. Barry Salt notes that, in contrast to dissolves, which were a feature of magic lantern shows and so quickly incorporated into film style, fades only became common in the early 1910s (Salt 1983: 53).[1] Nonetheless, as early

as Gaumont's *La Vie du Christ* (Alice Guy, 1906), full-screen blackness already served to separate sequences. It has continued to do so ever since. By separating two shots, the black screen also prevents them from combining to generate meaning through montage. According to Deleuze, what becomes important when a moment of full-screen black appears is 'no longer the association between images, the way in which they associate, but the interstice between two images' (Deleuze 1986: 193). The role of black as an interstice is famously made explicit at the start of *Sans Soleil* (Chris Marker, 1983). Faced with a shot of three Icelandic children that refuses to combine with any other shot, the film-maker sandwiches it between black and accompanies it with a voice-over: 'One day I'll have to put it all alone at the beginning of a film, with a long piece of black leader. If they don't see the happiness in the picture, at least they'll see the black.' Of course, by naming the blackness and explaining his reason for using it, Marker slyly manages to incorporate the troublesome image of the Icelandic girls – and the black – into his narrative after all.

The black screen in *Sans Soleil* signifies an absence but constitutes a presence. The localised visual discontinuity that the black screen brings about serves the film's overall continuity: through separating, it joins. The combination of separation and connection is perhaps the black screen's most essential role. In documentary and fiction film in particular, the black screen typically appears outside the space-time of a film's diegesis (its *fabula*), so from a diegetic perspective, it does not exist at all. Yet it is integral to the narrative film's *syuzhet*, fulfilling a structural function equivalent to that of a white space in a book. Since the 1920s, its structural function of separating scenes and shots has been further codified to indicate the passage of time (Salt 1983: 195). This narrative codification, however, is itself indefinite: the black screen alone is never enough to communicate how much time has passed. A brief fade through black does not necessarily signify any different degree of temporal ellipsis than does the three minutes of black that separates the two acts of Jean-Marie Straub and Danièle Huillet's *Moses und Aron* (1974); how much time has passed can only be gauged retrospectively, from what comes after. In this way, the black screen simultaneously makes possible a suspension of narrative temporality and an indefinite extension of it.

Alternatively, and less commonly, a black screen may indicate 'pro-filmic' darkness. The translation of ambient darkness into on-screen blackness occurs through techniques including no lighting, a closed aperture, underexposed film, and digital manipulation. In this context, the black screen does not evoke nothing, indeed quite the opposite: though the viewer may see nothing, there is clearly *something* there; the blackness conceals it. In countless horror films, it is darkness itself that generates the threat, contradicting the claim made in Joseph Losey's *The Boy With Green Hair* (1948) that, 'There's nothing in the dark that wasn't there when the light was on'. Yet total pro-filmic or diegetic blackness is rare in narrative cinema and for the most part appears only briefly – for example, before a light is switched on, or as a camera passes an unlit foreground object. If an image fails to provide visual information for too long, narrative confusion may set in.

Unsurprisingly, extended pro-filmic blackness is most evident not in horror films but in art cinema and artists' film and video. For example, as the details of the serial killer story in Philippe Grandrieux's *Sombre* (1998) get lost in the shadows, what – on the white page of a filmscript – may have been sllightly clichéd becomes indistinct and intriguing. Indeed, beyond a certain point, diegetic blackness transforms a narrative film into an experimental film. Such is the case with Shinya Tsukamoto's *Haze* (2005), which communicates minimal visual information for almost its entire duration. Set in a dark underground space, from which there appears to be no escape, it presents a glimmer of light here, a fragment of texture there, but mainly just blackness. The only thing that keeps the film nominally within the confines of narrative cinema is its richly foleyed soundtrack. It is this that tells us all we need to know: the size of the space, the distance of potential threats, the movements of the main character, and his reactions.

Tsukamoto immerses his main character in darkness, disorienting both him and us. Is he almost free or just crawling in circles? It is impossible to know. When flattened into full-screen blackness, different dark spaces become indistinguishable, and edits become imperceptible – any shot ending with black can seamlessly combine with any shot beginning with black.[2] Despite the rarity of the black screen in early cinema, films exploiting its ability to create an illusion of continuity are evident as early as *The Big Swallow* (James Williamson, 1901), in which a performer appears to swallow the cameraman filming him. The film begins with a gradual zoom into the gaping darkness of the performer's mouth; once this blackness has expanded to fill the screen, the film cuts to another black frame, into which the small figure of a cameraman appears from below; the cameraman then topples over and exits the bottom of the frame, as if falling into the performer's mouth. The use of black to create false continuity has continued ever since. For example, in *Ivan's Childhood* (Andrei Tarkovsky, 1962), a dark bunker becomes the site of a torchlit journey through Ivan's traumatic memories; fragments from his past merge with each other through black, reflecting memory's tendency to flatten time and space. Black can also make possible seamless collages as well as montages, erasing the joins between video clips composited together within the same frame. In Phillip Toledano's looping web video *The Louniverse* (2013), images of the video-maker's daughter Loulou looking at an iPad, her face lit by the screen, fade in and out of black, creating the impression that there are constellations of Loulous suspended in the blackness of outer space.[3] The black here exists both between and behind the collaged shots of Loulou's face.

The metaphor of the black screen as an underlying presence that may occasionally become visible in the gaps between images is so fundamental to moving image culture that it is has even been integrated into digital editing software. In an editing 'sequence' or 'timeline', any space not occupied by a video clip appears as black. Black is literally coded into digital video – until a sequence is finally rendered and all its layers flattened, black forms the default background. Rather than blackness concealing pro-filmic reality, images here overlay an underlying blackness. Though most of the time this 'base' layer remains latent, it can surface, for example, as a fade to black, as

the black frame of a letterboxed or pillarboxed image, as a black background to white text, and so on. Even web videos, somewhat anachronistically, often begin and end with a fade – as if, in the absence of a darkened auditorium, the video must generate its own originary void.

Of course, the use of black as a visual base for film and video is a choice; alternatives exist. Ingmar Bergman's *Cries and Whispers* (1972) features fades to red. The television series *Six Feet Under* (2001-5) features fades to white.[4] The sense that white forms an alternative base for moving images is also present in the title credits of Stan Brakhage's early films. Like many films, they feature white text on a black background. However, this text does not appear as if printed onto the black; instead, the lettering is scratched out of the emulsion on the film print in front of our eyes, through stop-motion animation. The scratches let through the white light of the projector, so revealing a further base layer underneath that of the black screen: the *white screen*.

The black and white screen

White is both the light of a projector before a film is threaded through its gate and the blank surface of a movie screen. So it seems quite feasible that, sometime in the early twentieth century, cinema might have chosen white instead of black as its default base. Had it done so, much of what I have so far written about black could instead have been applied to white. Indeed, of all colours, only black and white appear as opposites. This intimate relation renders them reversible and interchangeable, as demonstrated by numerous works throughout the history of moving images – from Hans Richter's abstract animation *Rhythmus 21* (1921) to Susie Sie's macrophotographic video *Black* (2010). Richter described the opening of *Rhythmus 21* as follows:

> The first shot was just the dark film screen, then it was pressed together from the sides so that in the end it was completely white. When it opened again, it was from the top and bottom, and it became completely black again, then from one side diagonally and so on. Now, after this introduction, I had established a kind of 'no-form' movement, and I allowed myself to take parts of the screen, and that means rectangles, as the screen is rectangular, or squares, moving parts of the screen against each other. They look like rectangles or squares because you have to limit the movement of the space somehow, otherwise you always come out with the black or white canvas – the film projection canvas. (Richter 1971: 131)

The film ends with a black square shrinking in size until all that is left is the surrounding white; the white screen then inverts to become a black screen, which again becomes a shrinking black square which leaves behind a white screen. Black and white here exist in a symmetrical relationship, each in a continual process of transformation into and out of the other. The sense that black and white are cinema's dual limits achieves extreme expression in Norman McLaren's *The Flicker Film* (1961) and Tony Conrad's *The Flicker* (1965), whose rapid alternations between black and white frames form both

the *ne plus ultra* of abstract cinema and a figurative return to cinema's dual origins.[5]

But if black and white are symmetrical, why do we say 'black and white' not 'white and black'? The terms are not interchangeable, because black and white are not interchangeable. The symmetry of *Rhythmus 21* is just an aesthetic effect. To create the film, Richter placed cut-out shapes on layers of glass, moving them towards and away from the camera; he then used optical printing to create the reverse images (Rees 2011: 38; Bachmann & Mekas 1963-4). Yet even though the main axis of production was depth, the sense of 'z-axis' motion is absent from the film itself. Rather than appearing as a window on a perspectival view, as in a Renaissance painting, *Rhythmus 21* appears a flat surface, as in an abstract painting (Friedberg 2006; Lawder 1975: 49-51). In abstracting the three dimensions of physical space into the two dimensions of graphic space, Richter also renounces the use of light and shadow to articulate depth. In *Rhythmus* 21, white is white, not light; black is black, not shadow. For this reason, they can exist in balance.

Whenever white and black form visual expressions of light and shadow, however, their symmetry breaks down: the 'negative' image becomes qualitatively distinct from the 'positive'. In Jean Cocteau's *Orphée* (1950), as Orpheus sits in the back of a car with Death, the passing landscape suddenly appears in negative. By inverting the grey and clear areas of the film through optical printing, Cocteau transforms the landscape into an impossible space of black light and white reflections – a mirror image to the laws of optics. In its alternation between positive and negative, the landscape foreshadows Orpheus's later passage through a mirror into the underworld and back. The film's internal logic is flawless: if life and death are reversible, then why not light and darkness? However, in a world where life and death are not reversible, Cocteau's negative image demonstrates Jacques Aumont's point that light and shadow are asymmetrical – not least because light requires a source and darkness does not (Aumont 2012: 10).

The black screen: forms

The cinematographic asymmetry of black and white is an extension of the asymmetry between shadow and light. But there is also asymmetry between how black expresses darkness and white expresses light. Black can evoke a black surface, a dark space, or a combination of both. By contrast, white is most often perceived as a surface characteristic: as Wittgenstein remarks, 'We say "deep black" but not "deep white"' (Wittgenstein 1977: 37e).

The ability of the black screen to evoke surface or space, and the ambiguity that may result, dates as far back as cinema itself. The earliest surviving experimental film strips by W. K. L. Dickson, made in 1889 or 1890, are of a man dressed in white on a black background (Mannoni 2000: 30). The black background was a recurrent motif in the early Edison and Dickson films.[6] It was made of tar paper, and formed an integral element of the revolving Black Maria studio, set up by Dickson in 1893. According to Dickson, the use of

black prevented light spillage and provided figures with a clear outline (Dickson & Dickson [1894] 2000: 22). Though technically effective, this pragmatic choice resulted in a certain phenomenological ambiguity. One journalist visiting the Black Maria likened the tar paper to a 'dead black tunnel' (Musser 1991: 32). Surface here is transposed into a spatial metaphor, with the inevitable dash of symbolism that no jobbing writer could have resisted. In his own description of the background, Dickson inverted the metaphor from space back to surface: 'Against the nether gloom... figures stand out with the sharp contrast of alabaster basso-relievos on an ebony ground.' (Dickson & Dickson [1894] 2000: 22).

Of course, the ambiguity between dark space and black surface is not a specifically cinematic effect and does not require visual media to be felt. The blackness of a black surface is a result of its absorption of light sources, while the blackness of a dark space is a result of an absence of light sources. It can often be impossible to distinguish how much of the blackness that we perceive is due to one or the other. The uncertainty of where spatial darkness ends and material blackness begins is embedded in language (for example, 'pitch black' and 'inky darkness') and thus also in our cultural understanding of what blackness and darkness are (Harvey 2013: 13). Jun'ichiro Tanizaki provides a particularly evocative example of the ambiguity between black surface and dark space in his famous celebration of the shadows of a traditional Japanese home: 'A Japanese room might be likened to an inkwash painting, the paper-paneled shoji being the expanse where the ink is thinnest, and the alcove where it is darkest' (Tanizaki [1933] 1991: 33). In cinema, this metaphoric connection became material: on-screen shadow is deepest where the dye on a film print is thickest. The ambiguity here is both phenomenological and ontological.

Of course, one can always conceptually distinguish between blackness as a spatial and material phenomenon. Jacques Aumont does so by highlighting two manifestations of black: 'impression' and 'imprégnation' (Aumont 2012: 75). As an example of 'impression', he cites *Ode an IBM* (1978), in which performance artist Mara Mattushka smears cabbalistic runes onto a transparent surface in front of the lens; seemingly written in her own blood, the runes progressively overlay each other until almost the entire screen is 'inked' black. Aumont's example of 'imprégnation' comes from a scene in Orson Welles's *Othello* (1952), in which Othello lurks in the penumbrae and then emerges from a background shadow; the blackness here is spatial. Though Aumont's focus is aesthetic, his distinction reflects the two dominant ways in which cinematic black was generated before digital imaging: through the application of dyes to surfaces (sets, costumes, film prints, etc.) and through filming in such a way that dark space registered as black.

Visually, however, the conceptual and technological distinction between surface and spatial blackness is altogether more fluid. Aumont's use of the word 'imprégnation' perfectly evokes this visual fluidity. He uses it to describes a spatial blackness that is so thick it could almost be a liquid. At the same time, liquids can occupy surfaces as well as spaces: black ink may fill a bottle when wet, but cover a page when dry. The 'impression' of *Ode an IBM*

is achieved through the use of pigment in a liquid suspension, so in a sense both of Aumont's manifestations of black depend on liquidity – one metaphorically, the other materially. In addition, liquidity itself is a metaphor for changeability; in Greek myth, the shape-shifting Proteus was a sea god. The black screen's ability to represent surface and space could, then, be regarded as an intrinsically fluid characteristic. This fluidity is brilliantly visualised in Jonathan Glazer's *Under the Skin* (2013), in which an extraterrestrial's victims follow her into a Glasgow tenement only to find themselves in a black space. As each victim approach her, however, the visually indefinite – but so far solid – ground becomes a thick liquid. With each step he sinks further into it, until its surface engulfs his body and he is literally immersed in darkness.

Once black pigment dries and becomes solid, even further visual ambiguity between black surface and dark space becomes possible. For example, the monolith in *2001: A Space Odyssey* (Stanley Kubrick, 1968) appears, both on Earth and on the Moon, as an object – something that can be touched, albeit with unknown consequences. Yet its black surface also appears just too perfect to be material; like a black screen, the monolith constitutes both something and nothing. This is the opposite of the effect achieved by Ad Reinhardt's black paintings of the 1960s. Reinhardt's paintings exemplify Clement Greenberg's celebration of flatness in abstract expressionism: their interest derives from the surface texture of the black paint, and the way in which it reflects light (Greenberg 1961). In contrast to the subtle materiality of Reinhardt's paintings, the surface of the monolith effaces itself, appearing as pure black. To achieve this effect, Kubrick's crew constructed fourteen wooden models, spray painting each with several layers of black lacquer, before finally managing to make one without any visible surface texture. Even then, the blackness of the model remained precarious. Unlike the monolith, it could not be touched. Production designer Tony Masters notes that it needed to be handled with gloves; every time someone left a fingerprint on it, the whole surface had to be resprayed (Shay and Duncan 2001: 89).

Over recent years, the goal of creating a surface that negates itself has been approached through the use of carbon nanofibres, resulting in black surface coverings so smooth that they absorb up to 99.96% of incident radiation.[7] The blacks of 'nanoblack' and 'vantablack' show no trace of their materiality, effectively appearing as a void.[8] The use of nanoblack surface covering would probably have made life much easier for Kubrick's crew, but could surely not have created a more intense feeling of blackness than that which already exists when the monolith reappears at the end of the film in the Louix XIV bedroom. The camera tracks towards the monolith until it fills the screen, in a shot that evokes the *mise-en-abyme* of *The Big Swallow*, but without a comedic cameraman to provide a buffer between viewer and void. Instead, through an implied point-of-view shot, the viewer accompanies Bowman into the monolith. As the black rectangle fills the screen, its darkness extends out into the space of the auditorium. Trading on the fluid ontology of the black screen, the monolith appears as surface *and* space together, simultaneously.

The white and black screen

This chapter has so far focused mainly on how black functions within moving images. When seen in relation to the various spaces in which it is displayed, the black screen takes on additional – similar but different – characteristics. In the 'black box' of a cinema or art gallery, for example, as well as concealing the boundary between contiguous shots, blackness may obscure the boundary between on-screen space and the exhibition space. Bill Viola's installation *Tiny Deaths* (1993) presents three walls of projected blackness, out of which ghostly monochrome figures intermittently emerge, only to disappear in an overexposed flash of light. The sense that the void-like blackness of the three screens exists in continuity with the darkness of the viewing space is augmented by the fact that each screen is the size of the wall. The edges of the wall merge with the edges of the image; surface and frame both appear indistinct, and the screen approaches invisibility.

Aumont emphasises the tendency in films for black backgrounds to form spaces out of which characters emerge. White backgrounds, however, seem to preclude this. In both the opening of Ingmar Bergman's *Persona* (1966) and the dream sequence in *From the Life of Marionettes* (1980), characters appear on pure white. In contrast to Welles's Othello, however, '[ils] n'ont pas pu surgir de ce blanc, ils y one été déposés' (Aumont 2012: 158). The metaphor of characters being deposited onto a white background finds parallels in other metaphors of white as a material base, notably 'the blank page' and 'the blank canvas'. Of course, white is a metaphoric surface because it is a physical surface. When making *The Flicker*, Tony Conrad generated black frames by leaving his camera's lens cap on, and white frames by pointing the camera at a white sheet of paper (Hamlyn 2003: 65). The blackness of Conrad's film is both surface and space: the black of the lens cap merges with the darkness inside the camera box. The white, by contrast, lacks this ambiguity: it is an image of a white surface.[9]

The white or near-white surface forms a material base for all technologies involving subtractive colour mixture, notably the graphic arts: drawing, painting, and printing (including photographic printing). It has also historically formed a material base for cinema. Projected images depend on the reflectivity of the white cinema screen to be seen; project an image onto a black surface and it approaches invisibility. Cinema's historical reliance on reflective light brings with it a physical limitation that helps explain the preference of screen media for black screens over white: though billed as arts of shadow and light, film and video are much better at capturing the nuances of shadow than those of light. If we look in the same direction as a bright light source, 'catching' it as it bounces off a white surface, we miss the delirious, joyous, and potentially dangerous sense of immersion that we get when we look towards the light. At one point in Jean-Luc Godard's *Alphaville* (1965), a spotlight shines directly at the camera. It must have been uncomfortable to film – though not as uncomfortable as the experience of seeing Francis Picabia's set for the Dada ballet *Relâche* (1924), which comprised 30 spotlights shining directly at the audience (Baker 2006: 93). On-screen, however, the retina-searing intensity of the spotlight resolves as white. Filmed

in high contrast, so that the light becomes white and the background black, the shot of the spotlight appears more graphic than cinematographic. Aesthetically and affectively, it shares more with the white on black dots of Guy Sherwin's *Phase Loop* (1971) than an actual spotlight.

As it reaches maximum intensity, on-screen light flattens to become a white screen (Aumont 2012: 158). This transformation achieves its ultimate expression in Hiroshi Sugimoto's time-lapse photographs of films playing in movie theatres, which superimpose exposure onto exposure, image onto image, until all that is left of the film is an empty square of white on the photographic print. Projected light becomes uninked paper. Sugimoto's *Theaters* photographs play on and highlight the fact that whiteness is only equatable with nothing in subtractive colour space, in which images result from the application of pigments to a white or near white surface. The photographs also highlight another characteristic of the white screen: in a cinema, it is clearly bounded. The dark surrounding walls form a frame that highlights the screen's presence within the viewing space, and so also its flatness. Whenever a projected image approaches the sensory overload of pure light, it hits a double limit: that of its frame as well as its reflectivity.

The black screen's visual limits are less obvious but equally material: though it may signify and evoke nothing, the black screen cannot *be* nothing. Sean Cubitt summarises the relation between black and nothing as follows:

> As nonpresence, black / presents nothing. In Aristotelian logic, everything that exists is selfidentifcal... The mathematician Frege (1848-1925) drew on this concept to coin a new definition of the number zero, which, as "nothing," does not exist and cannot be present. If every *thing* is selfidentical, then zero denotes no-thing, the nonidentical. Black has the same quality. In its sheerest state, the absence of all radiant or reflected light, it is pure nonexistence. As with zero, black exists only where nothing exists... (Cubitt 2014: 42-3)

In contrast to the white screen, which always highlights its material base, the black screen should – when viewed in a dark space – be invisible. However, in reality, as Cubitt continues, nonidentical blackness is impossible to achieve:

> Black has the specific quality of being only ever virtual. Natural luster, imperfect pigments, ambient light, and neighboring colors all inflect surfaces we perceive as black: achieving solid, lasting blacks takes considerable effort, the more so the more we deal with screen media that either reflect or emit light as the basis of their working. (Cubitt 2014: 21)[10]

Cubitt's analysis of the unattainable, 'virtual' nature of black leads him to conclude, 'Because *being* black is never an actualized event, we must speak of *becoming* black.' This view contrasts with Richard Harvey's assertion that there is no such thing as pale black or bright black; either something is black or it is not (Harvey 2013: 8). In one sense, Harvey's point is the same as

Cubitt's: black is a chromatic limit. At the same time, by asserting that black can only be black, Harvey overlooks at least three millennia of material struggles and failures to achieve blackness. Black screens epitomise this failure: generated through light, they are never quite black. Not nothing, they merely evoke it. Rather than negating themselves into nonidentical blackness, they constitute a range of luminous near-blacks achieved through a variety of additive colour technologies. Even the same display technology may result in drastically different shades of grey passing for black. In Thierry Kuntzel's installation *Nostos II* (1984), images from the 'same' source (Max Ophuls's 'black-and-white' film *Letter from an Unknown Woman* [1948]) are interpreted in nine different ways by nine seemingly identical video monitors. Needless to say, none come close to achieving nonidentical blackness. The light that makes moving images possible is always present within on-screen black. On screen, even Kubrick's monolith is grey.

The luminosity of black screens limits their ability to disappear into nothing in dark exhibition spaces. The sense of seamless continuity between screen space and viewing space achieved by *Tiny Deaths* is a rare and sophisticated illusion created through a combination of elements: the use of high contrast reversal film, the complete exclusion of ambient light from the gallery, and – crucially – the transformation of entire walls into screens. By contrast, when faced with the black wall that borders a cinema screen or the black bezel that borders a tablet display, on-screen black appears lighter than its surroundings. Cubitt's classification of black as a virtual colour finds its parallel in Anne Friedberg's metaphor of the screen as a 'virtual window': like the white screen, the selfidentical grey-black screen also 'reduces the outside to a [visible] two-dimensional surface… at once surface and frame' (Friedberg 2006: 1).[11]

A common trick to help us perceive grey as black involves contrasting it with white. For example, the impression of darkness in *The Third Man* (Carol Reed, 1949) was achieved through the contrast of shadow areas with bright highlights. Cinematographer Robert Krasker made use of arc lights so strong that they were subsequently used to light St. Stephen's Cathedral (Drazin 1999: 73). By extension, perhaps the most effective viewing context for on-screen blackness is not the 'black box' of the cinema but its opposite: the 'white cube' of the art gallery.[12] The grey-black screen appears as an absence within a field of white. Of course, a white cube also brings to light the technological apparatus that makes moving images possible (CRT monitors, plasma screens, LCD screens, and so on), so emphasising that the black screen is physically *something*. Nonetheless, with ultra-thin frames and glare-free displays, contemporary LCD monitors are coming closer than ever to physically negating themselves. The result, as seen in much of Viola's recent work including *Martyrs* (2014), is displays whose combination of presence and absence comes uncannily close to that of the monolith. It is surely no coincidence that the blackness of the monolith at the end of *2001* is itself augmented by the fact that it appears in a room with white walls and floor – in other words, a white cube.[13]

Conclusion

In Werner Herzog's *Lessons of Darkness* (1992), a helicopter films the massive oil spills that resulted when withdrawing Iraqi forces uncapped Kuwaiti wells at the end of the Gulf War. At one point, it flies so low that blackness fills the screen. The film uses this opportunity to conceal a fade to black: 'diegetic' black imperceptibly becomes 'non-diegetic' black. In my own film *Rohmer in Paris* (2013), immediately following a key revelation, there is a cut to black. The black lasts quite a long time, about seven seconds, so as to release viewers from the flow of images and allow them time to reflect on what has been said – too long, unfortunately, for one projectionist, who decided this signified the end of the film, and so raised the house lights. After a few moments of uncertainty, the nothingness of the black – for him – resolved to signify 'no film'. Powerless to reverse this, I watched the film's grey-blackness fade to the white of the cinema screen, until indeed no film was visible. The black screen's signification of absence always risks spilling out to signify absence in a more fundamental sense: from 'no visibility' to 'no images', and from 'no images' to 'no media'.[14] But if it is only ever possible to 'become' black rather than 'be' black, when does the black screen come closest to the nonidentical absence of pure blackness? Despite the various ways in which film-makers use full-frame blackness to evoke absence, ultimately a screen only approaches the void-like blackness of the monolith when it is turned off. Only then does it move beyond evocation, and instead manifest moving images' most fundamental absence of all: no power.

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[1] The use of fades to black to indicate the end of a film was virtually unknown before 1912 (Salt 1983; 292).

[2] Digital colour grading makes such segues far easier to achieve. As Lucian Castaing-Taylor and Verena Paravel discovered when making their GoPro fishing documentary *Leviathan* (2012), if you reduce gamma and increase contrast, any dimly lit image can be transformed into 'deep' black.

[3] http://thelouniverse.com

[4] Because of their rareness, fades to white usually signify something. For example, in *Six Feet Under* they always follow a death, so perhaps evoking the soul's immersion in a heavenly light.

[5] The paradigm of black and white as colour's visual limit points has a long genealogy, from Aristotle's belief that black and white were the two primary colours to Alberti's emphasis on black and white as the dual 'moderators' of colour in painting (Misek 2010: 5).

[6] Dickson's experiments of 1890-1 also involved a black background, as did various subsequent milestones in the Edison Manufacturing Company's evolving moving picture technology, including *Blacksmith Scene* (1893) and *Fred Ott's Sneeze* (1894).

[7] http://www.surreynanosystems.com/news/19/, accessed 11th Aprl 2016.

[8] A black surface covering using carbon nanofibres was first developed by artist and scientist Frederik De Wilde, in collaboration with Rice University and NASA, and exhibited in the form of his 'Nano Painting' series from 2010 onwards; http://www.huffingtonpost.com/2014/05/07/frederik-de-wilde_n_5275760.html, accessed 11th Aprl 2016. It has since been independently developed and commercialised in the form of Vantablack by UK-based Surrey Microsystems, and – controversially – exclusively licensed for artistic uses to Anish Kapoor; https://news.artnet.com/art-world/anish-kapoor-vantablack-exclusive-rights-436610, accessed 11th April 2016.

[9] The most common spatial use of the term white, 'white light', is a misnomer. White light is a full-spectrum radiation whose invisibility makes possible full colour perception; it is only called white light because it provides the conditions under which white surfaces appear as white.

[10] Cubitt's claim that black is an unattainable 'virtual' colour also sees its inverse counterpart in a discussion between Olafur Eliasson, Mark Wigley, and Daniel Birnbaum on the elusiveness of pure white paint. Wigley draws attention to Kate Ericson and Mel Ziegler's 'MoMA Whites' exhibition, which involved going into the MoMA archives and cataloguing all the slightly different 'white' paints chosen by different curators for their exhibitions (Eliasson 2006: 245).

[11] Ever alert to the nuances of exhibition contexts, Viola often exploits the commonality between the glass of the LCD screen and that of a window. For example, *The Dreamers* (2013) features seven videos of people posing eyes-closed, underwater, on a black background. Though accompanied by gentle sounds of water, the images are emphatically not 'immersive'. Rather, it feels as though one is looking at them through the glass wall of an aquarium.

[12] Catherine Fowler summarises the spread of film and video into galleries since the 1990s as a move from 'the black box auditorium... into the light of the white cube'. Her use of the terms without quotation marks reflects the fact that they have long since become a familiar shorthand for distinguishing exhibition contexts (Fowler 2008: 259). But precisely what exhibition contexts do they distinguish? The juxtaposition of 'black box' with 'white cube' maps at least three distinctions onto each other: between cinema and art gallery, between dark and light viewing conditions, and between black-walled and white-walled rooms.[12] In a sense, 'black box' and 'white cube' can perhaps best be thought of as the two poles on a spectrum of exhibition conditions (black walls and dark space on one end, white walls and white light on the other) and not as interchangeable opposites. This is how I refer to them here.

[13] In the context of a cinema screening, the relation of black and white at the end *2001: A Space Odyssey* takes on a recursive dimension. The white cube of the room that encases the black box of the

monolith is itself engulfed by blackness; but as the camera zooms in to the monolith, this innermost black box extends to absorb the white cube of the room and implicitly encompass the outermost black box of the auditorium.

[14] Certain display technologies have found ways to pre-empt this ambiguity. For example, when no signal passes through a projector, the display defaults not to black but to blue. The versatility of black as a signifier of nothing across diverse media here necessitates the use of another colour to signify no signal.