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# Smooth movement/Frenetic motion/ flicker – *Vice Versa Et Cetera*

## Keywords

avant-garde film  
experimental video  
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flicker  
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time-based media

## Abstract

*This article reviews a variety of compelling motion effects in a series of canonical avant-garde films and experimental videos, with a view to contextualizing the author's own recent digital video work Vice Versa Et Cetera. It begins with the smooth but perplexing movement in two key examples of video art drawn from the pioneering work of Woody Vasulka, in the 1970s, and David Larcher's high-end video works of the late 1990s. These videos are contrasted with an account of the 'flicker effect' in films that span avant-garde films of the 1920s through to Paul Sharits' films of the 1960s, in which striking optical/stroboscopic phenomena dominate movement. The third point of reference concerns the perception of 'frenetic motion' in a range of works where the illusion of movement seems to resolve itself, or break through, despite the radical discontinuity between frames. The discussion of these films and videos, which define three different models of time-based imaging, provides grounds for the account and description of the perceptual phenomena in the author's own work.*

The most recent video that I have made, entitled *Vice Versa Et Cetera* (2010), explores the threshold of apparent motion, colour/tonal variation and flicker, and follows on from my previous computer-generated abstract works. But it also sprang from an aborted attempt to make a new work with camera-recorded imagery. I had been looking, for a long time, at some footage that I had shot, imagining that it made for promising material. The footage showed a patch of a white wall covered by shifting shadows, comprising hard horizontal and vertical stripes, cast by a venetian blind, and diffused shapes made by the leaves of trees swaying in the breeze. Like multiple miniature offset shutters, the lurching movements of the leaves cut out the sunlight, producing a frenetic pattern of animated geometric shadows. My decision to ditch this material was based on the conclusion that the act of recording brought nothing to it, and that there was nothing I could add by editing or manipulating the footage. The flickering motion of the shadows was a captivating animation in its own right. Realizing this confirmed to me that one has to work outwards from one's medium in order to add something to the world. In this light I was prompted to look again at the ways in which various film- and video-makers have produced compelling motion effects by working in accordance with their medium.

This article begins with an account of a number of key experimental films and videos – going back to the early abstract films of Walter Ruttmann and Oskar Fischinger – which each give rise to phenomenal and unique motion effects. The works that I discuss involve a range of paradigms, involving complex single-frame structures through to electronic manipulation. The common trait that they share concerns the way that they undermine percepts of form and movement. Thinking about the relationship between the characteristics of these works and their medium, in terms of the demands that they make of the viewer, has informed my own practice. In the latter part of the article, I describe and account for the form and structure of *Vice Versa Et Cetera*, outlining the value of works that upturn the illusion of movement that cinema, television and time-based imaging tend to reproduce as a matter of course.

The phenomenon of apparent motion, in film and video, ordinarily involves forms moving across the frame or into the imaginary depth of the screen. In contrast, pioneering video artists, including Woody and Steina Vasulka and David Larcher, have made works that involve the container of the image, the frame itself, being set in motion. Using different video technologies, and for different ends, the Vasulkas and Larcher have exploited the malleable nature of the electronic signal that usually plots the video image in relation to the four corners of the screen. Instead of reproducing instantly recognizable images of the world, they manipulate the video signal to produce moving frames that are contorted, paradoxical and confounding.

In *C-Trend* (1974) Woody Vasulka used the purpose-built Rutt Etra scan processor to skew the raster of scan lines that constitute the video image.<sup>1</sup> The footage that he used would originally have shown an ordinary picture of a busy street – the soundtrack of passing cars and trucks still describes

1. *C-Trend*, along with many other works by Woody and Steina Vasulka, can be viewed at <http://www.vasulka.org/>

the location – but the analogue electronic processing of the signal completely transforms the image. What would have been a flat two-dimensional picture appears as if tilted and lying on a three-dimensional plane. The component of the video signal that usually represents brightness was also processed, affecting the vertical deflection of the horizontal scan lines: rather than representing the illumination of surfaces in the depicted scene, the voltage of the signal makes for abstract undulating contours. The time-base of the processed image represents a one-to-one relationship with the recording, but the movement of the traffic is remapped, as the raster itself becomes an animated feature, rolling and twisting across the screen in flowing waves to make wondrous chrysalis-like shapes.

In contrast to the Vasulkas' early analogue videos, David Larcher's work has manipulated the plane of video imagery via high-end, post-production systems. To some extent Larcher's videos are actually produced in this environment, rather than 'post-produced'. The example described in the following passage, from *Ich Tank* (1997), presents a particularly complex realm of multiple frames, which is representative of Larcher's work and emblematic. Halfway through the piece, having already led the viewer through numerous extraterrestrial electronic landscapes, the virtual camera comes to rest in front of a rotating platform: a frame of video imagery laid out on a flat plane, in depth, spinning on its axis. On one of its edges stands a circular windowpane, which a small colourful bird taps on repetitively. Opposite the window is a golden cube radiating goldfish. Beside this are two more disks, or balls, each displaying a shot of Larcher's crotch. And in one corner of the flat plane stands Larcher himself, as a figurine, reciting passages from Lacan's seminars. Another frame is wrapped around this entire scene, like the drum of a zoetrope, acting as a backdrop rotating in time with the spinning horizontal plane that provides the stage. The composition is a mad conglomeration, but the constructed environment is completely coherent in so far as the movement of the various forms, planes and frames are correlated and precisely synched: as the stage rotates we see the other side of the windowpane and the golden cube; the figure of Larcher diminishes and then returns; and the circular crotch-shots revolve so that they always appear full frontal. The movement of the various planes is smooth and continuous, as is the reconfigured raster image in Vasulka's *C-Trend*, but both examples represent the Cartesian coordinates of the video image in a wholly unexpected order.

The antithesis of smooth movement is flicker, a phenomenon that is recognizable to anyone who has some familiarity with a film projector. The mechanism of the film projector's shutter intermittently blocks out the light of the bulb as the filmstrip is pulled through the projector. Ordinarily, film projectors run at a high enough speed to produce a seamless continuity between frames and the illusion of smooth movement, but if the frame rate of the projector is slowed, the pulse of intermittent light becomes a discernible flicker. In the context of experimental film, the phenomenon of flicker has heralded a minor genre. The two most notable examples of the 'flicker

film' are Peter Kubelka's *Arnulf Rainer* (1960) and Tony Conrad's *The Flicker* (1966). The alternating black and white frames in these films makes for stroboscopic sequences and intense afterimages. In addition to producing stimulating perceptual effects, the aesthetics of these films also refer, metonymically, to the shutter and intermittent light of the projector. Unlike film projectors, digital projection technologies have no shutter. The light source is not ever necessarily interrupted, and in any given period the illumination of any individual pixel, or group of pixels, is capable of constancy as much as change. While film involves the projection of a series of discrete images, with blank intervals in between, digital video imagery rests on fractional variations in the state of the individual pixels on the surface of the screen. And while the discontinuity of film technology might be said to have heralded the grammar of cutting, which finds its most resolute expression in the flicker film, Gene Youngblood has suggested that digital imaging fosters an aesthetics of transformation and metamorphosis ([1989] 2003).<sup>2</sup> Transformation and metamorphosis – and movement, which can be considered a subset of transformation – are produced via incremental changes in the state of the screen's pixels over time. In contrast, the maximum change in the state of the screen's pixels, from moment to moment, produces either noise or flicker: noise is the result of random changes in the state of individual pixels; flicker is the result of clashing images or colour fields. Digital video sequences can induce flicker then, but it is an effect founded on the capacity of the technology (for outputting rapid sequencing) rather than the defining characteristics of the medium per se.<sup>3</sup>

Smooth movement and flicker constitute the two poles – binary opposites – of time-based imaging. Frenetic motion, which brings into play the continuity associated with smooth movement and the discontinuity that produces flicker, is the third phenomenon that I want to discuss. What I am calling frenetic motion refers to the impression of quick movement, of uncertain trajectory, that cannot necessarily be ascribed to any given form or object. The effect chimes with the phenomenon of phi motion, originally described by Max Wertheimer as the perception of objectless, disembodied or 'pure' motion, but what I mean to evoke is an unlimited set of complex effects rather than an isolated physiological or psychological phenomenon.<sup>4</sup> What strikes me as intriguing about frenetic motion is the paradox that it produces, which makes it difficult to describe, or even ascertain, what one perceives. Ordinarily, one ascribes motion to a specific form, but faced with frenetic motion, the spectator is at a loss to define the object of perception.

The two films that I have mentioned above both give rise to frenetic motion. But in another flicker film, Paul Sharits' *Piece Mandala/End War* (1966), the phenomenon of frenetic motion is built into the structure of the work, and constitutes a central theme. A couple appear in the film, a man and a woman, but in two different positions, in separate frames. One couple lie with their heads at the right of the screen, and at the beginning of the film they are kissing. The other couple lie the other way around, with his head in her lap. By the end of the film, which is five minutes

2. The flow that is often attributed to analogue video is preserved in Youngblood's account of digital aesthetics, despite the fact that the parameters of the signal are quantized.
3. The particular quality of digital flicker differs from one type of projector or screen to another, and it is different again to film flicker. In turn, the quality of both digital and film flicker is specific to the conditions of viewing. In addition to the sensitivity of the spectator, the brightness of the projector bulb, the size of the screen and the relative darkness of the auditorium can heighten or diminish the effect of flicker.
4. 'Phi motion' is discussed in Wertheimer's *Experimental Studies on the Seeing of Motion* (1912) (see Anderson and Anderson 1993). Beta motion, which refers to the apparent motion of a specific object, or stimulus, from one point to another, is associated with the ordinary illusion of movement in the cinema.

5. The copulating couple might also be thought of as a metaphor for the additive colour mixing in this film.

long, the male partner, in each couple, has shifted from one position to the other. The film alternates between these two images, in different rhythmic patterns that also incorporate pure colour fields of first blue, then yellow and blue, and then a range of colours. The frenetic sex that is depicted is purely filmic: an illusion produced by the mechanics of the medium, consisting of the technology of the projector and characteristics of the filmstrip in tandem with the eye and the brain. Another significant feature of the film is the horizontal division, which splits each of the frames that the couples appear in, with white or black either side of the bisecting line. With this the frenetic motion of the bodies is mirrored by the flip-flopping of white and black to above or below the horizontal.<sup>5</sup>

A key concept that underpins the aesthetics of many of Sharits' films relates to his account of film as a medium that involves vector-based and modular forms (Sharits 1978). The filmstrip that runs through the projector is a vector-based form that is continuous, while the intervals imposed by the projector's shutter impose a modular form that is discontinuous. Smooth movement could be seen as an effect that is founded on the medium's capacity for continuity, while flicker is an effect that refers to the medium's modularity. The frenetic motion in *Piece Mandala/End War* is the result of the two modes – the vector-based and modular – being interwoven.

Walter Ruttmann's early abstract films, *Opus I–IV* (1921–1925), also involve a counterpoint between continuity and discontinuity. This series of films explores an interaction between curvilinear and rectilinear shapes – and their associated movements – in an increasingly refined manner. In *Opus I* the principle forms include waves and fins that sail across the screen, penetrating triangles, rotating squares and a scanning beam. In *Opus II* the competition between curved and hard-edged shapes is heightened, and the frame is used more fully. The means of making the film (painting on glass) also becomes more apparent, producing an animated screening surface. In *Opus III* shapes have a tendency to transform. At the beginning of the film, sloping shapes shift across the screen and then straighten up to form squares, towers or pistons. Midway through *Opus III*, the contents of the frame are reduced to a single dissolving stripe. The stripe then transforms into a twisting corkscrew in silhouette, producing an abstract rendering of depth. In a later section the screen is consumed and divided by numerous pulsing stripes of varying width and tonality, which expand and contract at an accelerating speed that is difficult to keep up with.

The tension between curved and quadrilateral forms that is explored in *Opus I–III* culminates in *Opus IV*, which is the most dynamic and unified film in the series. The film begins with rolling black and white horizontal stripes stretching across the screen. In subsequent passages of the film, where a similar formation reappears, the white stripes look as if they might be slats in a spinning three-dimensional cylinder. On top of the horizontal stripes, white bars advance from either side of the screen, or expand from the centre, and then retreat. These lateral movements then give way

to a tilting scissor-like motion that swishes across the screen. Marking the end of the interplay between horizontal stripes and vertical bars, a massive black wave coalesces and works its way up from the bottom right-hand corner of the screen. The flowing waveform is batted across the screen from one side to the other, as if propelled by the edge of the screen. In the last part of the film the three principle movements are integrated: the rolling horizontal stripes and expanding vertical bars, which featured earlier in the film, are contained in the outline of the accelerated waveform. There are perceptual ambiguities concerning figure and ground in each of the primary elements of the film, but the impression of fluid, continuous movement is generally consistent, until this last phase of the film. At this point the multiplication of movement, at increasing speeds, makes it difficult to disentangle the relationship between movement and form. The cumulative effect is one of frenetic motion.

The counterpoint between smooth movement, frenetic motion and flicker in Oskar Fischinger's *Radio Dynamics* (1942) is even more phenomenal. In an early sequence of the film a series of diminishing circles consume the screen, but as they disappear they pass through a range of colours, from red, through orange and yellow, to green and black, producing a contrasting centrifugal ripple. In a subsequent passage a shifting pattern of multicoloured stripes and stretching squares is reprised. Clusters of diamonds then fleetingly appear; more stretching squares materialize, more rapidly, and in layered configurations, and then horizontal stripes and diagonal rectangles open out onto the plane of the screen. The screen is extraordinarily layered in this sequence, and it is infused with so much movement that it is impossible to disentangle the trajectory and orientation of the elements and the various planes in which the layering movement is conducted. The sequence does slow, as the multitude of shapes subsides, but then a series of dissolves set in, leading one plane to fade into another so that the defining characteristics of shape and movement are blurred and equally difficult to grasp. A pure flicker sequence follows with a series of single frames of coloured shapes – squares, triangles, circles, sometimes striated – on complementary backgrounds. The flicker effect is carried over into the next sequence of the film, which involves numerous frames comprising regular or irregular grids: some frames are divided four ways, using two colours; others are multicoloured mosaics. In this sequence there is not necessarily any correlation, from one frame to the next, that would suggest movement, but it is alive with frenetic motion.

The range of films and videos that I have discussed in this article plots the scope and limits of time-based imaging. Vasulka's *C-Trend* and Larcher's *Ich Tank* present two different models for mapping movement. The first of these explores the malleable nature of the electronic signal at the dawn of video art, while the profusion of moving frames in Larcher's work reflect a period when the video image could be infinitely multiplied and twisted with the aid of digital post-production.<sup>6</sup> The tensions in these works reside in the imaginary planes that they conjure, which

6. Video was increasingly becoming a digital technology at this point, but it was still essentially a linear medium, being stored on digital tape rather than as RAM accessible files on a computer. Rather than being built up on the timeline of a video editing programme, composited sequences were produced by re-recording onto digital tape in a number of passes.

7. Fischinger's notes on *Radio Dynamics* quoted on the website for the Center for Visual Music refer to his employing a number of new approaches in this film, <http://www.centerforvisualmusic.org/Fischinger/OFFilmnotes.htm>, accessed January 2011.
8. Each colour has a designated tone: the pitch, volume and stereo panning correspond to the luminosity, volume and course of the colour. The graphic score of the piece, which depicts every single frame of the video, also represents the dynamics of the soundtrack.

are antithetical to the normative mode of representation associated with moving image media. In contrast to these videos, which evoke sculptural paradigms in the way that they mould and model the frame, Kubelka's *Arnulf Rainer* and Conrad's *The Flicker* are distinctly optical. In their exploration of single-frame structures, involving either black or white in varying sequences and patterns, they explore discontinuous imaging at its most refined. Sharits' *Piece Mandala/End War* is often referred to as a flicker film, but it weaves together two filmic structures that are diametrically opposite, producing a distinctive frenetic motion effect as well as pure flicker. The serial nature of Ruttmann's *Opus* films works through a range of ways in which filmic movement might be propelled, and the degree to which different movements can be interwoven. Likewise, the different sequences in *Radio Dynamics* explore numerous filmic structures that produce smooth movement, flicker and frenetic motion. Fischinger's own notes on this film attest to its being a truly experimental one.<sup>7</sup>

There are various aspects of these films and videos that have a bearing on *Vice Versa Et Cetera*. As with a number of the works that I have discussed, the presiding form is the shape enclosed by the four edges of the frame – i.e. the screen – and it is the field of the screen in transition that propels the sense of motion. In contrast to the evolving image planes in the videos of the Vasulkas and Larcher, the structure of *Vice Versa Et Cetera* is built up through single-frame sequencing, and in this respect the structure is somewhat filmic. At the same time the distinction between film, video and digital media, in terms of the form-language that they inspire, is not necessarily a hard and fast one. The flowing motion in parts of *Opus I–IV* and *Radio Dynamics* prefigures analogue electronic wipe patterns, for example, and the quadrilateral shapes in these films resemble magnified digital pixels. Similarly, the binary patterns of *Arnulf Rainer* and *The Flicker* are proto-digital paradigms, as is the relationship between vector-based and modular forms in *Piece Mandala/End War*. (My point here is that one's medium is not solely determined by technology.) The most significant dynamic that I have traced in relation to the various works that I have discussed is the counterpoint between smooth movement and flicker, or continuous and discontinuous imaging. Any sequence of discontinuous imaging will produce unexpected optical effects, which sometimes includes frenetic motion, but the possibility of a critical tension arises where discontinuity is in counterpoint to continuous imaging. It is this tension that has been of most interest to me in my recent work.

The primary material in *Vice Versa Et Cetera* comprises ten different wipes or transitions – of two, three or four seconds – between six colours, plus black and white.<sup>8</sup> Transitions are usually used as grammatical devices, a means of moving from one scene or instance to another, but in this case they are a central component of the work. It is the form of each transition – the border between one colour field and the next, in relation to the edges of the screen – that propels the movement in the video. The ten transitions encompass wipes across the screen from left to right,

or right to left; circles radiating from the centre of the screen, or contracting; backwards or forwards swings, from hinges at one or other side of the screen; and planes that spin in three-dimensional space, rotating on the diagonal axes. In the first half of the video they follow from one colour to another in order of ascending or descending luminance: from yellow to cyan, cyan to green, green to magenta, magenta to red, red to blue, or vice versa. The initial stages of making the piece involved rendering numerous rows, each containing a different selection of transitions, but always following the same order of colours, beginning at one or other end of the spectrum. At the start of the piece, alternating frames from two different rows are woven together. One row begins with a yellow–cyan transition and the other with a contrasting blue–red transition. After each of these plays out, a third row is woven in, and so the pattern continues until the sequence comprises ten alternating rows, which marks the mid-point of the work. In the latter half of the work, the sequence begins to incorporate rows that comprise transitions from either white to black or black to white: every tenth frame is a frame from a white–black or black–white transition, and then every ninth frame, etc. The sequence of monochrome transitions that gradually replace the colour transitions actually consists of ten rows of alternating black–white/white–black transitions. As the piece works its way towards its conclusion, these rows are unwoven in a manner that mirrors the first half of the video.

The structure of *Vice Versa Et Cetera* was figured out and worked up along the way, rather than calculated in advance, but it is wholly coherent, and evidently so when watching the work. The clarity of the structure thus contrasts with the various complex perceptual phenomena that the work produces, which are irresolvable. The whole piece works in terms of contrasts: those transitions that affirm the flatness of the screen are played off against others that suggest depth; intermittent continuity gives way to complete discontinuity; colours clash with their complementaries; and the piece concludes with a passage that alternates between black and white. The counter-point between smooth movement and flicker is the most prominent contrast. Each transition implements a transformation of the screen from one colour field to another, via the sweeping movement of a graphic dividing line, but the course of these transitions is interrupted from the offset, and after a few minutes into the piece it is impossible to track the motion of the various interwoven components. From this point onwards it is frenetic motion that takes over. The eye leads one to see movement between different points in various planes, which are otherwise dispersed and unconnected. The aesthetics of *Vice Versa Et Cetera* disrupt the illusion of smooth movement that film and video reproduce almost automatically, but apparent motion is a matter of perceptual psychology as much as the mechanics of the moving image technologies. In this regard the tension between smooth movement and flicker in *Vice Versa Et Cetera* is an attempt to engage directly, and reflexively, with the perceptual faculties of the viewer that seem to will, or construct, motion.

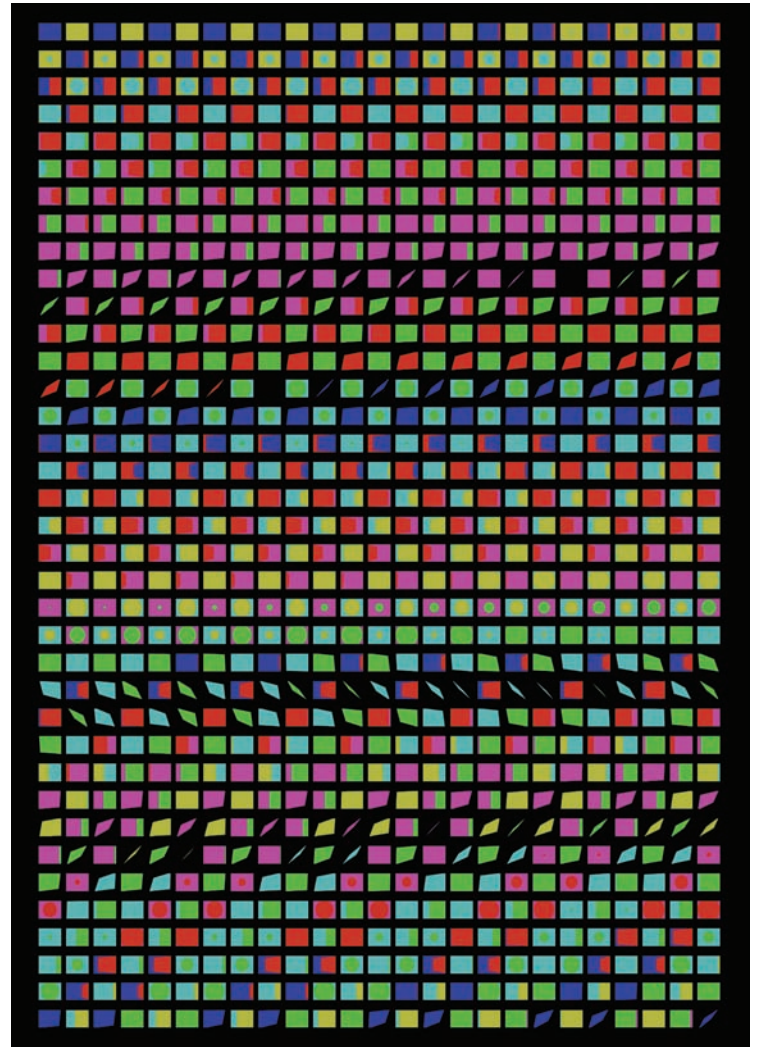


Figure 1: Score for the first section of Vice Versa Et Cetera © Simon Payne 2010

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