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Towards an Asynchronous Cinema: how can the asynchronous use of sound in artists' moving image underpin the creation of dialectic tension between the audio, the visual and the audience?

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Towards an Asynchronous Cinema

How can the asynchronous use of sound in artists' moving image underpin the creation of dialectic tension between the audio, the visual and the audience?

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Abstract

This PhD by publication examines selected practice-based audio-visual works made by the author over a ten-year period, placing them in a critical context. Central to the publications, and the focus of the thesis, is an exploration of the role of sound in the creation of dialectic tension between the audio, the visual and the audience. By first analysing a number of texts (films/videos and key writings) the thesis locates the principal issues and debates around the use of audio in artists' moving image practice. From this it is argued that asynchronism, first advocated in 1929 by Pudovkin as a response to the advent of synchronised sound, can be used to articulate audio-visual relationships. Central to asynchronism's application in this paper is a recognition of the propensity for sound and image to adhere, and in visual music for there to be a literal equation of audio with the visual, often married with a quest for the synaesthetic. These elements can either be used in an illusionist fashion, or employed as part of an anti-illusionist strategy for realising dialectic. Using this as a theoretical basis, the paper examines how the publications implement asynchronism, including digital mapping to facilitate innovative reciprocal sound and image combinations, and the asynchronous use of 'found sound' from a range of online sources to reframe the moving image. The synthesis of publications and practice demonstrates that asynchronism can both underpin the creation of dialectic, and be an integral component in an audio-visual anti-illusionist methodology.

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1. Introduction

The purpose of this thesis is to place ten years (2004 -14) of artist moving image works (the four publications) by the author in a critical context. Publications one to three comprise nine visual music pieces, whilst publication four is a selection of eight videos from the Lumière et Son collaborative videoblog project.

Central to the research is a foregrounding of the role and function of sound in artists' moving image; challenging the perceived privileging of the visual, and then proceeding to identify new ways in which to create dialectic tension between the audio, the visual and the audience.

The making of the works was facilitated by recent innovations in digital media, especially in the case of the visual music pieces. This should not be construed as technological determinism; rather there is a continuity of practice, concerns and debates carried over from the analogue and forward into the digital, with the latter enabling both the extension of existing, and the development of new paradigms and methods of working.

A concept explored across the research is that of asynchronism, the asynchronous juxtaposing of sound and image to create dialectic. This idea has its origins in the 'Statement on Sound' (hereafter referred to as the 'Statement') written by Sergei Eisenstein, Vsevolod Pudovkin and Grigori Aleksandrov in 1928, and developed in a subsequent paper by Pudovkin in 1929. Both papers were penned in response to the development (for the first time in the history of cinema) of a reliable method for synchronising sound and image. An ambition of this paper is to demonstrate the relevance of asynchronism as a way of articulating audio-visual interplay in a contemporary setting, and specifically in the practice-based works.

2. Context and Rationale

Of all the senses, it is sight and sound that work most in tandem, from moments of simultaneity, such as both seeing and hearing a plate hitting the ground, through to more complex interactions, such as when the ear picks up a noise from somewhere behind, and we turn to view what caused it.

Such sensory interaction was part of the pre 20th century performing arts of theatre and popular music, which were, in the absence of any means of recording, by definition, live (Auslander, 1999). At the moment of mechanical reproduction at the end of the 19th century, there was however a forced rupture, with the separate inventions of the film camera and the phonograph.

Thomas Edison, the inventor, had wished it otherwise, "the idea occurred to me that it would be possible to devise an instrument which should do for the eye what the phonograph does for the ear, and that by a combination of the two all motion and sound could be recorded and reproduced simultaneously" (Edison cited in Richardson, 1925/1967). However numerous technical difficulties in creating reliable synchronisation, resulted in early cinema (from 1894 -1926) developing as a primarily visual medium, which might be accompanied when projected in an ad hoc way by live music or sound effects, whilst the phonograph accustomed people to hearing sound, and in particular music, without vision (Altman, 2007).

The consequence of the thirty years or so when cinema was largely silent is that when after *The Jazz Singer* (1927) the two media were united, sound was often perceived as a secondary component, serving to support or actualise the visual. The film industry term 'sound dubbing' reflects this prejudice by suggesting that it is audio that is added to the moving image both physically and conceptually. Last (2001, pp 170) even attributes this to the conventions and logistics of filmmaking that developed during the silent era continuing to this day.

The hierarchy of the visual over the auditory is clearly evident in mainstream cinema theory, but what of artists' moving image? Arguably, it was the development of synchronised sound which marked a turning point, after which one can begin to identify two broad groupings. The first a narrative cinema, the 'talkies', whose primary use of sound is to facilitate seemingly 'natural' spoken dialogue; and another cinema, a much more amorphous collection of experimental, avant-garde and underground practices (here referred to under the commonly-used umbrella term of artists' moving image). This second grouping has pursued a range of different approaches to the question, or problem, of sound, ranging from the complete eschewal of sound by Stan Brakhage, through the contrapuntal and asynchronous juxtapositioning advocated by Eisenstein and Pudovkin, to lastly a desire for a complete synaesthetic marriage of the senses, as sought by Walter Ruttmann.

This diversity is testament to the often difficult relationship that artists' moving image has had with audio, exemplified by the 'Statement' (Eisenstein, et al, 1928) which describes sound film as a "two-edged invention", offering new creative possibilities, but which it was feared would follow the "path of least resistance", that of synchronised dialogue, destroying the language of montage and resulting in "photographed performances of a theatrical set". To counter this tendency, the authors argued that the sound/image relationship should initially be non-synchronous, before leading eventually to an "orchestral counterpoint of visual and aural images" (Eisenstein et al, 1928).

The mistrust of synchronised sound continues to this day, Hamlyn (2003, pp 167), writing some 85 years after the 'Statement', echoes the thinking of the Russian pioneers when he observes that "Experimental film-makers have been extremely wary of sound, and not without reason", going on to highlight the role of synchronised dialogue in sustaining, "a self-contained, self-sufficient world" that is "consistent and homogenous".

Nevertheless, despite this caution a small number of filmmakers from Eisenstein and Pudovkin onwards have actively engaged with sound. It was another Russian, Arseny Avraamov, who during the early 1930s began

experimenting with a technique for creating sound by photographing geometrical shapes directly onto the optical track of the film (James, 1986, pp 81). This technique, known variously as synthetic, graphic or optical sound, was also being investigated by Oskar Fischinger and Rudolf Pfenninger in the same period, was later taken up in the 1950s by Norman McLaren, and again in the 1970s by Lis Rhodes and Guy Sherwin. Optical sound was to play a key role in the development of what has become known as visual music, a somewhat loose categorisation that also includes the work of filmmakers such as Viking Eggeling and Hans Richter (Mollaghan, 2015, pp 127-141). These film-based techniques were later given new impetus by the electronic possibilities of video, with amongst others, Steina and Woody Vasulka, and Nam June Paik, processing video signals as audio and vice versa (Rogers, 2013, pp 77).

Though not dependent on any technological innovations per se, in the 1960s and '70s a number of filmmakers, including Chris Marker, John Smith and Hollis Frampton, used asynchronous juxtaposition as a way of raising questions around the vérité and temporality of both sound and image.

The different paradigms employed by these film and video makers were highly innovative, as was their use of analogue equipment. McLaren, for example, was able to precisely notate entire melodies using optical sound (James, 1986, pp 86). The transition to digital media in the early 1990s, however, offered a number of new opportunities. In relation to visual music, the most significant shift was the way in which media was now transformed into streams of data that could be manipulated or programmed (Manovich, 2001, pp 52). Digital mapping, in particular, allows the characteristics of one media stream (be it audio, visual or indeed from any source) to reciprocally alter or shape the data of another stream, by for example creating a linkage between a change in pitch and a change in colour.

In parallel, the growth of the Internet created new platforms for exhibition and distribution. Blogs, videologs and online forums encouraged dialogue between artists and audiences, acting as conduit for collaboration. The digitisation of

the back catalogues of film, music and images (often disregarding copyright constraints) also meant the World Wide Web offered a rich source of 'found' material that could be used in the making of work, which itself was then uploaded, with the potential for it to be re-used in a recursive fashion.

This backdrop provides the context in which the research publications were produced. In the early 1980s the author first began making electronic music, before progressing to short artist moving image works, and then installations in the '90s. The sound /image relationship was a significant aspect throughout, and so the potential for further experimentation offered in the early 2000s by faster Apple Macintosh computers, combined with innovative software, was keenly pursued. It is this experimentation that underpins the practice/publications discussed in this paper.

3. Research Question

Towards an Asynchronous Cinema - How can the asynchronous use of sound in artists' moving image underpin the creation of dialectic tension between the audio, the visual and the audience?

3.1 Aims, Objectives and Methodology

The aim of the thesis is through a critical evaluation of the practice-based research to forge a new understanding of the role of sound in relation to the visual in artists' moving image. This first step in this process is to identify the key literature and films/videos that informed the making of the work, and the principal issues and debates around the use of audio that emerge. In particular, the literature review will pinpoint what factors encourage or impede the creation of a dialectic, and what steps might be taken to advance current methods, techniques and thinking. A detailed set of objectives for the literature review is included at the beginning of that section. Once the reflective framework has been established, the thesis will go on to use this to inform the theoretical examination of the publications. The paper will seek to answer the following objectives.

1. Visual Music Pieces – Publications One to Three
    How might digital processes, and specifically 'digital mapping' (the use of data to reciprocally control visual manipulation, and sound/music production), articulate new types of asynchronous relationship between sound, image and audience?

2. Lumière et Son Collaboration – Publication Four
    Examine in what ways the Lumière et Son collaboration demonstrates the potential for the asynchronous use of found sound to reframe and recontextualise the moving image.

Methodology

Being written after the (practice-based) research was conducted, a PhD by publication differs from a 'standard' thesis in that much of the process is retrospective. As research, the practice already arguably evidences its contribution to knowledge, but as the works are more than simple expressions of ideas, the thesis seeks to make explicit what is implicit in the pieces.

This methodology is based on Kolb's (1984) experiential learning cycle, and involves a process of critical reflection informed by the paradigms that emerge from the literature review. The research question can then be answered, and the contribution to knowledge established, against this background. Various different methodologies were involved in the making of the pieces, and these are explored at some length in each of the sections in which the publications are discussed.

The review engages with the key literature and moving image works which have a particular theoretical relevance to the project, and/or directly influenced or inspired the practice. The structure of the review follows the objectives below.

Whilst it is fair to say that previously sound has been somewhat neglected by theorists, there have in the last five years been a number of new publications (Rogers, 2010, 2011, 2013; Mollagahan, 2015) in the subject area, and where appropriate these have been referred to; as though written after the practice was completed, they have aided in the reflexive process and help to maintain contemporary relevance.

Literature Review Objectives

1. Identify the approaches adopted to sound in artists' moving image from the advent of synchronisation in the 1920's onwards, including an examination of three pieces by Chris Marker, Hollis Frampton and John Smith. In particular, examine asynchronism as a means of structuring sound and image relationships to create dialectic.

2. Detail the three key models of visual music: visualisation, sonification, and analogous, their underpinning paradigms and the issues that emerge. Examine selected optical sound pieces by Lis Rhodes and Guy Sherwin, and the consequent debates around literalism and synaesthesia. Identify from this the scope for an asynchronous approach to visual music.

3. Outline the evolution of digital mapping (the use of data to reciprocally control visual manipulation, and sound/music production), and its potential when used asynchronously within visual music to create dialectic.

4.1 The 'Statement' on Sound

The 'Statement' (Eisenstein, et al, 1928) can be seen to be highly prescient in its prediction that the "path of least resistance" would be followed, and synchronised sound would be used primarily for dialogue in cinema. As Hamlyn (2003, pp 168) comments, this approach divides sounds into either sync "speech and effects", or 'wild tracks' (bird song, traffic, etc.), with the emphasis very much on the former. In this approach, sound and image reinforce one another in an illusionist fashion to create a sense of faux naturalism, despite the process often being highly artificial, with Foley sound effects being dubbed on afterwards as they sound more 'lifelike', or voices being re-recorded in the studio for technical reasons, or simply for better dramatic resonance.

Clarifying the position outlined in the 'Statement' and the subsequent separate writings by Eisenstein and Pudovkin requires some teasing out. The advocacy of non-synchronisation in the 'Statement' could be viewed as evidence of hostility towards sound altogether, and certainly synchronised dialogue was a threat to the established language of montage and hence to the preeminent position that Russia had held in the field (Christie, 2001, pp 164). The filmmakers were also wary of English speaking 'talkies' making film for the first time language specific. As Clair (1929) was to remark, "many thousands of millions of dollars had been in invested in the new enterprise and every means will be used to ensure its success". Meanwhile in Russia film studios lacked the financial resources to implement the new technology fully (Christie, 2001, pp 164).

The 'Statement' then does contain an element of defiance, but no suggestion of a return to the purely visual; instead it offers an alternative theoretical position, even suggesting that sound will help solve some of the shortcomings of silent film, if not used to provide a "certain 'illusion' of talking people, of audible objects, etc." (Eisenstein et al, 1928). These ideas had been explored previously in an article written in 1922 by Eisenstein and Sergei Yutkevich, which had argued against illusionism in cinema, and the then practice of

accompanying silent films with sound effects – for example, footage of waves matched with a Foley approximation of the sound of the sea (Kahn, 1992). Thus non-synchronisation was a rebuttal of sound as mere reinforcement of the visual, and according to the 'Statement' the first stage in a process, which would lead firstly to a contrapuntal relationship, and eventually to the "orchestral counterpoint of visual and aural images" (Eisenstein et al, 1928).

This positions non-synchronisation as a stage to be passed through on the way to more elaborate counterpointing, a terminology that would seem to be more attributable to Eisenstein than Pudovkin. Robertson (2009, pp 37) argues that Eisenstein's use of the terms, orchestral, contrapuntal and counterpoint are elements of the musically analogous model he was to develop and nuance up to the publication of *Film Form: Essays in Film Theory* (1949) just prior to his death. In contrast, Pudovkin was less wedded to explicit musicality, and in 1929 expanded on his ideas in *Asynchronism as a Principle of Sound Film.*

4.2 From Non-synchronisation to Asynchronism

The difference between non-synchronisation as found in the 'Statement' and asynchronism, as appears in Pudovkin's essay of 1929, may appear subtle, but is key to an understanding of what is meant by the latter term. Confusion can easily arise as many writers have used the two terms interchangeably, even Eisenstein and Pudovkin's contemporary, the filmmaker Dziga Vertov, appeared to treat them as being one and the same, in an answer to a question on the use of sound in cinema (Vertov, 1984, pp 105-106). The two terms are quite distinct however, with non-synchronisation intended as an initial rebuttal, a rejection of sound being used simply to reinforce audio-visual simultaneity, whereas asynchronism carries no suggestion of sound and moving image being wilfully at odds, but rather implies careful and precise juxtaposition. As such, asynchronism is not too far removed from Eisenstein's contrapuntalism, but is more all-embracing and applicable across a range of artists' moving image practice, as it avoids too narrow a focus on the

musically analogous, which as time went by became more central to Eisenstein's thinking. As Cubitt (2004, pp110) puts it "In music, as opposed to sound, Eisenstein found the model of a time-based art that gathered the power of every microtonal vibration in the orchestra into the totality of composition".

Pudovkin (1929) seeks to demonstrate that asynchronism reflects everyday sensory perception by outlining a scenario in which a man hears a cry coming from the street. The man looks out of the window and tries to locate the source of the cry, unaware of the sound of the traffic. The moment however that he glimpses a body on the pavement, he begins to hear the roar of the passing cars, and through it the ringing bell of an approaching ambulance. The man turns away from the window, looking at the clock on the mantelpiece whose ticking he now hears for the first time. The man begins to ponder the time and the late arrival of his brother, who he now with alarm speculates might be the possible victim. In the whole scene Pudovkin notes, it is only this last moment, with the ticking clock, that involves (absolute) synchronisation; for the majority of the scene, sound and moving image are asynchronously juxtaposed.

Pudovkin's scenario is inherently narrative, and this is what propels the shifting focus of the man's auditory attention; nonetheless, Pudovkin's outline is significant for highlighting the degree to which hearing is selective. This observation runs counter to the usual understanding of sound as being a channel that is, as it were, permanently 'on', with the listener having little choice over what is heard. Instead, Pudovkin positions listening as being equally targeted as vision; a filtering process in which we choose to hear specific sounds in much the same way as we narrow our gaze.

In terms of juxtaposition, Pudovkin (1929) identifies three "rhythms": the objective world (what might be called the pro-filmic), the visual track and the aural track. Each track has its own "rhythmic course", and it is the interplay between these that for Pudovkin creates meaning beyond what is possible in silent film. The term "rhythmic" is here best understood as a general tempo or

pulse. There is of course a hint of musical analogy, but far less than that suggested in Eisenstein's writings, as for Pudovkin asynchronism itself is the very essence of sound film.

What is key then to understanding and applying asynchronism is that it is an overall methodology whose primary motivation is the creation of dialectic. Asynchronism can include moments of absolute synchronisation (as per Pudovkin's scenario with the clock) in which the viewer causally connects sound and image. This temporary "adhesion" (Eisenstein, et al, 1928) of sound and image on screen, as will be seen when discussing John Smith's *The girl Chewing Gum* (1976), can play a key part in creating dialectic, by refocusing and re-engaging the audience's attention, in what might be described as a push-pull fashion.

4.3   Sound and Anti-illusionism

A premise of this paper is that sound is a fundamental part of an anti-illusionist approach to the audio-visual. The history of sound's role in anti-illusionism can be traced to the Russian filmmakers, with the authors of the 'Statement' opposed to the potential mimetic aspects of cinema. Synchronised sound, when used for creating the "illusion" of talking people, is identified as having the ability to significantly reinforce an illusionist sense of false naturalism (Eisenstein, et al, 1928). The converse, and much more positive position also holds true; sound, if used asynchronously, can actively decrease notions of naturalism, and thus become part of an audio-visual approach to anti-illusionism.

How does this particular form of anti-illusionism sit within wider debates and interpretations of the term? In an article that seeks to draw together many threads on the subject, Walley (2013, pp239) states, "'Illusion' is a recurring theme sounded by film-makers and critics across the history of experimental cinema", with the many illusions of cinema encompassing everything from the basic two dimensional representation of three dimensional space, through to

mainstream cinema's creation of self-contained narrative worlds.

Walley (2013, pp240) seeks to identify inconsistencies in the use of anti-illusionism, both in individual filmmaker's work and between them; so for example Gidal is taken to task for having "employed illusions like apparent motion and flicker fusion", though how this negates the wider materialist project is unclear. Subsequently, Walley cites Turvey's (2008, pp84) argument that it is 'demonstrably false' that audiences cannot distinguish between film and reality. However, it is not that audiences perceive Hollywood film as some kind of virtual reality played out before them, it is that such cinema creates an enveloping and seemingly logical story world which portrays itself as natural, thereby attempting to shape the audience's perception and opinions. All variations of anti-illusionism seek in some way to undermine this homogeneity; indeed, it is this factor which binds what might otherwise be disparate practices together. It is worth quoting Rees (1999, pp5) at some length on this subject:

> For much of its history the avant-garde has questioned this assumption of cinema as cultural myth and industrial product, and offered a number of alternative ways of seeing. At the same time, the act of seeing - and hence of illusion and spectacle - is itself put in question. This red thread runs through such diverse work as the surrealists (notably Man Ray and Bunuel), the films of Brakhage and Warhol (otherwise incompatible bedfellows), the English structuralists Peter Gidal and Malcolm Le Grice (from two distinct angles), and the feminist filmmakers Yvonne Rainer and Lis Rhodes (using wholly different methods).

Whilst Walley (2013) makes almost no mention of sound, with anti-illusionism explored as an almost entirely visual subject, in Rees's list of filmmakers (aside from Brakhage), sound plays a significant part in countering illusionism, if not always accorded the same degree of importance as the visual, by either the filmmakers or the critical discourse around them. As with the 'Statement', one has to first work through the problematisation that sound brings to the

moving image, before its scope when used asynchronously to underpin anti-illusionism is recognised. So Gidal (1989, pp71), in an echo of the 'Statement's' discussion of the adhesion of sound and image, outlines how "Image is always subjected to sound, which is why you can put almost any soundtrack 'over' any image and the resulting confluence will produce itself as 'naturally' cohering with the sound". However, in nearly all the works subsequently discussed by Gidal in *Materialist Film* (1989), such as *Light Reading* (1978) by Rhodes, Mike Dunford's *Still Life with Pear* (1973) or the films of Andy Warhol, the role and importance of sound in the anti-illusionist dynamic is made explicit.

If anti-illusionism is a "red thread" (Rees, 1999, pp5) running through disparate experimental and avant-garde practice, the asynchronous use of sound is inextricably bound up with that. The next section examines three key experimental films, which serve as examples of such a methodology.

4.4 Three examples of Asynchronism in Action

Pudovkin's film *The Deserter* (1933), and in particular the shipyard scene, best exemplifies his application of asynchronism, and as Christie (2003, pp165) remarks is one of the "few films (by the authors) wholeheartedly committed to implementing the programme proposed in the 'Statement'". Sadly, Pudovkin's later films were constrained by the demands of an increasingly repressive Soviet system; however, in the 1960s and '70s experimental films by Chris Marker, Hollis Frampton, and John Smith were to put into practice what Pudovkin had only been able to hint at.

The first of these films is Marker's *La Jetée* (1962), a work comprised almost entirely of photographs, with the impetus, rhythm and narrative trajectory generated primarily through sound. The soundtrack includes three elements: voice-over narration, sound effects and music. The last of these two are used in a manner which mimics the tropes of mainstream film. The majority of the music is by Trevor Duncan, a jobbing composer with numerous film scores to

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his credit. Duncan did not compose the music especially for *La Jetée,* rather it was taken from a Boosey & Hawkes film music library, and indeed sections had been used previously in other films, notably *Quatermass* (1958) (IMDB Website).

Film library music is written to be evocative, with the intention that it should heighten or accentuate whatever image sequence or on-screen dramatic action it is placed with. Sound in mainstream cinema is usually sublimated within the visual; in *La Jetée*, however, juxtaposed against still images, its role is transformed from supporting to sonic framing device. The role of the music and voice-over in filling the porous photographs with possible meanings and readings, evocations of cinematic resonance and context, is thus clearly evident.

In mainstream documentary film, which regularly employs voice-over commentary, the audience is encouraged to invest in the authority of the narrator, and any tension between what is said and what is seen is intentionally minimised in an act of mutual reinforcement. In contrast, in *La Jetée* the degree to which the voice creates meaning opens up a dialectic. Is the narrator describing something that actually took place, documented in the images, or are both a fabrication? This aspect of potentially unreliable narration is further explored in Marker's later work *Sans Soleil* (1983), and in Hollis Frampton's *Nostalgia* (1971).

As Ragona (2004, pp 99) observes, Frampton's "unorthodox use of sound" owes much to "1920s Soviet experiments in sound montage". In *Nostalgia* we watch a succession of photographs slowly catching fire on a hot plate, whilst Michael Snow's voice-over seemingly reminisces about them in a discursive fashion. Our inclination is to link commentary and image, however disconcertingly the voice-over relates not to the image we are viewing, but the one that is to follow. The result is that issues around memory, temporality and the vérité of image and voice are all thrown into sharp relief, demonstrating how powerful a tool asynchronous juxtaposition can be.

Many more filmmakers during this period, including Mike Leggett, Robert Wooley, Peter Greenaway and Patrick Keiller, were to explore similar territory, often as not using either a fixed or 'locked-off' camera, or a filmed succession of photographs. The minimal use of pans, zooms or editing draws attention to the frame, rendering it more porous and receptive to asynchronous juxtaposition.

The voice-overs in the works mentioned are spatially hard to locate, with no obvious on-screen source, whereas the 'live' commentary often found in documentary film and news reports is implicitly recorded concurrently, and seeks to portray itself as being at the scene in the thick of the action.

Smith plays with this method in *The Girl Chewing Gum* (1976). The film opens with footage of what looks to be an everyday East London street scene; various people go about their business, walking left then right, crossing the road, pausing a moment and so on. What transforms the footage is an authoritative male voice-over that seemingly appears to direct the 'action' by issuing a series of instructions such as: "Now I want the old man with white hair and glasses to cross the road, come on quickly". A 'cue' that is immediately followed by a bespectacled elderly man appearing from left of the screen, before quickening his pace as he crosses the street. A stream of other such commands by the 'director' are given, and each time the on-screen 'characters' react accordingly.

The Girl Chewing Gum (1976) was inspired by French New Wave director Francois Truffaut's *Day for Night* (1973), in which the director chronicles the making of a fictional film, *Je Vous Présente Paméla,* showing us the cast and crew at work and the unfolding relationship between the participants (Frye, 2003, pp 39-40). In this film within a film, Truffaut seemingly reveals the apparatus of cinema, but inadvertently reinforces it, as we never see the crew that films the crew, or the director, directing himself directing. Including these elements would of course have soon become an impossible hall of mirrors, but Smith's simple technique deftly side steps this by taking the footage shot in Dalston and using the soundtrack to reframe it as if it were being directed.

Smith actively plays with the deception, for not all the street action is verbally directed, and there are moments of willful absurdity, such as when the pigeons are told to fly past, or the hands of a clock how fast to rotate. This serves to confuse and upsets the linear temporal logic of the piece, before finally the 'director' seems to reveal that he is elsewhere, speaking from a field many miles away, though again we only have his word for it, and the subsequent shots of the field (accompanied by the background sound from the street) show no sign of him.

Even once we have recognised the deception, we are still repeatedly drawn in by the logic of it being the voice that is directing the action, and the sense of causality of sound directing image. Whilst this is not the same as the clapperboard simultaneity of lips and speech, it nonetheless serves the same function of momentarily adhering (to use the term from the 'Statement') sound and image together. There is something of the push-pull effect described previously, and the process of revelation becomes cyclical and continual.

4.5 Visual Music – Synaesthesia and the Asynchronous

If tightly synchronising speech with lips is the building blocks of illusionist cinema, which can only be offset by asynchronism, what of music synchronised closely with visual imagery, what of visual music? Can there be such as a thing as asynchronous visual music?

Visual music is a categorisation with porous boundaries, including elements of abstract film, experimental animation and expanded cinema. Nonetheless, three forms of visual music are often commonly delineated: firstly visualisation, turning sound and especially music into images, secondly sonification, the translation of images into music/sound, and thirdly an analogous model involving the employment of a temporal architecture akin to that found in music (Evans, 2005, OX et al, 2005).

Such a three-way categorisation has it benefits in offering a basis for analysis; however, in practice there is much overlap, and it may be difficult on occasion to distinguish between visualisation and sonification, both of which may contain elements of an analogous approach. To further complicate matters, many filmmakers such as Fischinger and Ruttmann have sought, or made claims for, a synaesthetic element in their works (Cook, 2011, pp 5).

Synaesthesia is a term that derives from the Greek words 'syn' meaning together and 'aisthesis' meaning perception (Cytowic, 1985). There are various manifestations of synaesthesia, ranging from an involuntary physical condition - most commonly experienced as hearing a sound and simultaneously perceiving it as a colour, through to wilful aesthetic blurring of sensory boundaries (Ward, Huckstep, & Tsakanikos, 2006).

Advocates of synaesthesia, from Scriabin to Whitney, claim an underpinning 'natural' harmonic relationship between visual and musical forms, and the history of visual music has been dogged by a search for quasi-spiritual correlation, Prior to film, devices known as colour organs were invented to provide live visual accompaniments to music recitals. In 1734 the Jesuit Louis Bertrand Castel constructed the first such device, an ocular "harpsichord for the eyes", a keyboard above which were 60 small windows, each with different coloured-glass and a small curtain, which as the player depressed the relevant key would open (Moritz, 1997). Many subsequent variations on the colour organs were developed, including by A. Wallace Rimington, Scriabin and Thomas Wilfred (Rogers, 2013, pp 64). Colour organs are predicated on there being a defined linkage between colours and musical notes, an idea, which as Le Grice (2001, pp 270) observes, has no scientific basis, but which nonetheless is an enduring one.

Film offered a possible extension and development of the ideas behind the colour organ. An example of this is Fischinger's *Optical Poem* (1938), in which cut-outs on wires were manipulated a frame at a time in synchronisation with Franz Liszt's *Hungarian Rhapsody No 2*. The prologue to the film contains the following:

> To most of us, music suggests definite mental images of form and colour. The picture you are about to see is a novel scientific experiment. Its object is to convey these mental images in visual form. (Fischinger, 1938)

Fischinger's (1938) assumption that the audience all experience "definite mental images of form and colour" when listening to music, and that these images should be the same for everybody, is quite a presumption. The case being made is for a concrete and literal relationship between musical and visual forms.

Synaesthesia such as this could be viewed as the ultimate form of sound and image 'adhesion', with sensory interplay submerged in the quest for an immersive synthesis. If synaesthesia is not to be anti-dialectical and illusionist, it needs to be problematised in some way, in other words approached asynchronously. Fischinger himself became aware of the degree to which prerecorded music could diminish the abstract possibilities of his work, and for *Radio Dynamics* (1942) insisted that the piece be shown silently, whilst *Motion Painting No.1.* (1947), though using Bach's *Brandenburg Concerto no. 3, BWV 1048*, avoids tight synchronization, and thereby re-introduces an element of dialectic tension (Mollaghan, 2015, pp 19).

Cook (2011) distinguishes between an analogous and a synaesthetic approach to visual music, arguing that the former retains a separation of the senses, whilst the latter is informed by a combination of gestalt theory, and the quest for the total artwork or Gesamtkunstwerk. The analogous example given by Cook (2011) is the work of Richter and Eggeling, for whom the fugue, with its polyphonically recurring motifs, served as a template for the spatial location of abstract visual elements, firstly on canvas and then in the case of Richter's *Rythmus 23* (1923), and Eggeling's *Diagonal-Symphonie* (1924) on film (Robertson, 2009, pp 16-22; Rogers, 2011, pp 411). As both films predate synchronised sound, the analogous contrapuntal dynamic refers solely to the structuring of the animation.

Paradoxically, whilst a musically analogous model may offer a method for the arrangement of visual multi-layered abstraction, it may not be ideal for actually linking music and image. As Rees (1999, pp 37) comments "The (musical) metaphor, or analogy, is made the stronger by Eggeling's insistence that his film be shown silent".

The moment music is added, unless in some way asynchronously juxtaposed, metaphor can all too easily change to illustration or synaesthetic literalism. An approach that escapes this impasse is that adopted by Len Lye, who loosely synchronised imagery with rhythmic music, with the emphasis on tempo rather than pitch correspondence. Lye's three films, *A Colour Box* (1935), *Rainbow Dance* (1936), and *Trade Tattoo* (1937), combine stenciling, hand-painted film and reprinted found footage, to produce pulsating patterns that dance in and out of frame. There is no attempt at absolute synchronisation, rather the on screen animation is underpinned by, and offset with, the syncopations of the Cuban music on the soundtrack (Sexton, 2014).

A distant cousin of *Trade Tattoo* is Malcolm Le Grice's *Berlin Horse* (1970), in which the footage is manipulated in various ways to create a constantly shifting solarisation of the image of the horse. Le Grice's structural-materialist investigation is perhaps more rigorous than Lye's, but the underlying methodology is broadly similar, especially the relationship to the music, in this case a looping piece of piano music by Brian Eno. As with Lye, the music provides a sense of rhythm, never synchronised to any specific movement or action, but providing a forward trajectory.

That Lye and Le Grice's work would appear to far more successful than direct attempts as visualisation, such as those of Fischinger, is largely attributable to neither filmmaker actively seeking to conjure images that translate or literally transform the music into visual form. The combination of moving image and polyrhythmic music is an asynchronous one.

4.6 Optical Sound

If visualising music is fraught with potential illustrative pitfalls and claims of quasi-spiritual synaesthesia, what then of sonification, turning images into sound? The technological development of synchronised film sound was itself to inadvertently offer a technique for directly producing audio from the moving image.

Sound film has two components, the main frame and a smaller optical track, which when light is passed through it onto a photoelectric cell, and the resultant signal amplified, reproduces the soundtrack. In the early 1930s, it was discovered that by drawing or photographing lines and shapes directly onto the optical track, one could create sound (James, 1986, pp 81). Who the inventor of graphic, ornamental, synthetic or simply optical sound was is hard to determine, with Avraamov working in Russia, Pfenninger and Fischinger in Germany, being just a few of those simultaneously experimenting with the discovery (Levin, 2003, pp 32-35).

When the images on the optical track are the same as those projected, one in effect has a means of both transforming images into sound and of their simultaneous synchronised reproduction, what Sherwin (Sherwin & Hegarty 2007, pp 5) describes as "an accident of technological synaesthesia". It is noteworthy that Sherwin adds "technological", perhaps to distinguish the technique from the more mystical conceptualisations of synaesthesia, and also to root the process in the mechanism. Optical sound raises a number of issues around the literal equation of sound with image, and it is worth looking more closely at works made at the London Filmmakers Co-operative in the 1970s by both Sherwin and Rhodes.

In Rhodes's *Light Music* (1975-77), a series of horizontal lines are printed on both optical track and film frame; by varying the thickness of the lines, the pitch of the sound rises and falls in sync with the projected light patterns. Two projectors are used, with the screens placed opposite each other creating an expanded and immersive cinema piece (Hamlyn, 2011, pp 215). In an

interview conducted at the time of the piece's exhibition during 2012-13 in Tate Modern's Tanks, Rhodes commented that with *Light Music* "what you see is what you hear" (Rhodes, 2012). This has echoes of, and may be a play on, minimalist painter Frank Stella's famous dictum "What you see is what you see" (Stella, 1966, as quoted in Rosenberg, 1972, pp 125), whilst also reflecting a basic tenet of structural-materialist film, that the relationship between the various elements in a moving image piece should be self-evident and revealed, (Gidal, 1976).

Seductive as the notion of literalness is, one might ask if it is indeed the case that "what you see is what you hear", or is the image to some degree an arbitrary visualisation of the sound? There are three types of optical track (see diagram below) and *Light Music* uses the variable-density form. If Rhodes had chosen either the bilateral or unilateral variable-area method instead, the projected image would have had a very different appearance, and yet the sound would have remained identical.
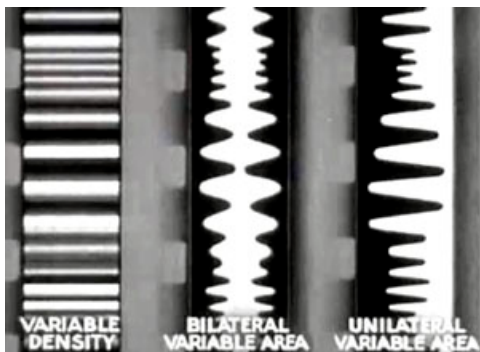
Figure 1. Optical Sound Formats

This suggests literalness is not absolute, but specific to the particular apparatus being employed. Had one of the alternate methods been used, we may well have still read sound and image as being in some way equivalent or connected. One might go so far as to conjecture that even if the projected image had not been identical to the optical track, but had nonetheless reciprocally changed, a similar connection would still be made. This points to an impetus on the part of audiences, and not just those who experience

involuntary synaesthesia to meld and create synaesthetic relations in a way not dissimilar to the adhesion of dialogue with lips in illusionist cinema.

In the case of *Light Music*, dialectic is generated less through literalism and more through the dynamics of expanded cinema. Hamlyn (2011, pp168) describes "a cacophonous interplay of direct and reflected sound", with the hard concrete walls of the tanks creating a "partial de-synchronisation of sound and image". It is useful to contrast Rhodes's approach with that of Sherwin, who achieves dialectic by employing a very different method, using representational imagery.

In the early days of experimentation with optical sound the Russian filmmaker Michael Tsekhanovsky asked:

> What if we take some Egyptian or ancient Greek ornaments as a sound track? Perhaps we will hear some unknown archaic music? (Smirnov, 2010).

As if taking a cue from Tsekhanovsky, some forty years later Sherwin made a number of optical sound films including *Musical Stairs* (1977), and *Railings* (1977), in which the images of the filmed objects were also printed on the optical track (Hamlyn, 2005). The noises heard are not those which would be made had the objects been recorded with a microphone, but rather it is the act of filming itself, coupled with subsequent printing and manipulation that generates the audio. For example, in *Musical Stairs* it is the panning of the camera up and down a flight of metal stairs that produces a musical scale when the same images pass over the optical head; whilst in *Railings*, by filming the ironwork from different angles, a sequence of electronic pulses are generated (Hamlyn, 2005). Through making the representation of the object produce the audio, it is not so much that a hidden sound is revealed (in the manner of Tsekhanovsky's vases), but rather there is an anti-illusionist foregrounding of the artifice of the reproduced nature of both sound and image.

<u>4.7 Towards Digital Mapping</u>

With optical sound, it is the physical visual material that is shared, but as technology shifted in the 1960s from the photochemical medium of film to video, an interchange of electrical signals became a possibility. Rogers (2011, pp 407) argues that the mechanism by which audio and video are stored on the same videotape creates an immediacy that film, with its two distinct technologies (which need to be subsequently melded), can never have. This together with the appearance in 1967 of the Sony Portapak made the medium appealing to artists such as Nam June Paik, whose Fluxus background had included aspects of performance and music. These elements were combined with the new technology in pieces such as Paik's *TV Cello* (1971), in which both sound and image were produced in a live setting from pick-ups on a modified cello (Rogers, 2013, pp 77). The use of audio signals to produce video imagery, and vice versa, was further explored by Steina and Woody Vasulka in numerous pieces, including *Soundsize* (1974) and *Noisefields* (1974).

The results of electrical interchangeability look distinctly different from optical sound, but both methods are constrained by the very nature of the technology used. Medium-specific limitations can be a source of creativity, giving something to work with and against, but arguably a system for mapping reciprocal changes between the two media could further unlock the potential for asynchronous visual music. Such mapping requires a transition to the digital, in which all data "whether visual, auditory or textual" (Le Grice, 2001, pp 268) is represented numerically. Manovich (2001, pp 52) pinpoints that it this numerical representation that turns media into "computer data thus making it programmable".

Significant steps towards the digital were taken by Whitney, beginning with works such as *Arabesque* (1975), which combined computer generated graphics with instrumental music. Then, in the 1980s, his development of the Whitney-Reed RDTD (Radius-Differential Theta Differential) allowed for the simultaneous composition of audio and visual elements (Siggraph.org).

Whitney's work is underpinned by a strong restatement of the principle of musical analogy, "Music, as the true model of temporal structure, is most worthy of study among prior arts". He then moves from analogy to the quest for some fundamental underpinning harmony, "I tried to define and manipulate arrays of graphic elements, intending to discover their laws of harmonic relationships" (1980, pp 40-44). Whitney falls prey to the allure of the cosmic synaesthetic, and even became something of an anti-modernist, decrying John Cage and "squeaking chair" music, and arguing that only "structured motion begets emotion" (1980, pp 41-43).

Paradoxically, the very digital techniques Whitney was exploring do not, as he believed, demonstrate an underlying harmonic law, but on the contrary the arbitrary nature of the audio-visual relationship. Turned into numerical values, sonic and visual data can be reciprocally mapped in any way one chooses: pitch to colour, pitch to image size, pitch to image rotation, sound timbre or dynamics to video feedback - to name but a few of the possibilities.

An early example of reciprocal digital mapping is Le Grice's computer piece *Arbitrary Logic* (1988), in which he used the same data to produce both the on-screen colour fields, and via MIDI (Musical Instrument Digital Interface) the sound. Reflecting on this piece, Le Grice (2001, pp 270) notes that colour and musical harmony, from a simple physics perspective, cannot operate on the same principles, and that in any case the constraints of classical musical harmony have been superseded by serialism (in all its permutations), and other ways of organising sound events. Le Grice's solution (2001, pp 271) was to remove both sound and colour from their more usual representational associational contexts (apples as red, sound as music), and argue that the resultant abstract experience, functioning at a physical and psychological level, can dynamically create meaning in the mind of each viewer.

When Le Grice was making *Arbitrary Logic,* digital technology (at least that which was accessible outside of large corporations) was in its infancy, and he speculates about the possibilities for mapping to allow "spatial parameters to be expressed as music sounds or colours" (2001, pp 284). Such opportunities

would become available some ten years later in software such as Max/MSP/Jitter (Cycling 74) and Videodelic (U & I Software 1), applications that were used extensively in the practice.

When sound and image are tightly synchronised in visual music, to avoid literalism or claims of underlying harmonic correlation, one needs to draw attention to the potentially arbitrary nature of synaesthetic correspondence, to in some ways transform simultaneity away from its tendency to sublimate both sound and vision, and instead move to a form of asynchronous, and hence dialectic, relationship. Just as the addition of sound to the moving image can either heighten illusion, or if used asynchronously decrease it, so digital technologies can either obscure the dynamics of the sound/image relationship, or through mapping foreground it.

4.8 Linear and Vertical

Digital media is often described as 'non-linear', but in practice this has more to do with the technical ability to access data in a non-linear fashion than signalling a paradigm shift away from the horizontal unfolding of mainstream narratives. Le Grice observes, "the technology allows non-linearity – the concepts remain linear", before going on to argue that the problem of conventional narrative cinema is more to do with the underpinning ideology that uses linearity to bind the audience into accepting the unfolding and inevitable logic of its conclusions, presenting what are political and social constructs as normal and naturalised (2001, pp 289). This is an important distinction, as historically much single screen artists' moving image work has adopted a linearity of form, if only in so much as the works are temporal and have an identifiable beginning/end, and a fixed duration. Chronology implies an overriding forward trajectory or sequential ordering of events, but by applying the contrapuntal logic of the fugue (see the previous discussion regarding Eisenstein) one can create another axis, running at right angles to the horizontal, that of a vertical plane.

The filmmaker Maya Deren is often associated with the theoretical conceptualisation of the vertical. Whilst acting as a panel member along with Arthur Miller and Dylan Thomas at the Cinema 16 Symposium in 1953, Deren articulated what she saw as the essence of "poetic structure", based on a "vertical" investigation of the "metaphysical content of the movement". This verticality she positioned in contrast with the "horizontal attack of a drama" and its more linear development from moment to moment (Vogel, 1953, pp 171-186).

In Deren's own works, such as *Meshes in the Afternoon* (1943), verticality can be seen to function in terms of the repetitious, incomplete nature of the action, locking the viewer into a sequence of loops that seemingly re-present and replay a series of melodramatic episodes, on each occasion with a different outcome. Thus more conventional narrative resolution is thwarted in preference to a simultaneity of possibilities.

In *Meshes of the Afternoon*, this vertical circularity operates on a purely visual level, as the accompanying musical score (with which it is now often screened) was only added later, in 1959. Nonetheless, the concept of verticality can be applied to both auditory and visual elements, and returning to Eisenstein's musically analogous approach, one can easily see the vertical in terms of a form of quasi-orchestral scoring, in which a number of different lines flow horizontally in parallel to each other. In a digital context the 'score' may include the data for a variety of different audio-visual parameters relating to spatialisation, volume, timbre, etc. To pick an abstract example, a white square might recede into the black frame of the screen, whilst simultaneously turning red, accompanied by a rise in pitch and a change in timbre. A technique used in one of the publications, *Quadrangle*, to be discussed later.

4.9 Literature Review Conclusions

It can be seen that in mainstream film, dialectic is sacrificed in favour of dialogue, with the potential to extend cinema through sound, replaced by a

closing off, or encapsulation of sound within the image. In contrast Pudovkin's asynchronism offers a model for an interplay encompassing sound, moving image and audience. An analysis of pieces by Smith, Frampton, and Marker shows that the same adhesion that facilitates synchronised dialogue can also be used to underpin asynchronism, if once adhesion is established, the causal link is then questioned or broken. This dynamic, described as a 'push-pull' effect, reflexively reveals the mechanism, and hence can act as an audio-visual anti-illusionist tool.

Visual music presents its own particular set of issues focussed around literalism and synaesthesia, the latter premised on the existence of an inherent correlation between musical and visual forms. Seductive as such an idea might be, as Le Grice (2001, pp 270) has argued, such a correlation is scientifically untenable. Worse still, the desire for a synaesthetic blurring of the senses distracts audiences from forming their own audio-visual relationships, and as such is inherently anti-dialectic.

Solutions to these problems were discussed, in particular the approach adopted in Lye's *A Colour Box*, and Le Grice's *Berlin Horse*. In these pieces music provides a sense of syncopated rhythm, but is not specifically synchronised to any specific on-screen action, maintaining dialectic through loose asynchronous juxtaposition.

Rhodes's *Light Music* and Sherwin's films were examined in some detail, as they raise important questions around literalism. In the case of *Light Music* there is a direct appeal to literalism, "what you see is what you hear" (Rhodes, 2012), which though made in the spirit of materialist self-declaration, directly equates sound with (abstract) image. An examination of the mechanism of optical sound revealed that literalism is not absolute, but varies with the optical sound method used – different mechanism produce different images, but the same sound. This analysis was not intended as a critique of *Light Music*, so much as to hypothesise that this arbitrary aspect, if foregrounded, might become a useful tool in the quest for an asynchronous visual music.

Sherwin's optical sound films, many of which use representational imagery, were seen to offer a different approach. The adhesion of sound and representative imagery in mainstream cinema locates on-screen 'action' or dialogue as the source of what we hear. Sherwin's technique of using the footage itself as an optical sound source inherently questions this causality. A reflexive tension is created by the resultant audio having an associational relationship with the object, encouraging a form of self-declaring adhesion to occur.

The study of both Rhodes's and Sherwin's works suggests possibilities that might conceptually be explored beyond the constraints of optical sound technology. The impact of video was considered, and though an increased palette of options for transforming sound into image electronically was identified, these methods remain reliant on analogue interchangeability and the limitations of such systems. This leads to the conclusion that what might best facilitate asynchronous visual music is some way of connecting sound and image, in which the dynamics of each can affect the other, but the variable governing how, and to what degree, might be altered. Such a relationship might be achieved through the use of digital media, in which all data is represented numerically and can thus be programmed, with the early computer experiments of Le Grice, such as *Arbitrary Logic* (1988) being a possible model.

In summary, from the literature it can be concluded that asynchronism, a term which has its origins in the 1928 'Statement' (Eisenstein et al) and Pudovkin's subsequent 1929 paper, is an approach to the sound and image relationship which generates dialectic, and is applicable across a range of contemporary artists' moving image practice. Asynchronism is positioned on the cusp of the "double-edged" invention, using adhesion to create causality, and then undermining it; or in the case of visual music, offsetting literalness with the arbitrary. The following part of the paper will explore asynchronism's application in the context of the author's visual music pieces and the Lumière et Son collaboration.

Publications one to three consist of a series of nine visual music pieces, whilst publication four comprises eight videos selected from the Lumière et Son collaborative videoblog project. These groupings are largely chronological and relate to the evolving process of artistic research. Different methodological strategies were employed throughout, and so each set of publications is prefaced with a discussion of the method adopted.

5.1 Publication One - *A Rocco Din* (2004), *Jiggery Pokery* (2005), *Row Row* (2005)*, Quadrangle* (2005).

Methodology

The visual music pieces made the greatest use of new software, much of which had been developed just after the turn of the millennium, with computer processors and graphic cards having by that point become sufficiently fast to enable real time processing of audio and video.

Numerous applications were released including: Almost Sync, M2V, M7, MD4, VDMX (Audiovisualizers Website). In these applications, synchronisation is usually by way of a peak level detector, providing a trigger pulse when a sound frequency reaches a certain volume in the bass, middle or treble regions. This is essentially a digital version of the three colour disco light, and is suited to music with a strong beat. The expectation is that rather than originating complete audio-visual works, one will be adding visuals to existing music, with all the potential pitfalls discussed in the literature review. Just as in Fischinger's *Optical Poem*, Liszt's *Hungarian Rhapsody No 2* dominates proceedings, and the visual element become illustrative, so the contemporary VJ often does little more than accentuate the dynamics of the music.

Experimentation with these programmes had limited success, but more promisingly one application, Videodelic (U & I Software, 1), released in 2000 offered a "multimedia application — a real-time video-art synthesis instrument

with built-in Montage Room sequencer – that introduces a new modality for multimedia art" (U & I Software, 2). Hyperbole aside, what was significant was that Videodelic offered MIDI synchronisation. A MIDI signal contains no audio, but instead is a set of digital commands used to control parameters on a synthesizer: pitch, velocity, volume, envelope, etc. As in the digital domain all data, "whether visual, auditory or textual" (Le Grice, 2001. pp 268) is represented numerically, the same data that produces MIDI notes can also be mapped to control various visual manipulations: rotation, zoom, colour, video feedback, and so on.

Le Grice put this into practice in *Arbitrary Logic* (1988) and *Digital Still Life* (1984-86), in which he used an Atari computer to digitally define both the sequencing of the images, their colour hues, and the music produced (Le Grice, 2005). Similarly in this publication, by mapping data from a sequencer to a synthesizer (via MIDI) and also to Videodelic, it was possible to simultaneously compose/construct sound and moving image together.

The research began with simple exploration, finding out just what was possible through the interplay of different images, video files and data sequences. It soon became clear that using videos over-complicates things, as they already contain movement, whereas if one starts with a single still (PICT/JPEG), any image manipulation or motion generated by a data sequence is more obviously causal.
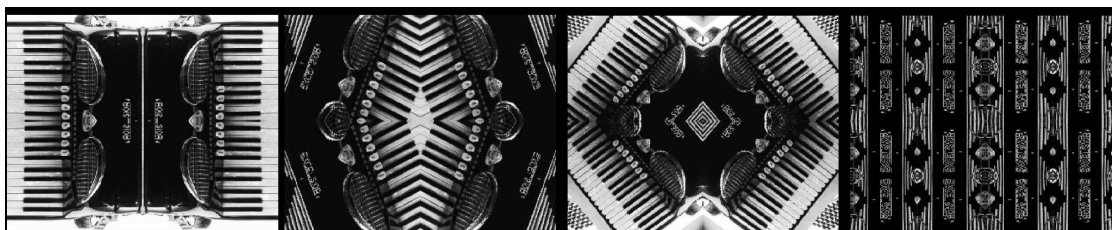
Analysis - *A Rocco Din* (2004)

Figure 2. Sanderson, P., *A Rocco Din* (2004)

A Rocco Din (an anagram of accordion) starts with a digital sequencer whose numerical output is used to control the spatial movement of an image of an

accordion, whilst also being transformed into MIDI notes. The result is a piece of accordion music which is synchronised with an animated 'playing' of the image; a simultaneity that suggests that the sound should in some way be emanating from the instrument (on the screen). Countering this, the graphic representation of the accordion, with its black and white fragmented close-ups, communicates that a human hand is not playing the instrument.

A traditional style of melody helps establish the connection between music and image, before the introduction of an element of visual discord. Popular music contains multiple counterpointed parts: drums, a bass line, a chord sequence, and finally a 'top' melody. In contrast, the majority of mainstream films involve one or two points of visual attention within a frame. The music in *A Rocco Din* is formed of a bass and a treble line. Linking the animation to just one of these, would have created untroubled synchronisation, and this is indeed how the piece starts; but as it progresses, the movement of the image is mapped to both parts, the bass making the image move one way, the treble another. This willfully problematises the viewing experience, and combined with ambiguity as to whether sound is driving image, or vice versa, gives what presents itself initially as a cheery animation an underpinning dialectic.

Analysis - *Jiggery Pokery* (2005) & *Row Row* (2005)

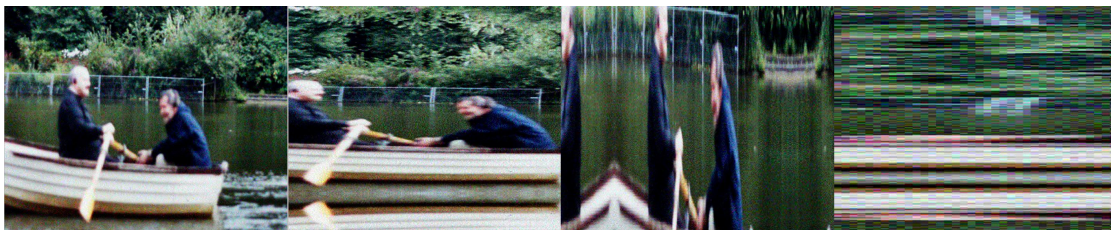Figure 3. Sanderson, P., *Jiggery Pokery* (2005)

Figure 4. Sanderson, P., *Row Row* (2005)

Continuing the vein of exploration began with *A Rocco Din,* in *Jiggery Pokery*

a JPEG of two highland dancers is animated using digital data that also produces a traditional highland jig. Meanwhile in *Row Row,* the back and forth sound of creaking oars is mapped to the manipulation of a still image of two men in a boat. In both cases, the vertical and horizontal stretching creates a somewhat comedic and exaggerated illusion of movement. What begins in *Row Row* as a semblance of rowing, becomes a see-saw of pixels, before the image 'work out' fades to a more gentle bobbing up and down, whilst in *Jiggery Pokery* the two figures move in a distorted approximation of a highland dance.

The stretching technique is a digital update of one first used in the 1920s. When seeking a way of animating their scrolls, visual music pioneers Richter and Eggeling painted shapes directly onto thin rubber sheets, and then asked Richter's brothers and sisters to pull the sheets vertically and horizontally, thereby creating animated movement (Robertson, 2009, pp 26). Though discarded at the time as unsatisfactory, the same method applied digitally is at the heart of contemporary post-production node-based digital compositing applications such as NUKE (The Foundry website). Here the distortion was purposely kept relatively crude, making the animated movement only just plausible to help foreground the artifice. As with *A Rocco Din*, there is an intentional ambiguity about audio-visual causality, with the two dancers not so much dancing to the music as being danced by it, and the sound of creaking oars not the result of the boatmen's exertions, but the reverse.

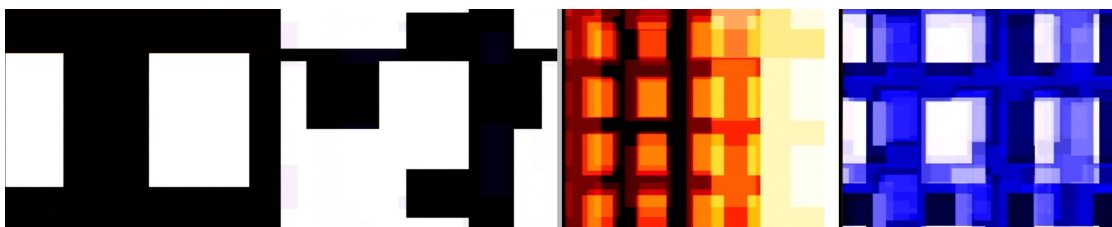Analysis – *Quadrangle* (2005)

Figure 5. Sanderson, P., *Quadrangle* (2005)

Quadrangle takes as its starting point Richter's *Rhythmus '21* (1921), one of the first visual music films, built from animated overlaid rectangles and squares that move from side to side, and forwards and backwards within the

frame, creating an illusion of depth. The logic of the spatial organisation and of the accumulation of visual shapes is, as the title suggests, underpinned by a musical form, the Bach fugue (Robertson, 2009, pp 13-46). The piece was originally shown silently, and as with Eggeling's sister piece, *Diagonal-Symphonie*, the musical metaphor "is made the stronger by Eggeling's insistence that his film be shown silent" (Rees, 1999, pp 37). As seen in the literature review, adding music can turn metaphor into illustration, or be used to substantiate claims of synaesthesia. Digital mapping offers the potential to sidestep these problems, by producing both sound and image from the same data, but enabling an element of arbitrary correlation.

A patch was built in Max (Cycling 74) to generate quasi-random trills, runs and staccato bursts of data, punctuated by moments of silence. This information was then mapped to control the animation of the white square, and via MIDI, a synthesizer. As the electronic music starts and stops, so simultaneously the white square performs a synchronised spatial choreography: changing colour, moving across the frame, advancing and retreating, and producing a variety of grid-like patterns.

The arbitrary element is introduced by keeping the sound parameters the same throughout the piece, whilst the visual mapping parameters are changed at intervals. So in one section a data trill will produces a particular electronic sound, corresponding with the white square moving across the screen, whilst later, the same data causes the square to rotate, whilst the sound remains the same. The result is to continually question sound and image causality, and counter suggestions of literalness.

5.2 Publication Two - *Engine Trouble* (2005), *Kisser* (2007), and *Fleshtones* (2006).

Drawing on the paradigm in Sherwin's optical sound pieces of using moving representational imagery to generate sounds, publication two investigates different methods of digital sonification.

<u>Methodology</u>

The pieces were made using Max/MSP/Jitter (Cycling 74) alongside Artmatic (U&I software, 3). Max/MSP/Jitter, often just referred to by the abbreviation 'Max', is a "visual programming language" that allows one to build audio, video, and graphical processing 'patches' from individual elements (Cycling 74). Max was originally developed at IRCAM (Institut de Recherche et Coordination Acoustique Musique) in Paris in the 1980s, continuing until 2003, when Jitter was released concentrated on audio processing. The addition of the Jitter video extensions means one can perform various video manipulations and link these to either audio or MIDI signals.

Almost any kind of audio or visual processing is possible in Max, but whilst easier than coding or programming from scratch, Max does have a steep learning curve. Adopting something of a trial and error approach, by modifying or taking elements from existing patches and then combining them into new ones, a series of mini applications were built that enabled sonifications beyond what Videodelic, or any off-the-shelf software available at the time could offer.

<u>Analysis - *Engine Trouble* </u>(2005)
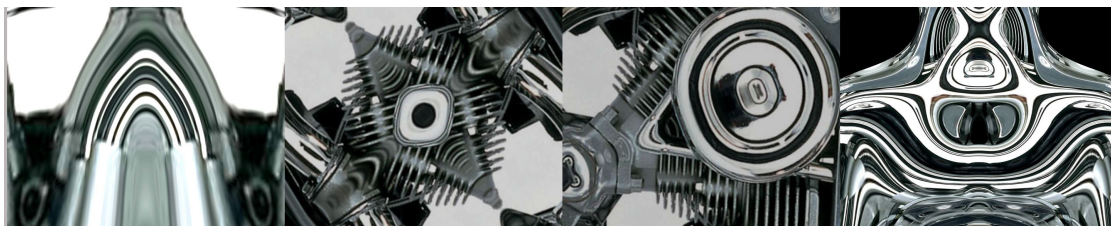
Figure 6. Sanderson, P., *Engine Trouble* (2005)

Engine Trouble pastiches 1970s and '80s television commercials for Castrol GTX engine oil, in which liquid and shiny steel entwine, in an attempt to turn a rather unglamorous product into something all but sensual. In their way, these adverts were celebrations of the driver of modernity, the combustion engine, minus of course any of the consequences, such as pollution, road deaths and global warming.

The visual component for *Engine Trouble* was a JPEG of a Harley Davidson

engine which was first animated using the fractal-based application Artmatic (U&I Software, 3), resulting in footage of a swirling mass of metal, that moves between recognisable piston forms and molten abstraction. Morphing digital liquid metal was first popularised In *Terminator 2: Judgment Day* (1991), and was an example of a then 'cutting edge' computer-generated effect, which within a couple of years lost its sheen. It seemed fitting to use this effect for a pastiche of a machine-orientated ideology that is similarly outdated.

To produce the sound, a Max software audio oscillator patch was created that scans the centre of the image, and as the picture moves, the frequency rises or falls. The engine sound produced is surprisingly plausible; coughing and spluttering as the image slows, and roaring as it picks up speed. As with Sherwin's optical sound piece *Railings,* the sound is akin to its 'real world' counterpart, but its very plausibility helps reveal the mechanism of sonification, by evidencing that it is the animated moving image (the representation), rather than the actual object, that is the source.

Analysis – *Kisser* (2007)
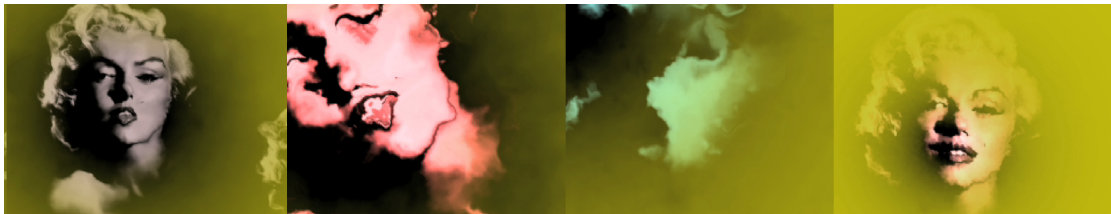
Figure 7. Sanderson, P., *Kisser* (2007)

If in *A Rocco Din* and *Jiggery Pokery* specific notes and image movements are synchronised, in contrast in *Kisser* what was sought was a single long evolving durational interplay. To achieve this granular synthesis was applied, using Artmatic to slowly atomise the well-known image of Marilyn Monroe into a cloud of smoking pixels, whilst a Max patch causes the soundtrack to evolve from simple tones into a complex chord. Once suitably broken down, both music and Marilyn gradually reform to their original state.

The close binding together of sound and image inevitably has a certain synaesthetic quality. In *Quadrangle*, in order to offset notions of Whitney-

esque harmony, the arbitrariness of synaesthetic relationships was foregrounded; here, the intention is different, for *Kisse*r actively seeks to draw the viewer into an immersive moment, before emerging or exiting, as the image reconstitutes itself. In other words the "path of least resistance", and the quest for sensory sublimation are both momentarily given in to, and then the process reversed.

Analysis – *Fleshtones* (2006)

Figure 8. Sanderson, P., *Fleshtones* (2006)

Fleshtones conflates two desires: firstly to see that which is hidden, and secondly for there to be a harmonic correspondence between music and colour. The second urge is found in the Gesamtkunstwerk synaesthetic strand of visual music, and to articulate this relationship over the years a variety of colour organs have been designed, ranging from Castel's 1734 Ocular Harpsichord through to Wilfred's Clavilux in the1920s (Rogers, 2013, pp 64).

Appealing as the notion of inner harmony between colour and pitch is, as Le Grice (2001, pp 270) points out, given classical music's reliance on the basic laws of physics to define notes and harmony, these same principles cannot be applied to any logical system of reciprocal colour organisation. Nonetheless, the wish for there to be a correlation is clearly very strong, and *Fleshtones* willingly plays on this by establishing a dialogue between on-screen colour and notation, which is then frustrated by what remains unseen rather than exhibited.

The piece was created using a Max patch that heavily pixelates the video footage fed into it. The changing hues of the resultant large colour blocks are turned into MIDI notes (by the same patch) and sent to a piano synthesizer to

create the soundtrack. As with *Engine Trouble*, the piece requires change in the image to produce sound, the rhythm, tempo and melody of the piano notes being entirely the result of the on-screen movement.
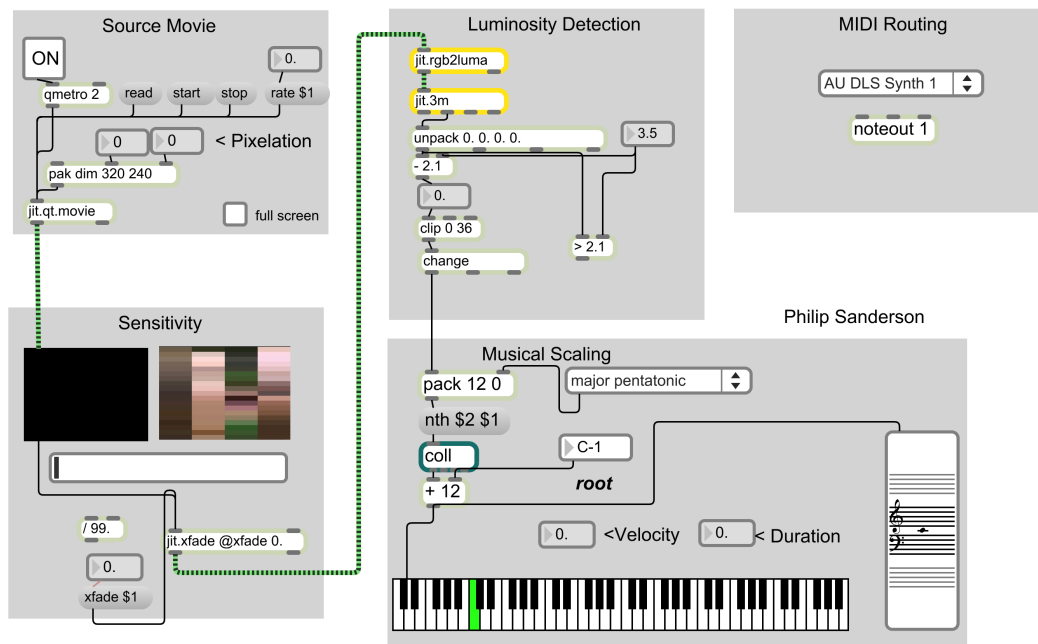
Figure 9. Sanderson, P., Max patch for *Fleshtones*

Fleshtones might seem initially to be a simple digital colour organ, and indeed without the contextual information this is how it would be seen, but this reading is subverted once one knows that the blocks originated as pornographic footage. The unseen element provides an arbitrary counterpoint to the seeming literal equation of colour and melody. However strong our antipathy to pornography, there is a desire to see what is hidden, for there to be some revelation/resolution of the image. That this is denied acts as an asynchronous irritant in the otherwise polite combination of coloured squares and piano notes.

5.3 Publication Three - *Landfill (2008)*, and *Battle of the Pixels* (2015).

Methodology
The pieces in publication three use a looser analogous interplay that recalls in method Lye's *Trade Tattoo and* Le Grice's *Berlin Horse,* in which manipulated

film is given a counterpointed sense of rhythm by respectively, the syncopations of Cuban music, and Eno's looping piano permutations. This method can be applied digitally by mapping the tempo of the music tracks to the parameters and timings for the key frames in a digital animation.

The animations were created in Artmatic, a "graphic art synthesizer" that uses a combination of algorithmic and fractal based mutations to create "generative art" (U&I Software, 3). The developer's website is full of examples of lunar landscapes and organic forms, but in the same way that Videodelic (by the same company) can be repurposed, Artmatic can be employed in a way which references the illusory nature of the images produced.

Analysis - *Landfill* (2008)

Figure 10. Sanderson, P., *Landfill (2008)*

The yodel might be considered an early form of sonification, as a purported function of the idiosyncratic style of singing was as a distance sonar in the Swiss Alps. From the top of a mountain range, the time a sound took to return from the surrounding hills gave herdsman an indication of their location, and enabled them to communicate with other shepherds (Ling, 1997, pp32).

Landfill plays with this idea by linking the time signature of the treated yodelling with the frame-by-frame changes in an animated morphing topography, resembling a satellite time-lapse view of a landscape whose peaks, valleys and ridges are in a constant state of flux. This approach avoids literalism as there are no specific individual points of correspondence, but rather the linkage is more arbitrary, with music and image bouncing off each other in a loose asynchronous mesh.
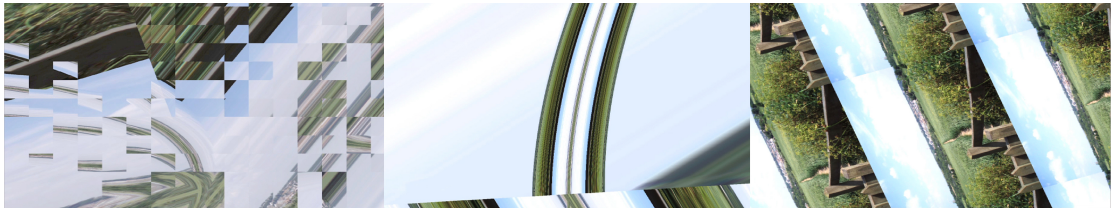
Analysis - *Battle of the Pixels* (2015)

Figure 12. Sanderson, P., *Battle of the Pixels* (2015)

Glissandi strings matched to arcing camera movement is a Hollywood staple, used to heighten moments of dramatic significance. More recently, physical camera shots have been replaced by CGI swoops and dives, so that the point of view in many action films is akin to something only a bird in flight might see.

Battle of the Pixels uses the dynamics of the orchestral flourishes of an extract from the soundtrack to *The Battle of Britain* (1969) to provide the reference points for the skewing of an image of a Kent field. The distortions create a sense of flight, mirroring the aerial acrobatics of the original film's cinematography. Loose asynchronism here is more akin to Eisenstein style contrapuntalism, with a degree of verticality added to the horizontal.

5.4 Publication Four: Lumière et Son (http://Lumière-et-son.blogspot.co.uk)

Lumière et Son was a year-long (2009-10) collaborative videoblog by Philip Sanderson (UK), and Thomas Wiesner (Denmark). Wiesner (who uses the pen name of Sam Renseiw) produced the 'Lumières', silent one-minute videos of everyday scenes, shot from a static position in the manner of the Lumière Brothers' one-reel films such as *La Sortie de l'Usine Lumière à Lyon* (1895). Sanderson then added the 'Son', found sound taken from a range of sources, including shortwave recordings, film and television soundtracks, YouTube videos, etc. The blog title inverts the French phrase, son et lumière, which in English has the ring of an old established family firm…Lumière and Sons. Forty-four videos were produced, one being uploaded every week. Eight videos have been selected for discussion here.

Both Wiesner and Sanderson were part of an online community of artists regularly posting videos online. After a period of correspondence, the idea developed of collaborating. Wiesner had already recorded the Lumières, so this differs from a collaboration in the sense of two people simultaneously working on a project; instead, as a model one could possibly invoke Bourriaud's (2001) thinking around the artist as post producer, or Navas's (2012) theories of the mash-up. These paradigms tend to presume the re-mixing and/or appropriation of popular/mass media(ted) elements and material. This was true of the audio, but the Lumières were not edited or manipulated in any way; it was the sound alone that was performing the remix, which was the intention.

The Lumières have a number of shared stylistic elements that contribute to facilitating asynchronous juxtaposition and which give continuity to the project. By definition, the camera is static with no pans or zooms; similarly, there are no subsequent edits or fades. Wiesner is a trained architect, and this is reflected in his carefully framed footage, often shot from a low, almost voyeuristic, angle with a small discreet camera. The everyday scenarios and street scenes Wiesner records are vignettes of everyday life in Denmark (with occasional forays to Japan, Poland and London), and though unscripted, they all have a certain choreography to them (Szpakowski, 2012). The addition of the sound both foregrounds, and plays with and against this element.

The audio is 'found sound', in the same way as 'found footage' denotes material originally produced for another context. The digitisation and availability of so much of the world's audio back catalogue online in the early part of the 21st century was integral to the project. In 2012 the forced closure of anonymous file storage servers such as Megaupload at the behest of the music industry spelt the end for many blogs posting audio files (BBC News, 2012). Record companies were more concerned that the latest Madonna album was freely available, rather than an LP used to train optician staff, but nonetheless even marginal material got swept up in the bid to rest back copyright control. This was all to come later however, and the period when the

Lumière et Son work was made was something of a 'golden period' in terms of being able to access a wealth of audio material without restriction.

<u>Methodology</u>

As discussed in the literature review, moments of simultaneity create adhesion (Eisenstein et al, 1928) between sound and image, with the viewer's attention drawn into/onto the screen, and to the specific parts of it where adhesion is taking place. If this causal link is broken, an asynchronous 'push-pull' dynamic is created, as seen in Smith's *The Girl Chewing Gum*, in which we are seduced by the voice appearing to direct the 'action' in the street, before the realisation that the voice was added post-filming, makes us reframe our view of the footage. Nonetheless, momentary adhesion occurs throughout the piece, and there is an ongoing revelation of the audio-visual mechanism at work. Several of The Lumière et Son pieces use variations on this 'push-pull' technique, with both voice and music employed to draw out and counterpoint elements within the moving image.

The process began by first watching the silent Lumières, when often as not an associational linkage would suggest itself. This might be specific, such as in *Spring Greens* (2010), in which the photo shoot in the park immediately recalled Antonioni's *Blow Up* (1966), or more tangential, as for instance the combination of line dancing instructions found on a YouTube video with footage of people crossing a square used in *Square Dance* (2010).

Once a video was complete, it was uploaded to the blog where it was accompanied by a couple of lines that portray a fictionalised day-to-day artistic practice, somewhat spoofing the videoblog's usual diaristic nature. So the first entry describes a meeting, "Lumière was studying a composition through a concrete letterbox at the Barbican, whilst Son was listening to music from Orrori Del Castello di Norimberga (Baron's Blood)", and then "Lumière takes in a fine Polish performance, whilst Son only has ears for the Portsmouth Sinfonia and eyes for the Sugar Plum Fairy."

To explore the dynamics of the sound and image dialectic, analysis of eight pieces follows.

Analysis - *Square Dance* (2010), *Belisha Code* (2009)

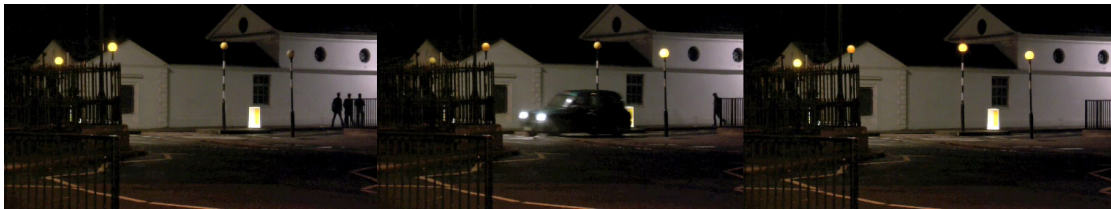Figure 12. Sanderson, P. & Wiesner T., *Square Dance* (2010)

Figure 13. Sanderson, P. & Wiesner T., *Belsiha Code* (2009)

Belisha Code and S*quare Dance*, as with Smith's *The Girl Chewing Gum*, use the voice as the key audio reframing device. In S*quare Dance* a voice-over from a YouTube line-dancing tutorial repeatedly counts out a series of steps, "one, two, three, four, five, six, seven, eight". The footage shows a Polish square, which members of the public traverse at different angles and speeds. As the figures cross the square, many of them appear to fall into step, and in time with the counting, as if following the instructions. The correspondence is often brief, but for these instances voice and image adhere on screen, and become located in the motion of the pedestrian, before the person falls out of step or exits the frame, only for a new synchronisation to occur as another person approaches from a different angle. This continues throughout the piece, pushing and pulling us in and out of the frame, and drawing our attention to different parts of it. Echoing *The Girl Chewing Gum*, we quickly recognise that voice and action are independent of one another, but the sense of an audio-visual connection, and of a choreography of the everyday, is repeatedly made, and then unmade, each time a new person picks up the count.

In *Belisha Code* we again hear a sequence of numbers, but this time from a shortwave radio transmission, married with a shot of Belisha beacon lights at a crossing in London. 'Numbers' broadcasts are streams of seemingly random coded sequences that have been used by government agencies around the globe (but particularly Western and Russian secret service authorities) since the early part of the 20th century to communicate with spies working undercover in the field. As the amber lights flash on and off, so there is a correspondence between the beacons and the numbers, followed by the two going out of sync and then back in again. As with *Square Dance*, these fleeting moments of simultaneity locate themselves on screen at the point of correspondence, the adhesion inviting a causal link between the two. Rather than people seemingly walking in step to the counting, here there is a suggestion that perhaps the lights are part of some decoding mechanism, or are in some way being driven by the broadcast. In both cases the repeated adhesion, and then separation, makes the audience aware of the mechanism and workings of the audio-visual relationship, and their active participation in creating meaning.

Analysis – *Spring Greens* (2010)
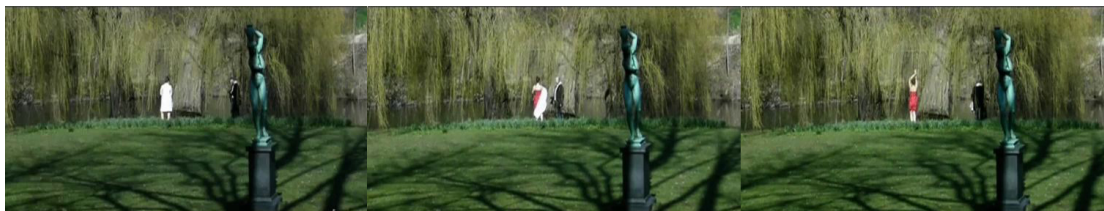
Figure 14. Sanderson, P. & Wiesner T., *Spring Greens* (2010)

Spring Greens shows a young man and woman in a Danish park/garden. The man has a camera and gestures to the woman who removes her coat and begins to strike various fashion-shoot poses, whilst on the soundtrack we hear a couple talking. The on-screen couple are too far away for their lips to be seen, but their actions and gestures seem matched with the flow and tone of the discussion; she striking a pose after being asked to, he crouching to take a shot before we hear the shutter click. We at first assume that the sound and image are from the same location. The sonorities of the recording are however more interior than exterior, and though unlike *Square Dance* where

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there is a continual push-pull revelation, here we more slowly begin to question whether what we are listening to is actually from the park. There is a certain familiarity about the dialogue, and keen cineastes will recognise it is as being taken (un-edited) from the soundtrack to Antonioni's *Blow Up*, with the couple in the Danish park unwitting engaged in a remake or re-enactment of the photo shoot scene originally played by the actors, David Hemmings and Veruschka.

As per the prediction in the 'Statement' (Eisenstein et al, 1928) that synchronised sound would be used to provide "a certain "illusion" of talking people", dialogue has developed as the key way in which a faux naturalistic world is created in mainstream cinema. Here the intention is to disrupt such hermetically sealed certainties by creating a false adhesion, synchronising voice and action, but with dialogue that slowly reveals itself to be from outside the frame, indeed from a completely different film.

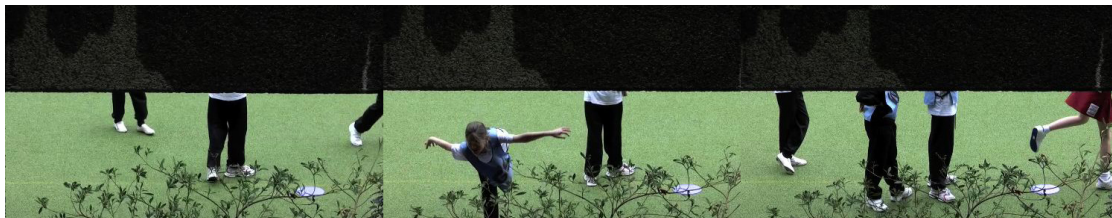Analysis – *Letterboxing* (2009), *Nutcracking* (2010), *Goings On* (2010)

Figure 15. Sanderson, P. & Wiesner T. *Letterboxing* (2009)

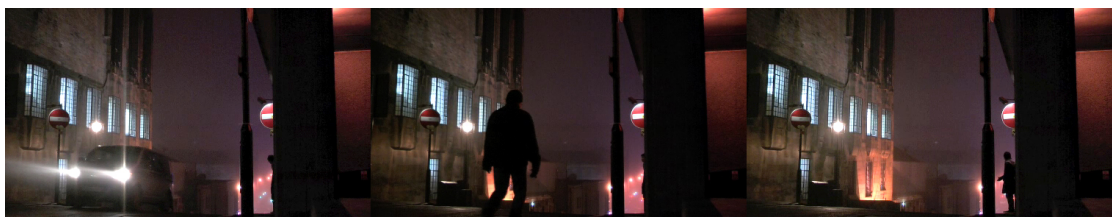Figure 16. Sanderson, P. & Wiesner T., *Nutcracking* (2010)

Figure 17. Sanderson, P. & Wiesner T., *Goings On* (2010)

In commercial cinema, music is used to heighten on screen action, be it

soaring strings during a love scene, or fast tempo beats to accompany a car chase. As Hamlyn (2003, pp167) puts it "music controls the emotional response to a scene", thereby making it difficult for the audience to create their own reading. The mechanism by which this works is paradoxical, in that though Gidal (1989, pp 29) describes music as "filling the image", in the context of narrative cinema, music is often sublimated, bound inside the image, almost unnoticed, with the visual element, the 'action', deemed to be what is emotive.

Nutcracking, *Letterboxing*, and *Goings On* are three examples of pieces that intentionally use music to reframe the visual, seeking to foreground its role in shaping our perceptions. This approach is a combination of that used by Marker in *La Jetée*, in which sections of Boosey & Hawkes film library music help imbue the sequence of photographs with meanings and quasi-cinematic resonance; along with a nod (once again) to Smith's *The Girl Chewing Gum*, except in this case, instead of the voice, it is the music 'directing' the images.

Letterboxing shows a small group of girls playing rounders. We only see the lower half of the girls' torsos, with the image cut off by a concrete lintel (creating the letterbox window), nor are the other players or the ball visible; all the 'action' is off-screen. Juxtaposed with this image is music by Stelvio Cipriaa from the soundtrack to *Baron's Blood* (1972), which is of the type heard in many films of the '60s and'70s, often in scenes containing little dialogue, with strings and vibraphone building a 'dreamy' atmosphere. Despite the music being composed for a different film, it melds with the Lumière creating a kind of reverie as the girls shuffle back and forth on their base with one of them (perhaps aware of the camera?) performing a half-hearted ballet step. Music and image combine, and yet the sound is not sublimated, for we remain aware the two are quite distinct and can perceive the affect the music is having. Finally, a minor chord sounds, and as if on cue, one of the girls runs out of frame. As when voice and image correspond in *Belisha Code* and S*quare Dance*, the chord and motion creates on-screen adhesion, pulling the viewer from the reverie and into the frame just as the girl exits, and the screen goes black. Having briefly tied us into the picture, the

music then directs our attention out of the frame, and to what possibly lies beyond it.

The Portsmouth Sinfonia's somewhat atonal version of the *Sugar Plum Fairy* is matched in *Nutcracking* to a shot of three workmen engaged in repairs to a house on a street in Poland, whilst members of the public walk past. The music creates flashes of adhesion with both the workmen and passers-by. Firstly, the rhythm from the bowed strings corresponds with the motion of the first pedestrian to cross from right to left (in a way not dissimilar to the counting in *Square Dance*)*,* before the xylophone plays, and our attention turns to one of the workmen all but tapping in time with a small hammer on a tile by a door. We know that he can't be playing the tune, or even miming to it, indeed he has been tapping all along, and yet we are drawn to the adhesion. The music builds, with a mournful brass section creating a comedic undertow as an old lady enters the frame from the left, pauses for a moment as if awaiting her cue, and then lugubriously traverses the frame, pulling a shopping trolley behind her.

A nighttime scene outside the Glasgow School of Art is the source of the footage for *Goings On*. Nothing in particular happens: a car drives up the hill, two men walk past from different directions, and a figure on the right of the screen, who is initially in shadow, steps out from the darkness and rubs his hands. This no doubt innocent activity is infused by the guitar music of Glenn Branca's *The Spectacular Commodity* (1981), adding menace and creating dramatic tension where none previously existed. The man in shadow begins to look suspicious: what or who is he waiting for, why is he there? Is the car on the way to a drug drop? Sound and image bind together in a way that seductively reveals the manipulation brought about by the music's filling of the image. Had the scene been acted, part of a longer drama, we may well have been seduced into the director's narrative world, but here we can feel our emotions being played with, demonstrating how the unscripted can so quickly and easily become 'cinematic' with the addition of a few chords.

Analysis - Overseen Overheard (2010)*, Aye Aye* (2010)

Figure 18. Sanderson, P. & Wiesner T., *Overseen Overheard* (2010)

Figure 19. Sanderson, P. & Wiesner T., *Aye Aye* (2010)

In Frampton's *Nostalgia* there is a disconnect between image and Michael Snow's voice-over, as the latter's commentary is heard out of step with the photographs onscreen, causing the viewer to work at creating meaning by engaging with past and present simultaneously. This type of willful disjuncture, that initially suggest correspondence and then thwarts it, informed Over*seen Overheard*. Through a shop window we see a large TV screen on which a women is using sign language. We presume she is signing what can just be glimpsed on a smaller screen beside her. The soundtrack is an audio account of what to do if you should 'hear voices' transmitted electronically into your mind (electronic voice phenomena). The tempo of the speaking voice and of the signing are similar, and our first reaction is to 'read' one as being a translation of the other. The women's facial expression and pauses suggest that this is so. We then realise however that this is impossible, as the voice would also need to match that from the screen beside the signer, and these two do not synchronise. Again adhesion is made, and then subverted.

The last piece to be discussed is *Aye Aye*. The screen shows figures from beneath as they crawl over one of Tomás Saraceno's *Biosphere*s (2009). Accompanying this is a track from a Donald & Aitchison LP. Donald & Aitchison are a firm of opticians, and the LP (made in the 1970s) was designed to instruct new staff joining the company; in particular, it seeks to debunk the myth that wearing spectacles makes eyesight worse. The

adhesion between image and sound is purely associational, in that the figures crawling over the dome shaped Biosphere bear some resemblance to the black spots one sees after staring at a bright light. The melding is asynchronous, inviting the viewer to make a combined reading of sound and image, but leaving the two distinct.

6. Exhibition & Reception

The relative brevity of the videos that make up the publications can be explained in part by the context in which they were made, and exhibited. Previously (1992-2002), the author had devised a number of audio-visual installations for gallery spaces. One aspect of this type of space is that audiences can walk in and out at will, a potential limitation that in this case suited the installations, which were cyclical, and non-narrative. Something of this approach was carried over to the videos, and consequently many of the pieces have short looping structures, rather than a well-defined beginning, middle and end.

Kisser, A Rocco Din and *Jiggery Pokery* start and end with the same image with a view to their being looped. *Quadrangle* is a slice from a longer twenty minute 'live' recording, and the digital algorithms can continue indefinitely without repeating. Similarly *Fleshtones*, with enough source footage, could be of indeterminate length. When recognisable musical structures are employed, as in *A Rocco Din*, these are based on repeating reels.

A non-linear, non-narrative, non-resolving nature is, Le Grice (2001, pp 289) suggests, a defining feature of experimental practice. Nonetheless, many single screen artists' moving image pieces have historically had a temporal trajectory, and the expectation is that audiences will watch them in a linear fashion, often at a seated screening. In contrast, the works in publication one to four were made with the computer screen as a possible place of exhibition. For if the pieces were facilitated by developments in computer hardware and software, then the allied development of the internet offered a platform for the works to be exhibited and distributed.

The author first put together a website in 2001, mostly containing documentation of installations and previous work, from 2005 the website (Psouper Website) and an accompanying blog (Brut Smog Blog) were used to post new work as it was made. The pieces were not diaristic, but their short form suited the web, and there was a natural symbiosis between making work

on the computer and then using the same machine to upload and distribute it. Viewing conditions online are very different from those found at a seated screening, with people watching videos on their computers at home, sitting at a desk positioned in close proximity to the screen, listening either on small speakers or headphones. Until bandwidth increased, and hard disk space became more affordable, videos were also usually streamed at low resolutions. Thus the online experience in the early 2000s tended to favour short, immediate pieces.

Engagement at this point was usually with other video makers. In 2005, however, YouTube was launched, heralding an enthusiasm for online videos from a mass audience. A significant number of YouTube postings have echoes of the "cinema of attractions", a term coined by Gunning (1986, pp 64-65) to describe cinema up to 1906, that "celebrated its ability to *show* something" directly to an audience, and "exhibited in a way which was often closer to that of the amusement side-show".

YouTube's success as a platform was rapid, and the author, inspired in part by the seeming return to a pre-narrative form of cinema, and with a certain utopian enthusiasm for an unmediated distribution platform, uploaded to the site. In the first two years, pieces such as *A Rocco Din*, *Jiggery Pokery*, *Engine Trouble* and especially *Fleshtones* all had thousands of 'hits'. As the number of videos on YouTube rapidly increased, so the 'views' for more experimental work quickly diminished. There were attempts made by some to create YouTube channels that would only show artists' moving image work, though the major distribution libraries in the UK, the Lux and the BFI, initially showed little interest in such ventures. It was only much later that attitudes changed; for example, in 2015 the Lux launched their Luxplayer.

There then developed two online places of exhibition, the bear pit that YouTube was rapidly to become, and a much smaller web community of artists uploading and sharing work. This second vein was a valuable addition to more conventional screenings, as well as encouraging a different way of making work, something explored in the Lumière et Son collaboration.

In parallel, the videos in publications one to three were screened at festivals, often in programmes related to visual music or the audio-visual relationship. For example, *Quadrangle* was shown alongside works by the new school of Austrian abstraction, and Simon Payne's colour bar pieces, as part of Microprocesses, a programme of experimental sound video curated by Steven Ball at the Island Art Film & Video Festival (Microprocesses Programme, 2005). Similar contexts were offered at the Iota Centre, Evolution (2006), the Punto Y Rata festival (2007), and the Visual Music Marathon (2007). Other pieces were screened at artists' moving image festivals from Berlin to Brazil (see - List of Screenings).

As a result of posting videos online, the author built up a relationship with Wiesner in Denmark, which led to the Lumière et Son collaboration. Approximately one piece a week was posted to the blog over the course of a year, and the videos had a small, but seemingly appreciative, audience. Michael Szpakowski, the joint editor of DV Blog, reposted six of the pieces and wrote an extended essay on the project for the Furtherfield website (Szpakowski, 2012).

As serendipity would have it, the length of the Lumière et Son pieces meant that they were a good fit for Kerry Baldry's annual one-minute programme of artists' moving image works (now up to volume 9). This began an association that through the wide-scale touring nationally and internationally of the programme ironically meant many of the pieces found a second and larger audience at screenings (Baldry, 2016).

Overall, the works explored and engaged with the new exhibition platforms that were created online, as well as reaching audiences via screenings. Whilst the former initially looked as if it may make the latter redundant, as the relationship has matured, so the two have begun to operate in a symbiotic relationship, with social media increasingly being used to communicate with audiences who seek more tactile relationships with artworks through physical screenings.

7. Conclusions

The aim of this thesis has been to examine the asynchronous use of sound in the author's moving image practice, contextualised by a literature review which critically discusses the issues and paradigms that have shaped the use of sound in non-narrative cinema, both from an historical and contemporary perspective. This concluding section will seek to draw together the different strands of the research, so as to demonstrate how the strategies employed, respond to, or marry with, issues identified in the literature, and in what ways this advances our understanding of asynchronism.

Using Adhesion to Underpin Dialectic

From the moment that a reliable method for audio and image synchronisation was developed, sound was identified as a "two edged invention", having both the negative potential to create an illusionist cinema of "talking films", or if counterpointed and used asynchronously, to extend and develop dialectic (Eisenstein, et al, 1928).

The dangers of sound reinforcing illusion are always present, which may be why Hamlyn (2003, pp 167) notes so many filmmakers are wary of sound. When using audio, one must be mindful of its inherent desire to 'adhere' to the image, but as has been seen in both the literature and in the practice, this aspect can be actively used as part of a reflexive strategy. By including moments of adhesion, and letting an illusionary causal link form, before then breaking, or revealing the mechanism, dialectic tension is created on the cusp of the "two edged invention".

A clear example of this is Smith's *The Girl Chewing Gum*, in which the initial suggestion of causality between the 'director's' voice and on-screen action, (which is quickly revealed to be false), acts in a powerfully anti-illusionist way. Echoing this, the Lumière et Son pieces S*quare Dance* and *Belisha Code* demonstrate how asynchronism can be achieved using a form of 'push-pull' adhesion. Through the addition of a soundtrack comprising lists of numbers being counted out, fleeting moments of correspondence are created, followed

by sound and image going out of sync, and then back again. These passages of simultaneity locate themselves on-screen, suggesting a causal link, before the link is then severed. This pushing and pulling back and forth makes the viewer aware in a direct way of the audio-visual process, and their participation in it.

Spring Greens sought to show how this process of questioning causality can also incorporate dialogue. Synchronised dialogue, as predicted in the 'Statement' (Eisenstein, et al, 1928), underpins mainstream cinema; here the intention was to disrupt the hermetically sealed certainties of sync sound by the simple method of using dialogue, which though initially seeming to match what is on screen, is taken from a completely different film (*Blow Up* (1966)). Further multi-layered variations on this process were demonstrated in *Overheard Overhead* and *Aye Aye*.

The nature of the Lumières, with their fixed camera and unedited footage, makes them especially susceptible to the effects of music. Gidal (1989, pp 29) describes music as "filling the image", and yet in the context of mainstream cinema, it is often sublimated, bound inside the image. Had the Lumières been scripted, then adding music would have simply produced a standard Hollywood style combination. With unscripted footage of the everyday, the role that music can play in shaping our responses is foregrounded. This foregrounding is reminiscent of Marker's *La Jetée*, in which film library music together with voice-over imbue the photographs with meaning; or again, Smith's *The Girl Chewing Gum*, except, instead of the voice, it is music that can seemingly orchestrate or direct the images.

The way music can shape our perceptions is demonstrated in the Lumière et Son piece, *Goings On*, with a nighttime scene outside the Glasgow School of Art infused by Glenn Branca's guitar music, adding menace and creating dramatic tension where none existed previously. Meanwhile in *Nutcracking*, the tempo of the bowed strings corresponds with the motion of the pedestrians and the site workers, creating a counterpoint of rhythms between the frame and the dynamics of the music.

Building then on the examples discussed in the literature review by Smith, Frampton, and Marker, the Lumière et Son collaboration illustrates a number of different ways of exploiting the double-edged adhesive tendencies of sound as part of an overall asynchronous strategy for creating dialectic. A key difference with the films by Smith, etc. is whereas they use used scripted audio, especially written to work with and against the moving image, the potential is shown in the Lumière et Son collaboration for achieving similar results by using only 'found sound'.

Asynchronous Visual Music

If the Lumière et Son works demonstrate the basic operation of asynchronism, then publications one to three explore how it might be applied in the specific context of visual music, a categorisation with its own set of unique problems, central to which is how to articulate the music/moving image relationship in an asynchronous fashion.

Visual music is something of a loose categorisation, including both representational and abstract moving imagery, and a range of audio, from well-known classical pieces through to electronic music, or simply sound. Examination in the literature review of pieces such as Fischinger's *Optical Poem* revealed that close synchronisation of music and abstract image often leads to suggestions of a synaesthetic relationship between the two. This ranges from either sound and image being taken as literal renditions of one another, as per Rhodes's (2012) comment in relation to *Light Music* that "what you see is what you hear", through to a wilful desire for a meshing of the senses, based on the premise of an underlying harmonic correlation between musical and visual forms, as advocated by Whitney who sought to discover to discover "their laws of harmonic relationships" (1980, pp 40-44).

The literal equation of sound and abstract image is the visual music equivalent (or indeed a heightened version) of adhesion, which leads if untroubled to the synaesthetic. Just as in the Lumière et Son videos, where working with and against adhesion helps creates dialectic tension, so one can

utilise the literal, if offset by the arbitrary, in a similar push-pull fashion to undermine the illusion and workings of synaesthesia.

Questioning Causality

In the case of visual music that uses representational imagery, questioning causality is a key part of the asynchronous process. In mainstream cinema, when adhesion occurs, the causal link created often as not attributes sound to on-screen action. Many of the Lumière et Son pieces reverse this dynamic through the suggestion that what is on-screen is responding to, or being shaped by the voice or music on the soundtrack. Publication one showed how one might similarly invert expectations in a visual music context, as for example in *A Rocco Din*, in which there is an ambiguity as to whether the dissected accordion is producing the music we hear, or if it is the melody that is in some way animating the image. This same method is used more overtly in *Row Row*, and *Jiggery Pokery,* with the image of the rower animated by the sound of his exertions, and the highland couple, not so much dancing to the music, but danced by it.

Another method for questioning causality is the use of the image itself as the source of the sound, a process known as sonification. Guy Sherwin's optical sound pieces such as *Railings* provided a conceptual framework through their production of sound from representational imagery, not by recording the object being filmed, but by using the movement of the image (through either the panning of the camera or subsequent printing) to produce audio. The representation of the object becomes the (optical) sound source.

A certain degree of association between the image and the sound produced is important, and in *Railings* the audio is in some ways approximate to (but is not) that which one would get by dragging a stick across the park railings. Similarly in publication two, *Engine Trouble*, the digital oscillator's scanning of the moving image creates a sound plausibly akin to that of a motor engine, but whose artifice when matched with the digital animations of the single image is made apparent, and declared. With this process, as with *Row Row* and *Jiggery Pokery*, the intention is to lay bare the dynamics of the audio-

visual relationship, and encourage the audience to actively assemble the components to create meaning. As such, *Engine Trouble* suggests one way in which the analogue mechanisms of Sherwin's representational optical sound pieces might be extended into the digital realm in pursuit of an anti-illusionist agenda.

On the Cusp Between the Literal and the Arbitrary

From a synthesis of the literature and the practice, it can be concluded that one way to create dialectic in abstract visual music is by counterbalancing the suggestion of the literal with the arbitrary. In the discussion of *Light Music*, it was seen that in the case of optical sound, the seemingly literal equation of audio and image is not absolute, but specific to the type of equipment being used. What is proposed is that digital media, in which all signals are represented by streams of data allows one to synchronise music and image, but vary and alter the nature of the relationship over time, making it reciprocal, rather than absolute. This then extends the potential for combinations that at first appear as literal, but are subsequently revealed as arbitrary.

There are three different examples of this approach in the publications: *Quadrangle*, *Fleshtones* and *Landfill.* For *Quadrangle*, the reference point is Le Grice's *Arbitrary Logic* (1988), in which the same digital data produces both the on-screen colour fields and sound. From his writings, it seems Le Grice (2001, pp 271) was to some degree seduced by the idea of synaesthetic correspondence, whilst simultaneously rejecting it on an absolute basis, noting that colour and musical harmony, from a physics perspective, cannot operate on the same principles. Le Grice's solution was to remove both sound and colour from their representational associational contexts (apples/red, sound/music). *Quadrangle* adopts a different approach: as with *Arbitrary Logic,* music and image are tied to, and produced by, the same digital sequencer, which all but inevitably suggests a degree of literalism; but to offset this, an arbitrary element is introduced by the simple method of maintaining the same audio parameters throughout, whilst varying or mapping the visual ones in different ways. In other words, sound and image

resist equation if they correspond in different ways, at different points in the piece.

Another video, *Fleshtones*, sought to address the synaesthetic quest for colour and notational correspondence, by making a piece which can be read in two ways, either as colour organ or as asynchronous combination. By feeding representational footage into a Max/MSP/Jitter patch, a series of large pixilated pink and brown squares was produced, combined with a synchronised piano accompaniment. On the surface, the correspondence between hue and pitch is literal, and in the Scriabin synaesthetic tradition. The irritant is that the source footage is pornographic, and despite the pixilation decreasing as the piece progresses, we can never make out any human forms.

One could argue that an anti-illusionist strategy requires the image to at some point becomes legible, for there to be a revelation, but it is the denial of vision that creates a certain tension throughout. It is the unseen that is the asynchronous and arbitrary element, a reading of course predicated on the viewer having knowledge of the contextual information.

Landfill suggests a third approach to the arbitrary, building on one the most successful asynchronous approaches to visual music identified in the literature review, that used by Lye in *Trade Tattoo and* Le Grice in *Berlin Horse*. In this model, moving images are not synchronised note for note with the music, but married to syncopated musical rhythms. The arbitrary element comes in the open-ended nature of the correspondence. So in *Landfill* the frame-by-frame changes in the animated morphing visual topography are loosely co-ordinated with the time signature of the undulating and shifting treated yodelling. This approach removes the need to counter causality or literalism, as the two media maintain their independence. This has echoes of Pudovkin's (1929) writings when he argues for "the development of the image and the sound strip each along a separate rhythmic course…not…tied to one another by naturalistic imitation but connected as the result of the interplay of action".

Final words

The separation of sound and image during the first thirty years of cinema arguably created an artifice, that of two distinct media, film and the phonogram. This period of sensory separation, credited with creating a hierarchy in which sound was ever to be the secondary or subsidiary partner, paradoxically also did much to allow the space for the development of the two separate media, in a way which may not have occurred had the two been synchronised from the start (as Edison had wished).

Had synchronisation been available from the 1890's onwards, then what Eisenstein et al (1928) identified as the "path of least resistance", that of the 'filmed play' and the creation of faux naturalism, may well have established itself as the dominant form almost immediately, compromising the future potential for media interplay. One thinks in this context of the contemporary video camera, which records sounds and image together in a way which is in many respects highly artificial, but which is widely accepted as a form of vérité representation of the audio-visual. It was separation that allowed the vocabulary of the moving image to develop to the extent it did, and this then informed Eisenstein and Pudovkin's argument that film does not require audio reinforcement, but that instead through asynchronous juxtaposition, sound offers the possibility of an entirely different cinema.

An ambition of the practice and of this paper was to foreground the role and function of sound in artists' moving image. This has involved challenging the perceived privileging of the visual, but not so as to simply replace one hierarchy with another, but rather to proceed to identify new ways in which to create dialectic tension between the audio-visual and the audience. In response to the issues and debates identified in the literature review, the publications discussed in this paper suggest a range of strategies that can be employed towards an asynchronous cinema. Key to this is the recognition of the propensity for audio-visual adhesion and literalness, as the first step in employing these elements as part of the mechanism for realising dialectic, created on the cusp of the "two edged invention".

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Smith, J., *The Girl Chewing Gum* (1976), [film].

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Vasulka, S & W., *Noisefields* (1974), [video].

Whitney, J., *Arabesque* (1975), [video].

10. List of Publications by P. Sanderson

Publication One

A Rocco Din (2004), [video].

Jiggery Pokery (2005), [video].

Row Row (2005), [video].

Quadrangle (2005), [video].

Publication Two

Engine Trouble (2005), [video].

Kisser (2007), [video].

Fleshtones (2006), [video].

Publication Three

Landfill (2008), [video].

Battle of the Pixels (2015), [video].

Publication Four

Lumière et Son, Eight one minute videos by Philip Sanderson and Thomas Wiesner

Square Dance (2010), [video].

Belisha Code (2009), [video].

Spring Greens (2010), [video].

Letterboxing (2009), [video].

Nutcracking (2010), [video].

Goings On (2010), [video].

Overseen Overheard (2010), [video].

Aye Aye (2010), [video].

All works by Philip Sanderson unless otherwise stated.

2015: *Kisser* (2007/15), screened at part of Altered States, Electro Studios, West St Leonards, UK.
Battle of the Pixels (2015), screened as part of One Minute Hull Artists' Moving Image Festival, Hull, UK.
Fleshtones (2006), screened as part of Sound & Image Colloquium, University of Greenwich, Greenwich, UK.

2013- 15: *Aye Aye* (2010), by Lumière et Son (Thomas Wiesner & Philip Sanderson), selected *for One Minute Volume 7,* screened at: Cofi Roc, Caernarfon, UK. De La Warr Pavillion, Bexhill, UK. The Projection Rooms, Hull, UK. Furtherfield, London, UK. Project Space Plus, Lincoln, UK. One Minute Hull Artists Moving Image Festival, Hull, UK. Chester Film Co Op, Chester, UK. Film Material Soup at Rogue Artists Studios Project Space, Manchester, UK. Plymouth Arts Centre, Plymouth, UK. Bloc Projects, Sheffield, UK. Furtherfield Gallery, London, UK.

2013: *Fleshtones* (2006), *Kisser (2007),* and *Jiggery Pokery* (2005), screened at London Animation Club, London, UK.

2011 - 12: *Nutcracking* (2010) by Lumière et Son (Thomas Wiesner & Philip Sanderson), selected for One Minute Volume 5, screened at: The Weymouth Cultural Olympics, Weymouth, UK. Volumes 3, 4 and 5, Peloton Gallery, Sydney, Australia. The Directors Lounge, Berlin, Germany. FACT, Liverpool, UK. Void Cinema, Sheffield Hallam University, UK. One Minute Volumes 3, 4 and 5 screening at Peloton, Sydney, Australia. Vertical Cinema, Cardiff, UK. The Museum of Club Culture as part of GLIMMER The Hull International Short Film Festival, UK. London Underground Film Sessions at The Horse Hospital, London, UK. Aid And Abet, Cambridge, UK.

2009: *Quadrangle* (2005), screened at Visual Music Marathon, New York, USA.

Fleshtones (2006), screened at Iota Salon, The iotaCenter, Los Angeles, USA.

Kisser (2007) screened at The BAck door, Melbourne, Australia.

Quadrangle (2005), *Fleshtones* (2006), *Kisser (2007), and Jiggery Pokery* (2005) screened at Memorial Gallery, Hastings, UK.

2008 - 2009: *Kisser* (2007), selected for One Minute Volume 2, screened at: Gallery Space, Cow Lane Studios, Salford, UK. The Big Screen, Hull, UK. Marseille Project Gallery, Marseille, France. Red Gallery, Hull, UK. Roxy Nod, Prague, Czech Republic. Directors Lounge, Berlin, Germany. Artprojx Space, London, UK. EXP24, Victoria Hotel, Leeds, UK.

2008: *Fleshtones* (2006), exhibited as part of *Hair of the Dog* at CCA Santa Fe, USA.

Landfill (2008), screened at London International Animation Festival, London, UK.

2007 - 2008: *Jiggery Pokery* (2005), selected for One Minute Volume 1, screened at: Cog Collective, London, UK. Directors Lounge, Berlin, Germany. Roxy Nod, Prague, Czech Republic. OUTVIDEO Video Arts Festival, Russia. Hornsey Town Hall, Crouch End, London, UK. The Hull International Short Film Festival, Hull, UK. The Directors Lounge, Berlin, Germany.

2007: *Quadrangle* (2005), screened at Visual Music Marathon, Boston, USA.

2006: *Engine Trouble* (2005), *Fleshtones* (2006), and *Jiggery Pokery* (2005), screened at Cog Collective, London, UK.

Quadrangle (2005), screened at Lumen, Leeds, UK.

Engine Trouble (2005), screened at Video Under Volcano, Italy.

Engine Trouble (2005), screened at Camera Obscura, Chippendale, Australia.

2005: *A Rocco Din* (2004), screened at Berlin Videonale, Berlin, Germany.

Row Row (2005), screened at Videolisboa, Lisbon, Portugal.

A Rocco Din (2004), screened at: 291 Gallery, London, UK. Exploding

Cinema, London, UK.

Quadrangle (2005), screened at Prog ME, Rio de Janeiro, Brazil. Island Art Film & Video Festival, London, UK.

2004: *A Rocco Din* (2004), screened at Lux Exposure, London, UK.

Online Screenings

A number of the visual music pieces (publications one to three) were posted on the then new platform of YouTube, receiving numerous 'hits', in the case of *Fleshtones* (2006) eventually over 30,000. The initial quality on YouTube was low and the videos were replaced with higher quality versions; this, however, removed the hit count and comments. Here is link (via the web archive) to a snapshot of the YouTube page not long after originally posting *Fleshtones.* <https://web.archive.org/web/20070320212418/http://www.youtube.com/watch?v=vrRcrexEV7Y> [Accessed 10th Jan 2016].

The Lumière et Son works were all exhibited at <http://Lumière-et-son.blogspot.co.uk>. Note the current site is an archive of the blog, presented in the order the pieces were made (reverse chronological). The videos were all stored originally on the Blip TV server, but were later transferred to Vimeo.

12. Bibliography – Relating to Publications

Visual Music

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Pinsent, E., 2008. Philip Sanderson - Interview, *The Sound Projector TSP16* 16th issue. pp 78-85.

Lumière et Son

Szpakowski, M., 2012. Lumière and Son – A Discussion, a Selective Commentary & Some Remarks. *Furtherfield.* Available at: <http://www.furtherfield.org/features/reviews/lumière-and-son-–-discussion-selective-commentary-some-remarks> [Accessed 10th Jan 2016].

Szpakowski, M., 2012. One Minute Volumes 1–4 (Review of), MIRAJ, Moving Image Review & Art Journal, Volume 1, Number 1, 23 (January 2012): 129-135.