Animation and Improvisation

by

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Abstract

This paper is a discussion of the research I have undertaken in developing a process of audio-visual composition based in the methodologies of 'direct animation' and musical improvisation. The central thesis project is *Improvisation no. 1: Cumulative Loops*, a work that might be described as *audio-visual music*, consisting of hand-drawn image sequences and music generated together in a cumulative and improvisatory process. Additional studio works related to this thesis include *Bagirmi Beat*, a sound composition achieved through frame-by-frame mark-making on the optical track of film, and nine experimental *Motion Studies* that investigate the audio-visual relationship between hand-drawn animation and sound.

Innovations emerging from my studio experiments include the *pantographic brush array* and an accompanying system of paper 'filmstrips'. While all of the works incorporate these analog tools and materials, they are essentially digital media, made with and presented on computers, speakers and video displays. Speaking to the convergence of visual art and music in digital media and the possibilities for an individual artist therein, the works invite the viewer-listener to consider the place of materiality and the hand-made in the digital age.

My methodology is based upon the notion that the fundamental correlation between image and sound is time. Arbitrary transpositions between, for example, pitch and color are less important than establishing in my mark-making process the *conditions* under which a musician might improvise. These conditions and the activities engaged with

therein become the primary work while the resulting media 'objects' remain as testaments to the act of improvisation.

Through the production and discussion of these works I address the importance of drawing in the ontology of animation and I explain the significance of human gesture, mark making and empathy in my practice. Referencing contemporary philosophical thought in the emerging area of improvisation studies, I position my audio-visual compositions within the idiomatic traditions of jazz music. Navigating the contradictions between pre-determination, spontaneity, chance and control, I present a body of work that speaks to the apparent paradox of improvisation in animation.

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1. Animated Drawings, Music and the Audio-Visual Relationship

Draw a mark in the margin of each page in a book and then flip the pages quickly with the thumb. As the pages flick by the many marks appear to become one mark that moves, twitching, twisting and twirling. This simple but ephemeral experience is what compels me to draw the multitudinous image sequences required for the laborious medium of animation, known more specifically in French as *dessins animés*[1]. Add to the phenomenology of the simple flipbook the possibility for synchronized sound and the resulting means of expression for an individual composer of moving drawings and music are profoundly compelling.

Since the late 19th century when hand-drawn animation was absorbed into the photographic apparatus of the cinema, and into the subsequent period of film with synchronized sound, the means to realize a work of moving drawings and music has existed. However, it is with the shift to digital media in the late 20th and early 21st centuries that the potential for a unified form of audio-visual expression emerges in a technologically immediate and accessible way. Digital graphics free the audio-visual artist from the lens, and thereby from the literary heritage of cinema[2], allowing for a return to the roots of animation in drawing and painting. At the same time, digital audio software provides the visual artist with the opportunity for an immediate correspondence

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[1] "Animated drawings".

[2] The claim that the heritage of cinema is literary comes from questions posed by Hans Richter: "The movies of yesterday, today and probably tomorrow have been used as the ideal means of transforming literature into pictures. Well, is that what movies are? And the one who transforms literature into film is he a moviemaker…?" (Richter 152)

to music composition, one that can be seen as an extension of 'direct animation', a term that will be discussed in the pages that follow.

In this investigation of animation and improvisation my graduate studies research is motivated by the desire to find a new direction in my creative practice as an animator and music composer, a direction outside the orthodox classical hand-drawn animation[3] and traditional film scoring techniques in which I am established, one that corresponds to the immediacy of the flipbook and the directness of musical improvisation. Specifically, my objective has been to find a way in which to combine hand-drawn animation and music in a singular, unified work of improvisation.

Bagirmi Beat: Drawing Sound Frame-by-Frame

Bagirmi Beat (Figure 1) is a work developed early in my research, a sound composition etched by hand into the optical soundtrack area of 16mm black film leader, from which I began my investigation into the technique of synthetic sound most closely associated with animation filmmaker Norman McLaren[4]. When played back on a film projector the black film leader displays no image. Instead, rhythmic clicks, pops, bleeps and squelches come from the projector's speaker filling the acoustic space with a pulsing, syncopated beat as the optical exciter lamp is activated by the marks on the soundtrack. The sound-generating marks are miniscule, less than 2 mm wide, and the timbral quality of the sounds they produce is unique, like a crude analog synthesizer, albeit somewhat limited by the range of detail one is able to draw in such a narrow space (Figure 2).

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[3] The Disney school perhaps best exemplifies *orthodox classical hand-drawn animation* although I use the term to describe almost any system of visual media with image sequences that are drawn by hand on a frame-by-frame basis.

[4] Excellent documentation of the 'animated sound' method can be found in McLaren's technical notes (McLaren, "Technical Notes / by Norman McLaren. - 1933-1984") pp. 18, 52, 61, 72, 77, in his film *Pen Point Percussion* (McLaren, *Pen Point Percussion*), in the book *Experimental Animation* (Russett) pp. 163-177 and in Richard Reeves' contribution to the *Animation Bible* (Furniss, *The Animation Bible* 176).

Figure 1 Allemano, Luigi. *Bagirmi Beat***. 2011.**
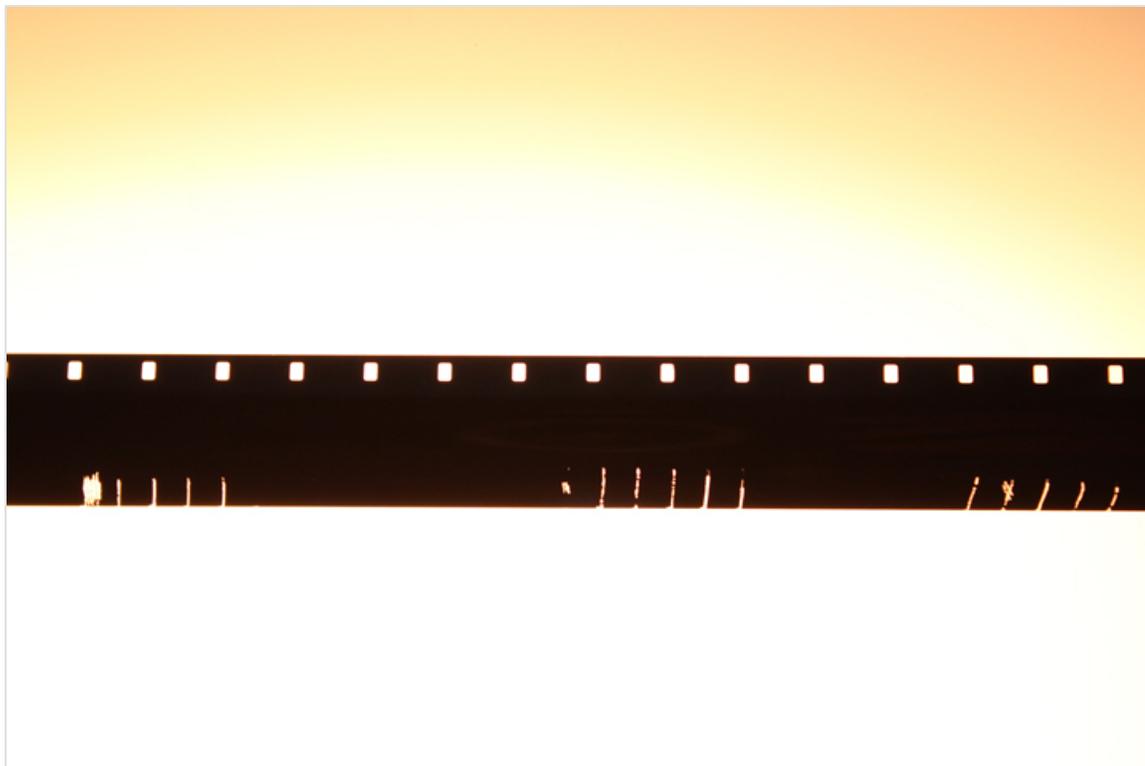
Figure 2 Allemano, Luigi. *Bagirmi Beat* (detail). 2011.

My interest in this use of the film projector as an instrument for electronic music stems from a desire to understand the technique of 'animated sound'[5] used by McLaren in such films as *Dots* and *Loops*[6], perhaps the most direct means by which drawings can produce music on a frame-by-frame basis. The principle is fairly simple: the marks made on the transparent 'optical sound stripe' on film stock interrupt light that is projected through it by the projector's exciter lamp into a photosensitive cell. The resulting fluctuations of light produce oscillations in the cell that are transmitted as voltage to the projector's

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[5] The term 'animated sound' was coined by Norman McLaren in a 1950 publication by the National Film Board of Canada in which the filmmaker stated, "It is therefore logical to call the kind of sound produced in this way "animated", for not only is it made by the same method as animated pictures, but from a creative and artistic point of view ii shares many of the peculiarities and possibilities of animated visuals." (Russett 167)

[6] McLaren produced both films in 1940 in New York City prior to his emigration to Canada when he joined the National Film Board of Canada. According to animation scholar Cecile Starr, at the time McLaren had little money and used the method as an economical way to generate image and sound (Richard 45). The films are now archived and distributed by the NFB (McLaren, *Dots*) and (McLaren, *Loops*).

amplifier and speaker, producing an electronic sound. The creative aspect of the process

involves determining which patterns to draw in order to obtain a given sound. Through

such parameters as the shape, width, spacing and transparency of the marks, it is possible

to control pitch, volume, tempo and to some extent, timbre. Colour, however, has no

effect on the sound that is produced and therefore the visual aspect of animated sound is

strictly black and white.

Bagirmi Beat forms half of a two-part transcription of Len Lye's *Free Radicals*, the

1958 abstract animation that has inspired my work greatly[7]. Transcription is an important

means by which musicians attempt to internalize, analyze and understand the formal and

subjective underpinnings of recorded improvisations, and in my years as a music student,

this process became essential to my development as a musical improviser as discussed in

Chapter 3. Improvisation in Animation.

As acclaimed filmmaker Stan Brakhage says, *Free Radicals* is "an almost unbelievably

immense masterpiece (a brief epic)" (Horrocks 166). Scratching and etching marks,

lines, dots and dashes into the narrow picture surface of 16mm black film leader, Lye

evokes an otherworldly dance of twirling, twisting lines of light in a pitch black void set

to a field recording of an African drum ensemble. Little is known about the field

recording that Lye selected as the sonic component of *Free Radicals* beyond what the

filmmaker indicated in his hand-etched opening titles, "Music by the Bagirmi Tribe of

Africa"[8]. However, Lye explains the reason he chose African drumming for several of

his films has to do with an "aesthetic vicariousness", the relationship between the feeling

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[7] The second part of the *Free Radicals* transcription project involves the visual component of Lye's film as discussed in Chapter 3. Improvisation in Animation.

[8] According to Roger Horrocks, two Smithsonian Folkways albums were used by Lye for a subsequent film, *Particles In Space*, and although I have listened closely to both without finding the Bagirmi track, it is likely that the recording in *Free Radicals* comes from a similar collection (Horrocks 174).

he attempts to express through his animation (Lye 56) and that of his chosen music. This

vicariousness suggests that in Lye's work, the audio-visual relationship is less about strict

objective equivalencies in picture and sound than it is about the subjective arrangement

of visual and sonic elements designed to elicit an emotional response. This notion is

important in that it is the first I have adopted in establishing the conceptual underpinnings

of my audio-visual composition methodology.

Figure 3 Allemano, Luigi. Notebook with musical notation of *Free Radicals*. 2011.

Relative to the use of drawing, my process of transcription turns the audio-visual

relationship in *Free Radicals* on its head. Whereas Lye draws the pictures, in *Bagirmi

Beat* I draw the sound. I begin the process by listening repeatedly to the improvisational

drumming of the unnamed players in *Free Radicals*. In undertaking such close and

repetitive listening, one enters into a deeper level of awareness about the music where the nuances and idiosyncrasies of the original performance become a part of one's subconscious. Eventually I am able to clap and tap along in unison with the recording. 'Playing along' is an import aspect of this process because it allows one to enter into a physiological state similar to that of the recorded improviser, a state that often reveals the technical problems and the inner logic of the decision making process navigated by the recorded improviser.

Next, I transcribe the essential rhythmic patterns of the performance into standard musical notation (Figure 3). Of course, one engages in transcription knowing that the conventional western notation system is inadequate to describe the more prosodic elements of improvised music but the point is to absorb these details at a physiological level and not to translate them literally on the page.

In my process, listening is a way of internalizing the vernacular of the musical idiom at hand while the notation serves as a temporal guide for the mark-making process in which I create a new sonic improvisation through animated sound. The process of spacing and engraving the marks begins, starting as close to the rhythms of the original field recording as possible. At a certain point I allow the hand-drawn patterns to evolve into variations, composing them in an extemporaneous fashion, until the one-and-a-half minute composition culminates in a final reiteration of the original pattern before ending. The picture-less *Bagirmi Beat* is therefore a hand-drawn photo-electronic improvisation recapitulating the same rhythms that drive Lye's animation.

My purposes in creating sound through such a laborious processes are twofold; to establish connections between the mark and the sound to the extent that their relationship

becomes akin to the manipulations of a musical instrument and to engage in a form of

physiological learning through emulation, what improvisation theorist George Lewis calls

"a version of music analysis for music based in orature and the body." (Lewis 118).

Lewis refers here to a tradition found in almost all folk music of the world in which the

apprentice learns the vernacular of the idiom at hand through a process of call-and-

response listening and emulation of the master. While this corporeal relationship

between listening and mark making may not be explicit in *Bagirmi Beat*, the piece does

induce the same impulse to dance as does the original field recording, speaking to the

power of musical rhythm to transcend time, space and medium. Furthermore, engaging

with the process of animated sound in such an intensive, practical way has allowed me to

develop considerable fluency with the technique.

   The production of *Bagirmi Beat* brings forth two more import developments in my

methodology. One has to do with the relationship between the appearance of animated

sound markings and the sounds they produce. To a certain extent it seems logical to

make the sound-generating marks themselves visible as in Norman McLaren's

groundbreaking animated sound film from 1971, *Synchromy* (McLaren, *Synchromy*).

McLaren's film consists of animated colour striations moving in perfect synchronization

to music of the filmmaker's own making. The striations are in fact the graphic shapes on

the soundtrack that make the music we hear. In theory, this should produce the purest

audio-visual relationship possible, as is described in the publicity materials for

Synchromy:

> "This animated short by Norman McLaren features synchronization of image and
> sound in the truest sense of the word. To make this film, McLaren employed novel
> optical techniques to compose the piano rhythms of the sound track, which he then
> moved, in multicolor, onto the picture area of the screen so that, in effect, you see

what you hear[9]."

However, the notion that "you see what you hear" is not entirely accurate. As

mentioned earlier, the use of colour in the animated sound technique has no effect on the

sound that is produced. McLaren adds colour only "for variety's sake"[10] and therefore, in

Synchromy, something exists in the visual aspect that has no direct correlate in the aural

aspect. This is interesting in light of the potential purity of image and sound

synchronization the film purports to have. You do not see *exactly* what you hear. You

see *that which generates* what you hear, plus something more; within the audio-visual

relationship McLaren adds a good dose of subjective detail in the form of colour. From

this insight my methodology has been steered away from the pursuit of a purely objective

'black and white' audio-visual relationship, one in which I might be inclined to make

visible the sound-generating marks of *Bagirmi Beat*. The prosodic, the subjective and the

irrational must be allowed to enter into the audio-visual relationship if improvisation and

interaction is to occur between picture and sound as it does between musicians. Thus,

Bagirmi Beat remains a picture-less film, a purely sonic improvisation on the rhythms

that compelled Lye to animate his visual scratches in *Free Radicals*.

Another methodological development arrived at through the making of *Bagirmi Beat* is

related to the discovery of the limitations of the animated sound technique. In spite of

his mastery of animated sound and the extensive range of dynamics and pitch that are

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[9] From the website of the National Film Board of Canada ("Synchromy").

[10] Thanks to McLaren's meticulous documentation of his own work, we can be certain that the use of colour in Synchromy is purely subjective: "In general the colouring was changed at the beginning and end of musical sentences or phrases for variety's sake; although no "colour-sound-theory" was relied upon, pianissimo passages were usually in mutes hues, and fortissimo passages in highly saturated contrasting hues. Apart from planning and executing the music, the only creative aspect of the film was the "choreographing" of the striations in the columns and deciding on the sequence and combination of the colours." (McLaren, "Technical Notes / by Norman McLaren. - 1933-1984" 58)

possible within it, McLaren demonstrates through his writings and in his works that the composer of animated sound is limited to a set of primitive acoustic properties, the sine wave and the sawtooth wave (Russett 168). Achieving more complex waveforms than these through drawing is near to impossible. Two choices of acoustic timbres is a very limited palette in comparison to the millions of colors available in the visual aspect of film and digital media. Unsatisfied with this imbalance, I am convinced that other sources of sound beyond those that are possible within the animated sound method must be allowed into the audio-visual composition process in order to maintain a balanced potential range of expression between picture and sound. Therefore, my process has expanded such that all subsequent works incorporate the animated sound technique only as a starting point, or, as one source of sonic material among many others available to contemporary composers including acoustic instruments, electronic instruments, found sound and signal processing, both analog and digital.

Hand-drawn Animation

Drawing is the basis of the visual component of my practice. In the making of the *Motion Studies* and *Improvisation no. 1*, I use the paintbrush as the principle tool of animation. In spite of this I do not consider myself to be engaged in painting; I draw. This distinction is important in how it relates to the *line*. Walter Benjamin "describes drawing as ceasing when a line is no longer distinguishable from its background", at which point, following Benjamin's logic, the line becomes a 'mark' within a painting (Downs et al. 18). Drawn lines that appear to move within a graphic field, or background, is part of the ontology of animation that defines it as a medium pre-dating

cinema and it is this hand-made heritage that I acknowledge in my methodology, perhaps most reductively in *Motion Study no. 7: Duration* (Figure 4).

Beyond its historical significance in animation, drawing provides a direct means to signify the importance of the human gesture in my work. Part of this importance is technical. The phenomenon of animation occurs when the eye is presented with images in a series, wherein each image differs slightly from the one that precedes it. Duplicating images by hand, particularly with the use of a brush, is a natural albeit repetitive way to create the necessary differences for animation to exist.

Figure 4 Allemano, Luigi. *Motion Study no. 7: Duration* (HD video still)

I also favour the hand-drawn method for philosophical reasons. Within the context of digital media, the patina of the digitally interpolated image sequence often obfuscates the phenomenological simplicity of the flipbook. In other words, the simple fact of understanding how a flipbook works while experiencing the movement it generates is, I feel, a crucial part of animation's enduring appeal. Additionally, the idiosyncrasy and individuality of human gesture is easily transmitted through drawing. This has less to do

with the authenticity of the hand-made mark than it has to do with creating empathy, a quality that provides a way for the viewer-listener to enter into a work offering nothing in the way of representational imagery.

In addition to the conceptual significance of drawing within my work there is also an important contextual aspect. The rise of drawing in contemporary art since the 1990's runs parallel to the decline of drawing in the animation entertainment industry[11]. I am interested in how drawing has come to gain legitimacy in contemporary art while being perceived as outmoded in popular animation[12]. The challenge of presenting hand-drawn animation in the context of contemporary art has been met most notably by the South African artist William Kentridge whose 2010 exhibition *Five Themes* at the Museum of Modern Art is one of several such exhibitions that exemplifies the progressive evolution of the medium beyond the confines of popular entertainment[13].

My own approach has been to exploit the gallery as a way to reveal *process*, primarily through the presentation of the image sequences as fixed drawings. Returning again to Benjamin, in his essay *Painting, or Signs and Marks[14]* the author describes the line as it relates to space in the pictorial image and though it is this ultimately that appears on the

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[11] I refer here to the chronology of significant exhibitions of contemporary drawing outlined in the introduction to *Drawing Now: Between the Lines of Contemporary Art* (Downs et al.), chief among them being the 2003 MOMA exhibition and catalogue *Drawing Now: Eight Propositions* (Hoptman and Museum of Modern Art (New York, N.Y.)).

[12] Anecdotally, two significant events occurred during the first summer intensive of this MAA program. In July 2011 the catalogue raisonné of drawings by Cy Twombly, an artist who has inspired my work greatly, was published just as the artist himself passed away (Roscio). In addition to validating Twombly's drawings in the canon of contemporary art (if there was ever any doubt), the book has since proven to be a valuable insight into the artist's motivic development and 'automatic drawing' process. Also in July 2011, I took my young daughter to the latest Disney production of *Winnie the Pooh*, a film that has turned out to be the studio's last hand-drawn animation feature. Twombly's work typifies the rise of drawing in contemporary art to which I refer while *Winnie the Pooh* exemplifies the apparent demise of hand-drawn animation in the entertainment industry.

[13] As of this writing, MoMA maintains a website for the exhibition ("William Kentridge: Five Themes")

[14] (Benjamin 82–86)

page in my works, a series of lines demarcating a space, the intent behind my lines is to mark time, duration, tempo and rhythm. Where the line falls on the page, its spatial placement, is of secondary concern. This is most obvious when the drawn lines are viewed as an animation video where, as in the flipbook, the multitude of lines appear to become one line that exists and moves in time. However, even when viewed as a fixed drawing, I believe the temporal and rhythmic aspects of the picture are more important than its spatial aspect. For example, when I draw the one thousand four hundred and forty lines of *Motion Study no. 7*, I do not see them as static lines; I see them instead as a rhythmic pulse (Figure 5 and Figure 6). Thus, the alternative way of presenting image sequences as a fixed picture in which time can be seen 'all at once' forms yet another aspect of the methodology developed in this research project.
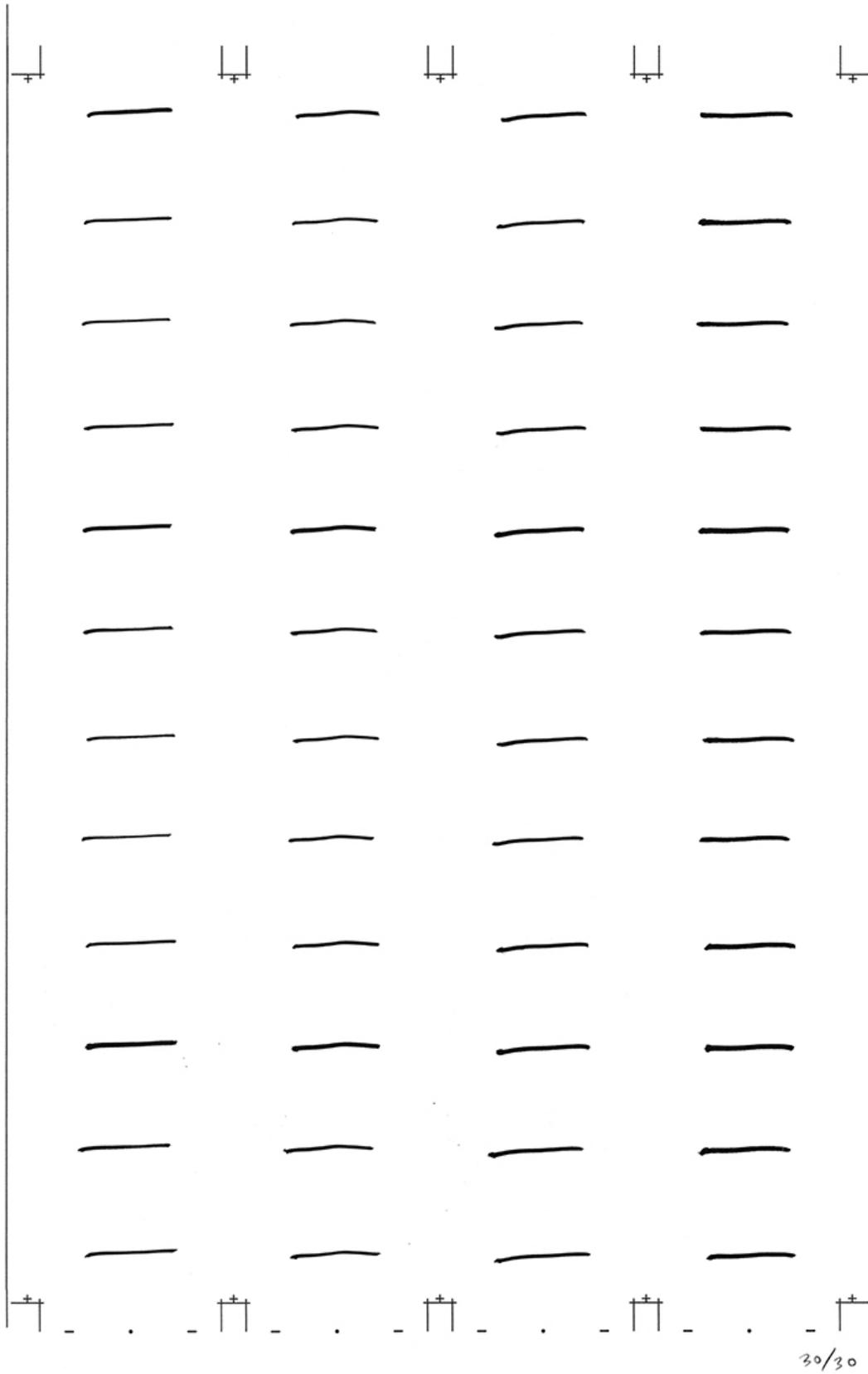
Figure 5 Allemano, Luigi *Motion Study no. 7: Duration (exhibition image detail)*
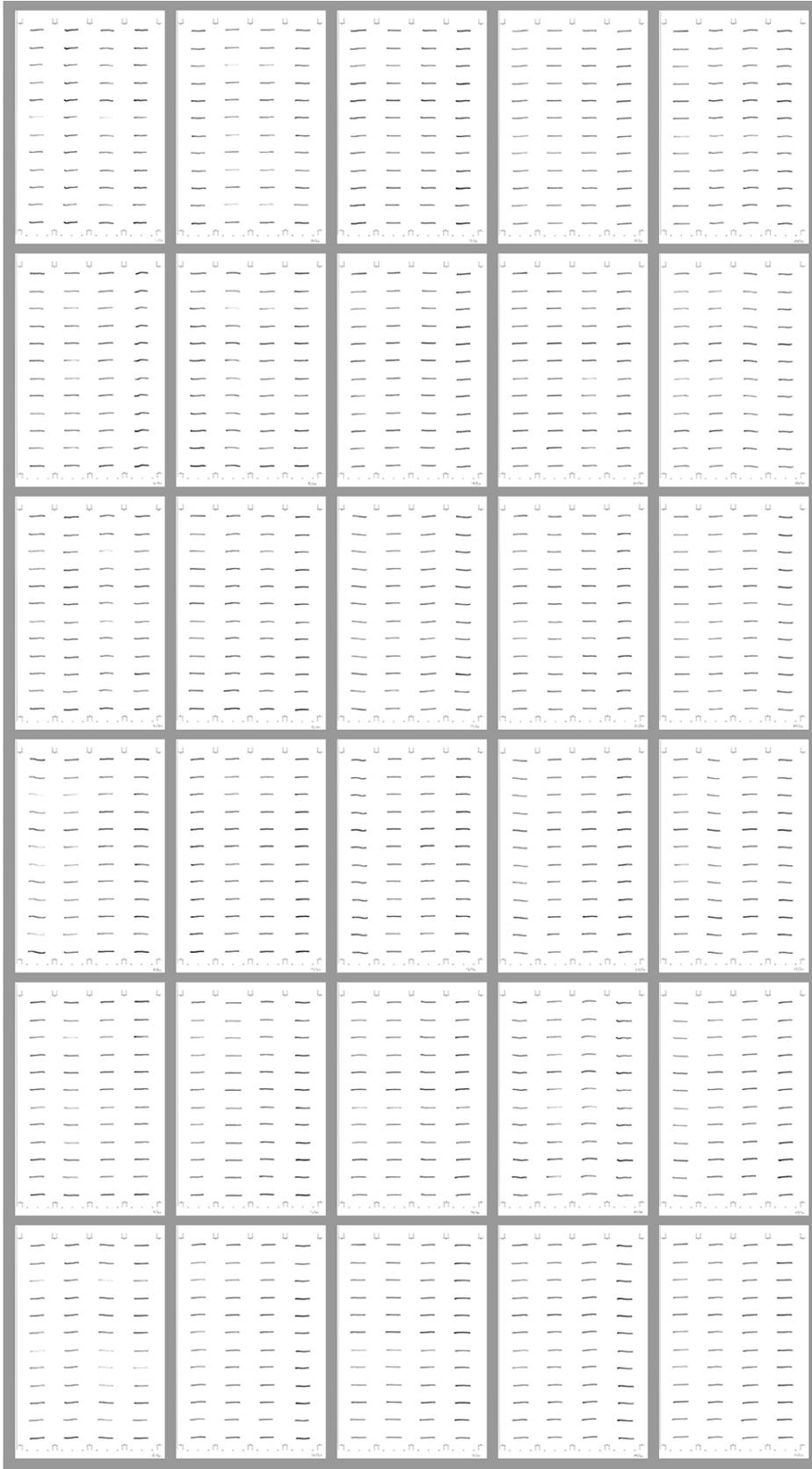
Figure 6 Allemano, Luigi *1,440 Lines (from Motion Study no. 7)*

Analog-to-Digital Conversion

In the area of digital sound recording, arguably one of the most critical components of the technological chain is the A/D (analog-to-digital) converter, the computer chip that converts the voltage of an analog audio signal into digital data. A similar concept is at play in much of the technology that is used to convert a drawn image into data, in equipment such as the scanner or the digital camera, but while recording engineers can wax on about the advantages and disadvantages of the technology within sundry A/D sound converter chips and at what point of the recording process they should be introduced, my teaching experience tells me that animators working in drawing and painting are less inclined to be concerned with this important part of the creation of digital media.

My objective here is not to debate technical specifications but to propose that a visual artist should consider at what stage of the production of digital visual art the A/D conversion should be introduced. In a sense, making a digital image through drawing is merely another method of creating pixel data, and so the crucial question becomes how and when the trace of the hand gesture should be recorded and converted into data. A graphics tablet and stylus for example, allows the artist to convert hand gestures directly into data via a hardware and software interface, bypassing the traditional materials of ink and paper. Touch screen devices allow the gesture of fingers to be recorded directly without need of a stylus. The British artist David Hockney uses both methods effectively in *Fresh Flowers*, a series of drawings made, distributed and displayed on iPhone and iPad devices[15]. However, in spite of the immediacy offered by these new tools, I opt to

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[15] I had the pleasure of viewing this exhibition at the Royal Ontario Museum in October, 2011. Along with the devices and pictures themselves, the exhibition included videos of Hockney drawing and fascinating animations of his progressive strokes as they form each drawing. Hockney describes how he arrived at this

use neither a graphics tablet and stylus, nor a touch screen device, but instead paper, brush, ink and an office document scanner equipped with a batch feeder. The choice to use traditional drawing materials is more difficult to explain than is the importance of human gesture but the reason is perhaps similar to the choice of musical instrument in the context of musical improvisation; I feel better able to express myself with immediacy and without inhibition on instruments with which I am familiar.

In his essay *Digitalis ubiquitous? Ramblings of a digital native*, Max Hattler, the young media artist and animator describes himself coming of age in the 1990's at a time when the personal computer began its rise to ubiquity:

> "Soon, the computer had taken over as a tool from all other artistic pursuits, replacing pencil and brush, pen and paper, camera, violin, guitar and drum set. I was growing up a digital native." (Hattler)

My own training took place in the twilight of the analog era in film and music schools and perhaps that is why I might describe myself not as a digital native, but as an 'analog-to-digital convert', with affinities for tools and materials in both domains. This stance between the two paradigms is something I attempt to express in *Motion Study no. 3,* a digital audio-visual improvisation created from analog sources (Figure 7).

Figure 7 Allemano, Luigi. *Motion Study no. 3* (stills)

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presentation concept: "There was a new thing on the iPad. You could play the drawing back with the press of a button. I had never seen myself draw before, this also seemed fascinating to everybody I showed them to." (David Hockney 9) The access to process in Hockney's exhibition made an impact on my thinking, contributing to my decision to present the tools and image sequences comprising the media works I exhibit.

According to Hattler's description, art making in the digital domain is essentially programming and its medium is code. Software acts as an intermediary between the maker and the code with an audio-visual experience as the result of the programming. In this way, my use of brush, paper and ink might be seen also as an efficient way to imbue digital images with a semblance of the materiality found in traditional drawing media.

Hattler's statement also speaks to the notion of 'digital convergence', the theory posited by philosopher Friedrich Kittler that the computer represents the absorption of all previous media into one digital medium (Kittler 1). My own stance on digital convergence is that, indeed, the contemporary artist must come to terms with the computer, if not as a tool of production, then as a possible channel of dissemination. However, what Kittler overlooks in his notion of convergence, as pointed out by new media theorists Paul Taylor and Jan Harris, is the significance of *loss* (Harris 86). Old media persists in contemporary art in many forms including printmaking, drawing, film installations and artist books. I agree that digital tools re-contextualize old media and the use of traditional tools therefore takes on an air of nostalgia that may not be intentional. My own use of analog media in *Motion Study no. 3* represents an attempt to declare the validity of the hand-made and the mechanical in the digital animation age, but not for nostalgic reasons. While it is true that the appearance of traditional media can be reduced to numbers and reproduced electronically, what is lost are the old processes, the old *conditions* of art making. The laboriousness of hand-drawn animation and 'direct animation' produces a 'human effect' that is timeless, not nostalgic, and one that I believe cannot be created convincingly through any other means.

Direct Animation

While music may be considered to be a natural area for improvisation, the orthodox

method of hand-drawn 'classical' animation with its system of storyboarding, layouts,

pencil testing and other mechanisms of economization and narrative predetermination

seems inimical to any form of spontaneity. To some extent, the suppression of

spontaneity is a side effect of a production method intended to standardize form and

content in the name of efficiency. In the industrial methods codified by the Fleischers

and Disney, there is a similar subdual of individual expression, meant to insure

conformity to a graphic archetype, a stylistic model of movement and timing and most

importantly, a narrative ideology. With all of these factors in consideration, I turn to

another mode of animation production known as 'direct animation', one that I feel is

more conducive to a singular approach to drawing and improvisation. Noted animation

scholar Maureen Furniss describes direct animation thus:

> "Direct animation, also called 'drawing-on-film' or 'scratch animation', is made by
> working directly on the surface of clear, white or black film-leader, or on pieces of
> exposed and developed film containing other images. Some artists choose to work
> in a relatively conventional way, treating each frame of film as a separate image,
> while others think of the entire strip of film as a 'canvas' and so create images up
> and down the acetate without consideration of where each frame lies." (Furniss, *Art
> in Motion* 40)

In Furniss' description it is this second way of working that appeals to me for it seems

to be a method of animation creation that is open to the possibilities of improvisation and

chance. Working without consideration of the previous and subsequent frames implies a

need to work without the usual regard for precision and planning inherent in orthodox

classical animation. However, the practice of drawing directly on film in the context of

contemporary digital cinema is problematic. As Tess Takahashi writes of the resurgence

of the film-based direct animation movement in the 1990's, "This movement appears to reclaim aura through a construction of film's specificity as singular, old-fashioned, and one-of-a-kind in its attention to the "craft" of filmmaking" (Takahashi 167). I feel that in the digital age, this focus on the 'aura' of film as 'object' tends to overpower the work. In other words, direct film animation becomes less about movement and improvisation then it is about 'being on film'. As Hans Richter describes his transition from painting to film, I came to the medium of film "accidentally"[16]. When I was a student of animation in the early 1990's, photographing one's drawings onto film was the only practical way to project a hand-drawn image sequence. What I sought then, and what I feel I have found in the paper-based process developed for this project is a return to the focus on drawing, music and improvisation, and away from the materiality of film.

Miniscule to Monumental

Therefore, even without the use of film, several aspects of direct animation inform my process. One such aspect is the principal of working within the miniscule confines of the narrow filmstrip, essentially a storage system for compacting a huge amount of visual information into a very small space, with the intention of projecting and magnifying the drawings on a cinema screen at a size that can be described as monumental. In 1948 abstract expressionist painter Franz Kline used the new Bell-Opticon overhead projector to similar effect in a process of magnifying details of a representational sketch until they became unrecognizable as large-scale paintings. In my process, it is not abstraction per se that is the aim of magnifying the miniscule, but rather another aspect of Kline's paintings, the amplification of "the rawness, spontaneity and crude design associated

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[16] (Richter 152)

with a small-scale sketch" such that it assumes a "monumental *frisson*" (Anfam). The

sensual qualities of the material, the details of the mark and the direct application of ink

on paper become a representation of feeling and gesture, standing in contrast to the

sterilizing orthodox processes of 'clean-up', drawing 'on model' and ink-and-paint,

approaches to drawing designed to enforce conformity to an industrial model in a way

that eliminates spontaneity and any trace of the individual artist. In my work, the mark

represents the gesture of an individual artist, imperfect and idiosyncratic yet immediately

identifiable, like a handwritten signature (Figure 8).
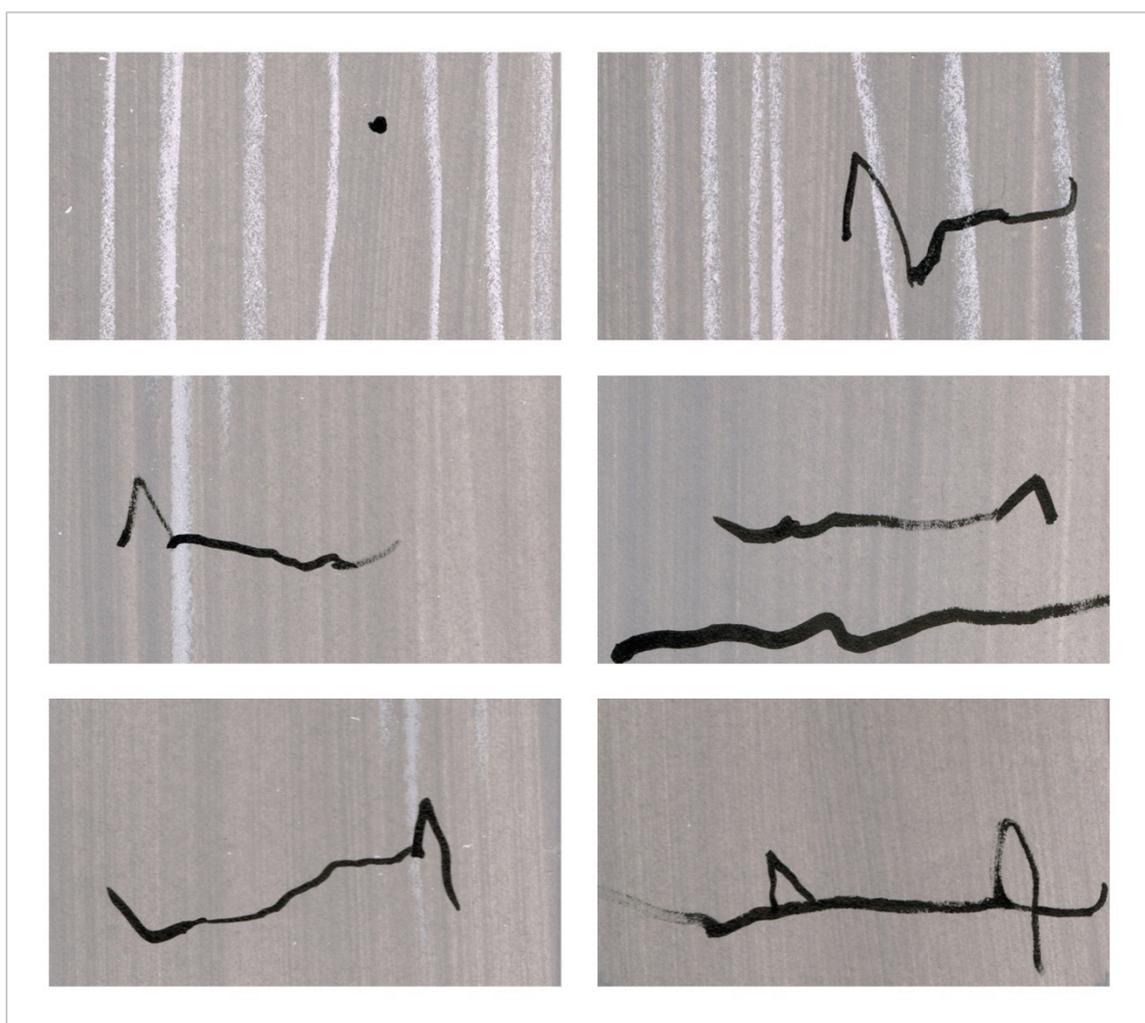
Figure 8 Allemano, Luigi. *Improvisation no. 1* **(stills)**

I use a system of paper strips 55 mm wide, designed to work with readily available ledger paper and a batch scanner. Beyond its economy of scale and cost, the system allows me to receive immediate feedback upon digitizing the paper strips and playing them back as an image sequence through computer software. Most importantly, through the use of a high-definition screen, the system affords me the same proportion of scale that is available to direct animators working on film (Figure 9).

Figure 9 Allemano, Luigi. *Motion Study no. 6: Criss-Cross.*

Real Time, Cinematic Time and 'Made Time'

Animation can be thought of having its own temporal mode, one that is distinct from real time and cinematic time. This can be explained in both technical and conceptual terms. Technically speaking, orthodox classical animation runs at a playback speed of twenty-four frames per second, but this cadence is merely one of convenience because it was the de facto standard of the sound cinema industry that animation became a part of in the early 20th century. Not beholden to the realism of motion required of 'live-action' cinema, much of classical animation makes use of an economical system of doubled frames that results in a net playback speed of twelve frames per second[17]. In some cases,

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[17] The system is known in commercial animation parlance as 'animating on two's'.

tripling and quadrupling of frames can result in variable frame rates within the same

sequence. However, animators working directly on film do not have the ability to

produce doubled frames without turning to complex mechanical tools such as the optical

printer[18] and so their 'direct' marks are played back with a perceived rapidity, fluidity

and consistency that is idiosyncratic to the frame rate of twenty-four frames per second[19].

In translating the methodology of direct animation from film to a hybrid paper-and-

computer system one of the formal aspects I adopt is this so-called 'cinematic' frame rate

of twenty-four frames per second as an aesthetic choice meant to acknowledge the origins

of my process.

 Motion Study no. 7: Duration speaks to this technical concern with its one thousand

four hundred and forty images playing back over exactly one minute in a rhythmic flicker

that is unmistakably twenty-four frames per second. However, the work speaks also to

the second temporal aspect of animation, the aspect that I refer to as 'made time'. In my

view, the essential quality of animation is that it *generates* time. Cinema is inevitably

bound to the lens and the *recording* of time. As Mary Anne Doane explains, the early

attempts by photographer Étienne-Jules Marey to photograph motion were not so much

about movement as they were about temporality:

> "Marey's dream, whether acknowledged or not, was that of cutting into time, slicing
> it in such a way that it could be representable. Movement remained the clearest and
> most accessible expression of duration." (Doane 46)

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[18] Strictly speaking, such a mechanical intervention would take the process outside the usual methods of direct animation if one were to define direct animation as working directly on the surface of the film with handheld tools.

[19] Evidence that differences in frame rates are perceptible even to the general public can be found in the many negative reviews of Peter Jackson's *The Hobbit* (2012), one of the first films to be shot at the so-called High Frame Rate (HFR) of forty-eight frames per second (Lane). The cinematic artifacts of motion blur to which audiences have become accustomed are not present in HFR, the result being a hyper-realistic impression of movement that, as of this writing, appears to be meeting with negative reactions from the public. My feeling is that this situation will change as the aesthetic becomes more prevalent.

In *Motion Study no. 7: Duration*, I attempt to make explicit the notion that animation is not reliant on the lens, that it can *generate* motion as imagined in the mind of its creator and that the time it generates is not based in 'real time'; it is 'made' time.

Book versus Scroll

Orthodox animation involves a system of drawing paper, pegs and peg holes. This system is essentially a book without its binding. The animator may add and remove sheets of paper, shuffle them in and out of sequence and with the aid of a back lit drawing table, see through multiple 'pages' simultaneously - in effect, seeing all of the 'made' time in one frame. Most contemporary animation software is based on this same premise, the only real difference being that the number of sheets and degree of transparency is potentially limitless. The flow of time in this methodology can be leafed through (or in the case of digital software, scrubbed through), contrary to the conditions of live musical performance.

Paradoxically, in the traditional analog version of this methodology, the individual drawings are photographed and end up on a roll of film, a form that is perhaps more akin to a scroll than to a book (Figure 10). If indeed Marey's dream was to represent time by slicing it into segments as Doane asserts, then the essential difference between the book and scroll paradigms in animation is that the scroll represents a continuum, an uninterrupted linear flow of visual information that Richter describes as not merely a series of "isolated events" but a form in which the "form-events overlap and interpenetrate each other and flow on uninterruptedly" (Richter 127). This approach to the creation of the visual aspect of animation is liberating for the artist accustomed to the incremental processes of traditional animation not only because it offers a faster way of

working but also because it invites improvisation, chance and a type of continuity not rooted in the traditions of narrative cinema. Referring back to Furniss' description of direct animation in which the strip of film is treated as a long thin 'canvas' without regard to the individual frame, it seems therefore that the scroll paradigm is essential to the ontology of direct animation, whether it be applied to celluloid film or any other strip that can be drawn upon.
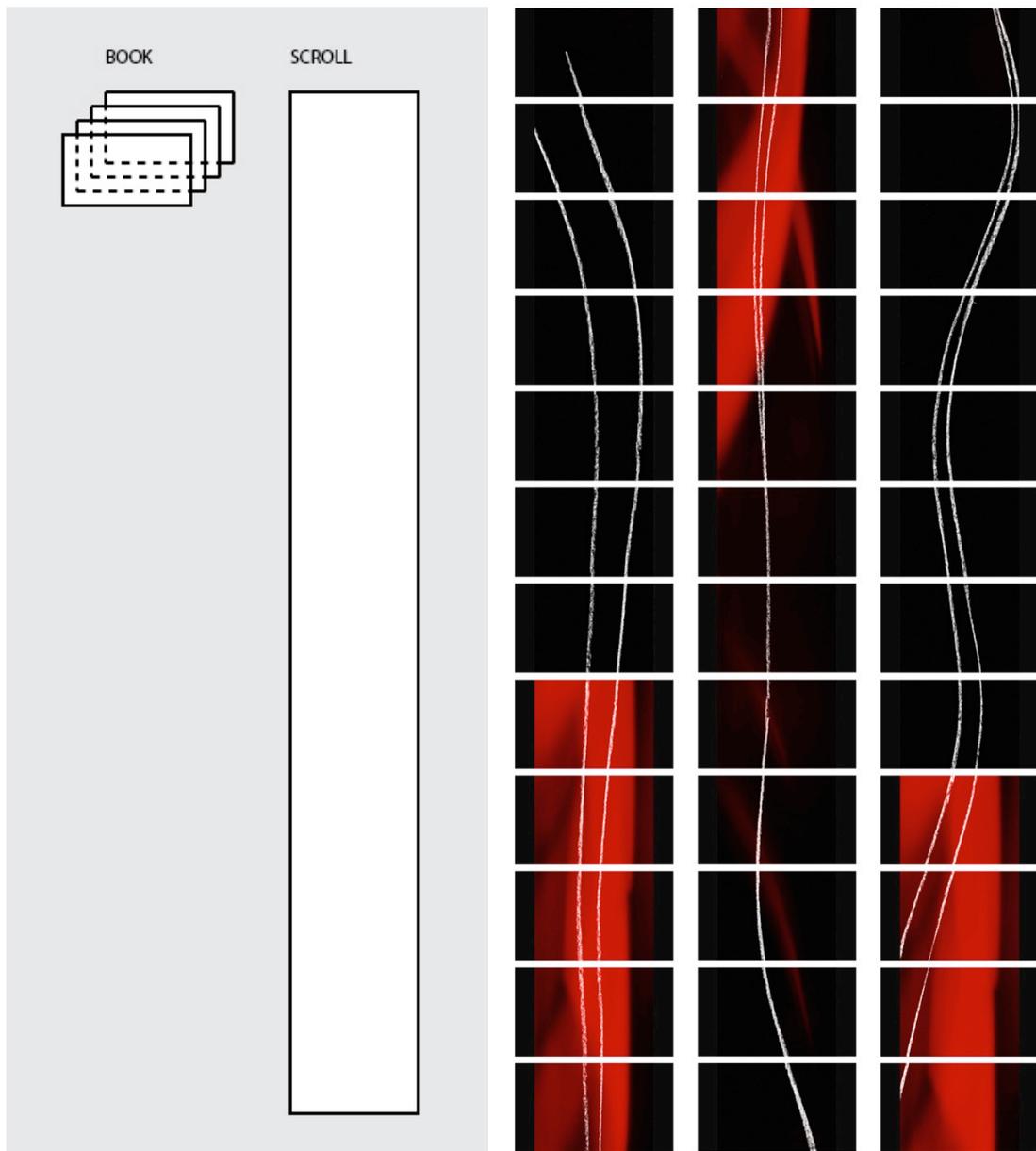
Figure 10 Allemano, Luigi. Book vs. Scroll (L) and stills from *Motion Study no. 3* (R).

Figure 11 Edison paper print of *Le Roi du Maquillage* (1914) from the Library of Congress depicting Georges Méliès. Photo courtesy of Frank Wylie.

The idea to use paper strips in place of celluloid film came during an artist's talk by

Stan Douglas whose use of 'paper negatives' in restoring an Edison film for

appropriation in the piece *Overture* (1986) (Stan Douglas) reminded me of the historical

method of preserving motion picture in the silent era (Figure 11). The transfer of

photographic sequences onto paper rolls were used by prominent motion picture

publishers prior to 1912 as a means to protect copyright at a time when federal laws

included only printed text and photographs[20]. It occurred to me that the paper print could

be the 'original negative' if one were to draw on it directly and this notion become the

basic concept behind my technical process.

   The scroll is also significant in the development of early non-objective animation prior

to direct animation, particularly in the ground breaking films of Richter and his

contemporary Viking Eggeling. Both men were painters in the early 20th century seeking

a means by which their abstract paintings could evolve to a temporal form more akin to

that of music. Their breakthroughs in such films as Eggeling's *Symphonie Diagon*ale

(1921) and Richter's *Rhythmus 21* (1921) were preceded by scroll drawings and paintings

that "opened the way to a <u>continuity</u> to build, from several drawings, sequences…"

(Richter 41). It was not long before both artists realized that the continuity they sought

lay in film, the new medium that could imbue their frozen scrolls with the appearance of

motion.

   Looking back even earlier in history, the book-scroll dichotomy can be found in the

ontology of pre-cinematic animation as seen in the praxinoscope of Emile Reynaud. The

praxinoscope is significant in that it was the last of Reynaud's optical devices, among

which was the zoetrope, in which the mechanical apparatus of the playback system was

evident to the viewer. In this single-user device, the viewer is privy to the strip or 'scroll'

of pictures around the inner circumference of the rotating drum even while they

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[20] The practice is well documented on the website of the Library of Congress ("Early Motion Pictures Free of
Copyright Restrictions in the Library of Congress (Motion Picture and Television Reading Room, Library
of Congress)")

experience the intended frame-by-frame 'flipbook' animation when the drum rotates

(Figure 12). Again, it is these historical references that inform my aesthetic and technical

choices in all of the *Motion Studies*.

Figure 12 Emile Reynaud's Praxinoscope (photo courtesy of Exeter University).

   Perhaps the most important conceptual aspect of the scroll as it relates to my

methodology is an early mechanical system of music recording and playback. After the

wax cylinder became obsolete in the late 19th century and just prior to the phonograph

disc there existed the player-piano roll, a scroll mechanism for the recording and

playback of piano performances. The legacy of this system of mechanical reproduction

remains imbedded in the so-called horizontal MIDI 'piano roll' editor graphical interface

of most contemporary digital software programs[21]. It is this scroll-like editor that I use as

my principal compositional tool in the computer when composing sound and musical

elements such that they will align to the temporal patterns that have been established in

the hand-drawn image sequences (Figure 13). Like the original piano roll, the MIDI

piano roll editor provides a visual system on a scrolling timeline for the control of such

musical parameters as pitch, volume, rhythm and velocity (attack).
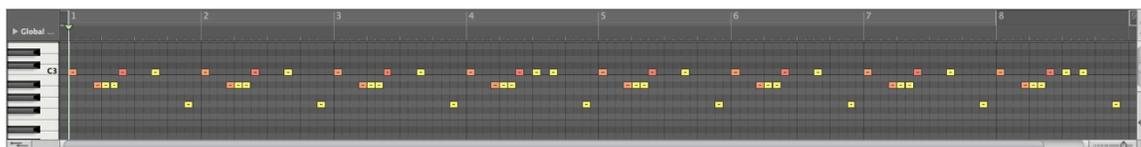
Figure 13 Screenshot of 'Piano Roll Editor' in Logic Pro v.9

Returning to the scroll as it relates to the visuals, my research into the aforementioned

historical subjects leads me to conclude that the scroll paradigm is ideally suited to image

sequence composition because it parallels so closely the conditions of musical

improvisation, consisting of a linear progression fixed in a chronological sequence and

the trailing presence of everything that has been composed already (a form of memory). I

would argue therefore that this way of thinking about animation is much more akin to

music composition than is the orthodox 'flipbook paradigm'.

Drawing in Rhythm: The Pantographic Brush Array

During my research I discovered the photo of an interesting variation on the

pantograph, the *Sign-o-graph*, a ubiquitous device used by functionaries in the late 19th

century and early 20th century to duplicate their signatures on large numbers of cheques

(Figure 14).

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[21] MIDI is the Musical Instrument Digital Interface protocol invented in the 1980's but still in wide use today
("History of MIDI").
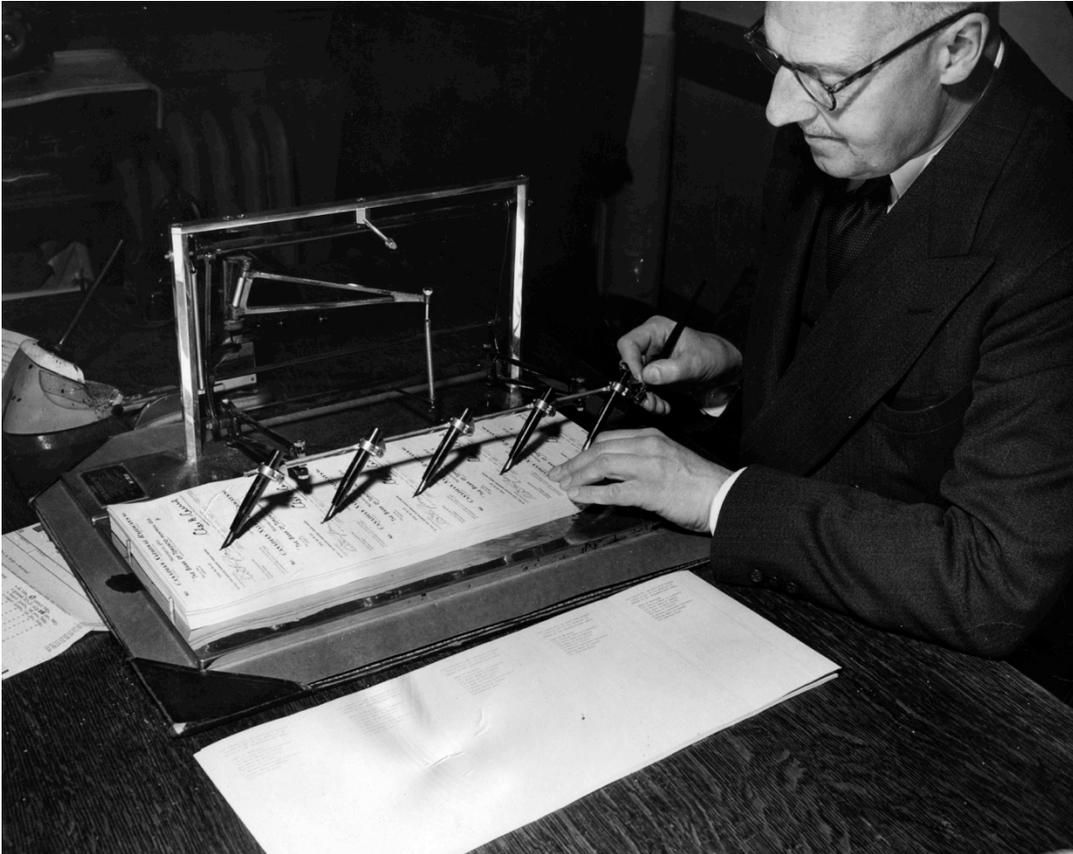
Figure 14 *Sign-o-graph***. Photo courtesy of CN Science and Technology Museum.**
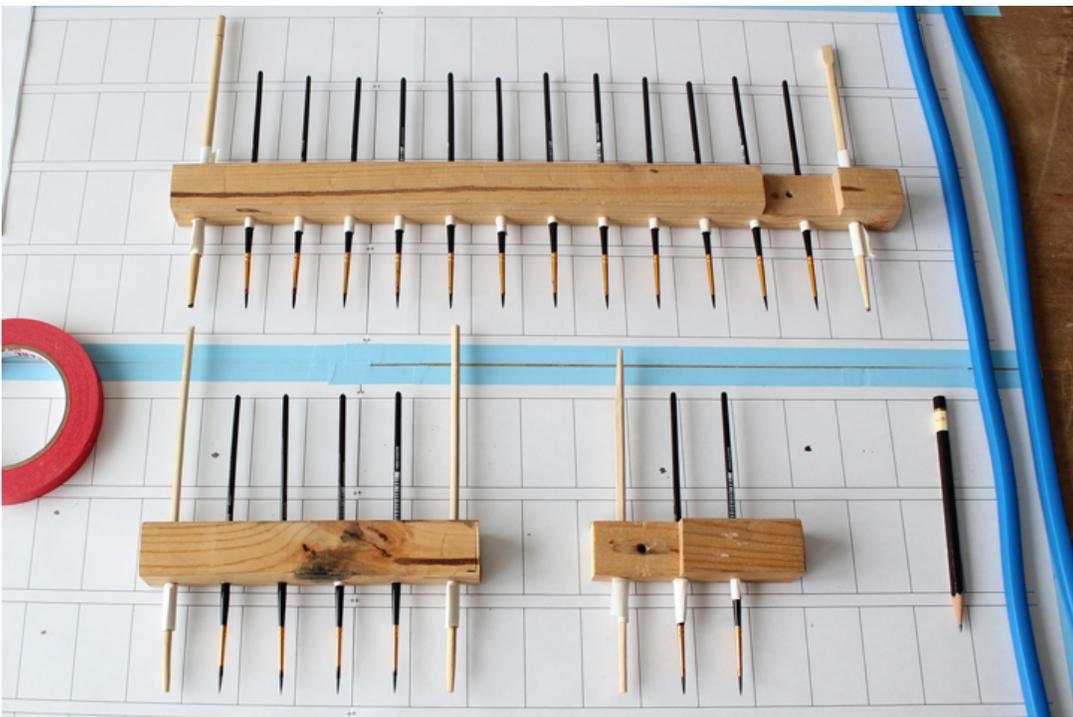
Figure 15 Production photo: Brush arrays construction

A pantograph is a drawing instrument used historically by artists to mechanically

reproduce the trace of the hand while drawing, resulting in either a duplication or

magnification of the drawing. Struck immediately by the potential for such a device to be

used as a method of rapidly drawing the image sequences required for my chosen 'direct

animation', I developed a drawing instrument called the *pantographic brush array*

(Figure 15).
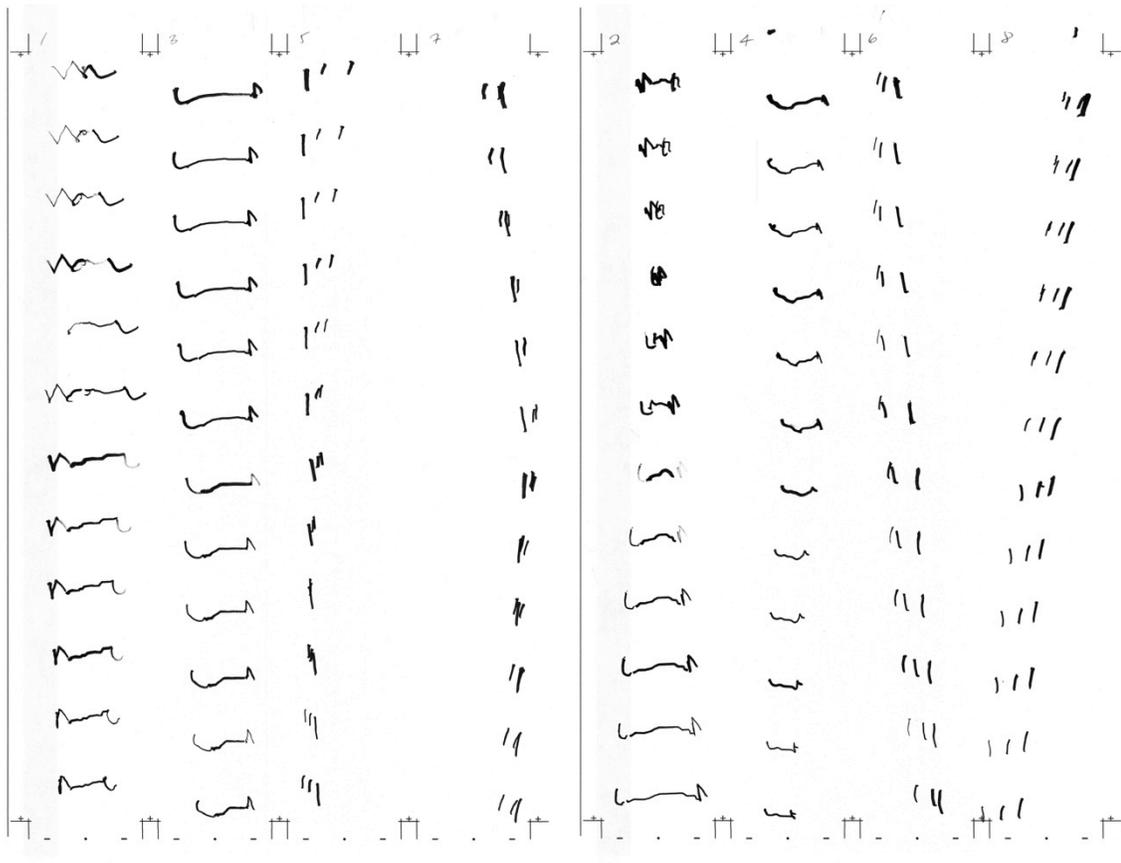
Figure 16 Allemano, Luigi. *Tests after Len Lye*.

A second impetus for this device emerged during the transcription of Len Lye's *Free*

Radicals (see Ch. 3. Improvisation in Animation for more on the transcription project).

Upon close examination and duplication of Lye's etching I began to suspect that the artist

might have used a pantograph device in order to achieve the seemingly mechanical

precision in the spacing of his marks. The spacing is critical to smooth movement in that

inconsistencies of position create a tremble or vibration in the animated figure. A few initial experiments with the pantographic brush array resulted in animation that replicates very closely Lye's rotating figures of motion (Figure 16), convincing me that the artist most likely used a similar device.

Three characteristics are embedded in my pantographic arrays: (1) the tool itself is improvised, being made of scraps of discarded furniture, (2) the system of interpolation and reproduction it provides is entirely hand-made and imprecise and (3) the tool is an instrument designed first and foremost to generate visual rhythms. The rhythmic nature of the drawing device is most apparent in works such as *Motion Study no. 7: Duration* wherein a visual motif remains sustained on the screen. The pantograph creates 'regular irregularities' in spite of my attempts to draw precisely the same line over and over again. These irregularities become apparent on the screen as rhythmic visual pulses.

In most of the prototypes I have built, the primary drawing implement installed in the array is the paintbrush. The importance of the brush as it relates to musical improvisation is eloquently described in Stephen Nachmanovich's *Free Play*:

> "In improvisation... we cannot go backward in time, there is no crossing out, editing, fixing, retouching, or regretting. In this respect, spontaneous music resembles Oriental calligraphy or ink painting. That watery gray-black ink on the brush, sliding over thin, fragile paper, does not allow a single mark or line to be erased or retraced. The painter-calligrapher must treat space as though it were time. The single-minded impulse from belly to shoulder to hand to brush to paper leaves its once-and-for-all trace, a unique moment forever frozen on paper. And the peculiarities and imperfections, which are there for all to see, are the mark of the calligrapher's original nature." (Nachmanovitch 25)

Relative to my work, two ideas are significant in Nachmanovich's evocation of the process of calligraphy. There is the link between the inalterability of the materials and the unyielding chronological trajectory of musical improvisation, and again, there is the treatment of the drawing surface not as space but time.

2. Composing Pictures and Music: A Unified Approach

While the computer can be thought of as the ideal tool for the artist working in moving

pictures and music, there is still no software that compares to film and optical sound in

terms of the immediacy of working directly with picture and sound in a unified medium.

Software still tends to be specialized, designed for image or for sound but not for both.

As a result, there is a lot of switching back and forth between programs, a compromise

that does not exist in direct film animation. Nonetheless, the possibilities for unified

audio-visual composition in digital media are much greater than they are in direct film

methods, especially in terms of sound, and as a result I am convinced that the computer is

indeed the right tool for my process.

As critical theorist Esther Leslie notes in *Hollywood Flatlands*, even prior to the

development of synchronized sound in cinema, practitioners have been aware of the

natural affinities between animation and music:

> "Music and film both move through time, but in cartooning, with its frame-by-frame
> fully controllable structure, the links between sound and image could be drawn so
> tightly that a symbiosis, a perfect rhythmic synchronization, could occur." (Leslie
> 26).

Describing the development of the bar sheet and the exposure sheet, two conventions

of orthodox classical animation designed to regulate audio-visual synchronization with

precision, Leslie argues that for the music composer working in animation, sound effects,

noises and music hold equal importance relative to the image and thus the regular

hierarchies of music composition do not apply: "The art lies in the arrangement of

materials, from wherever they stem." (Leslie 28). In my *Motion Studies* and

Improvisation no. 1, I adhere to this principle but in fairly loose and highly subjective

audio-visual composition methods combining extemporaneous visuals with a wide range of seemingly disparate sonic elements in arrangements that are based primarily on 'contrast and analogy'.

The law of contrast and analogy, as posited by Hans Richter and Viking Eggeling is that contrast gives "the maximum tension" while analogy "relates the contrasts". Eggeling adds: "Everything…can be given a new sensual intensity through the coordination of rhythm, proportion, position, dimension, number, intensity, etc." (Richter 112). This way of thinking about audio-visual composition is useful in my approach to animation and music because it is based on the assumption that all formal relationships contain tension; there is no neutral state or expectation of a 'true representation' of 'being' as we would expect from representational narratives. If there can be no literal connection between a scribble and a trombone blast in the way that there might be between drawings of a cartoon character's mouth and the recorded voice of an actor, then the relationship will always be fraught with a certain amount of cognitive tension. Rather than fight to eliminate the tension, my approach is to *control* the amount of tension over time as Eggeling proposes, relating the contrasting audio and visual elements primarily through fluctuating degrees of synchronization.

To explain this further, another way to describe contrast and analogy in the most basic audio-visual sense is 'asynchronous' and 'synchronous'. Here, I refer to the concept of *synchresis* as posited by film sound theorist Michel Chion:

> "Synchresis: a spontaneous and reflexive psychophysiological phenomenon that is universal and works because of the makeup of our nervous system, not from cultural conditioning. Synchresis consists in perceiving the concomitance of a discrete sound event and a discrete visual event as a single phenomenon. There is synchresis when the audio and visual events occur simultaneously, and concomitance alone is the necessary and sufficient condition for synchresis. The impression created is involuntary; it attributes a common cause to sound and image, even if their nature and source are completely different and even if they have little

or no relation to each other in reality." (Chion)

Relying on Chion's 'concomitance' to establish and break synchresis in an interesting ebb and flow of tension, most of my *Motion Studies* deal with *synchresis* and the 'law of contrast and analogy'. One of these is *Motion Study no. 2: Point and Line to Melody*.

Figure 17 Allemano, Luigi. *Motion Study no. 2.* (still)

In this work I begin with the twelve-bar blues, a traditional musical form most closely associated with jazz and blues improvisation. Playing the trombone, I improvise several choruses of ad hoc melodies in the recording studio, adhering to the blues form, and I then prepare the resulting audio file for synchronization with the visuals that are to come. Listening to the recorded trombone improvisation a few times, I make note of some interesting moments in the performance for which I will attempt to draw an analogous mark and movement[22]. Then, with no other information other than the tempo of the trombone performance and an intuitive awareness of the temporal form (from years of performing similar blues improvisations), I draw image sequences with the pantographic

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[22] The analogous mark and sound is related to synaesthesia and is discussed later in the section called Line and Colour

brush array until I have achieved sufficient quantity that there is an equivalent duration of images relative to the audio.

During the drawing process, I implement several basic motifs such as dots, dashes and angles, all gleaned from hours of aleatoric sketching sessions preceding the recording. My only concern during the drawing process is to keep track of when my marks appear, disappear, morph and move relative to the temporal form of the blues. The decision of when to synchronize occurrences and when to let the synchronization drift is made on an intuitive basis, keeping in mind the relative tensions that have been built thus far. At the end of the drawing session, the image sequences are digitized and aligned with the music recording without editing, producing various 'synchretic effects' according to the relative contrast (tension) between picture and sound. Except in the few moments of the trombone performance for which I have precise notes, the audio-visual composition relies on the concomitance of drawings and trombone in the mind's eye and ear of the viewer-listener.

Line and Colour

The line is a compositional element common to both picture and music. In my works, there is use of a vertical line that travels across the screen, a trope that is integral to the methodology of direct animation (Figure 18). The line is the most basic gesture that can be used to distinguish the formal structure of the scroll from the book.
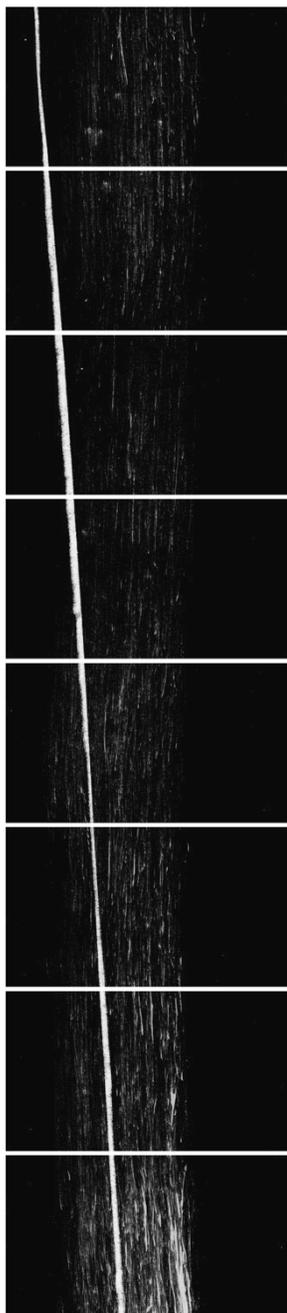
Regarding colour, my opinion is that in the process of audio-visual composition the use of colour is an import factor, but one in which direct correspondence to sound is tenuous. I have referred previously to McLaren's stance on colour as a subjective choice unrelated to sound. Similarly, it is important to note that in Eggeling's description of the law of contrast and analogy there is no mention of colour. In spite of this my research does take into consideration some of the attempts that scientists such as Newton and composers such as Scriabin have made in determining unequivocal colour-sound correlations. The colour wheels devised by both men were based on the musical cycle of fifths, relating the frequencies of sound to specific colours in relationships akin to synaesthesia (Figure 19). For people who have the condition of synaesthesia, stimuli from one sense (hearing, sight, etc) will trigger a reaction in another. However, a cursory examination of the literature on

Figure 18

sound-colour synaesthesia reveals that no two synesthetes relate the same colour to a given pitch[23]. In other words, a composer can establish a correspondence between a musical pitch and a specific colour, but the relationship is arbitrary because there is no universally accepted relationship that can be explained through empirical means.

My own approach to colour has therefore been relatively subdued. I prefer to use a restricted palette so as to concentrate on contrasts. In *Motion Study nos. 2 and 3*, the bold red colours of found film stock are used for rhythmic effect and in *Motion Study no 6*, gouache paint of violet and blue hues form a moving ground on which the white figures of negative space travel. In *Motion Study no. 8: Colour Space*, hand-drawn pantographic brush array image sequences are recycled from earlier *Motion Studies* and colourized with the pixel information of the three colour channels found in video hardware: the RGB (Red, Green, Blue) colour space. Where the drawings overlap, complementary colours CYM (Cyan, Yellow, Magenta) are generated through a blending mode in the animation software

Figure 19 Isaac Newton's colour wheel showing musical pitches relative to hues, from *Opticks* (1704).

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[23] See *Global Patterning* in the article "Synaesthesia: Pitch-colour isomorphism in RGB-space?" (de Thornley Head 165)

(Figure 20). I attempt to imbue in the animated marks and figures the appearance of a hybrid between the hand-drawn and the electronic.   In this experiment, analog drawings become digital data and colour becomes an aleatory function of data processing.
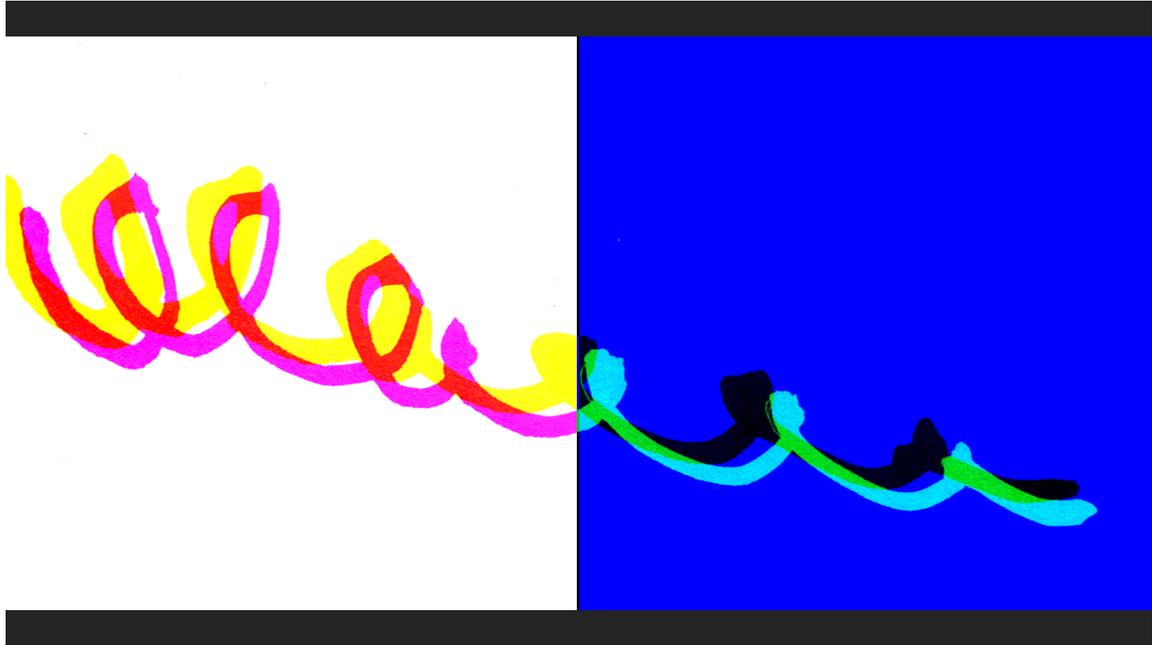
Figure 20 Allemano, Luigi. *Motion Study no. 8: Colour Space*. (still) 2013.

Rhythm and Looping

As I have mentioned previously in this paper, the primary compositional concern in all of my works is the temporal arrangement of the audio and visual materials: in a word, rhythm. To this end I use a set of 'calibrated' brush arrays, each with a number of brushes corresponding to the rhythmic value of quarter, eighth and sixteenth notes relative to the tempo of the music (Figure 21). With this system it is relatively simple to translate musical notation into a specific number of brush marks. For example, in the context of a tempo of 120 beats per minute, a quarter note is the equivalent of 12 images and therefore, to 'draw' an animation equivalent to a quarter note, I make a single gesture with the 12-brush array. In other words, a quarter note is drawn with a 'twelve-brush'. A dotted eighth note is the same as a nine-brush while an eighth note is the equivalent to a

six-brush and a sixteenth note is a three-brush, etc. With reference to musical notation, I am able to select immediately the correct brush array to translate the notated rhythm into brush strokes.
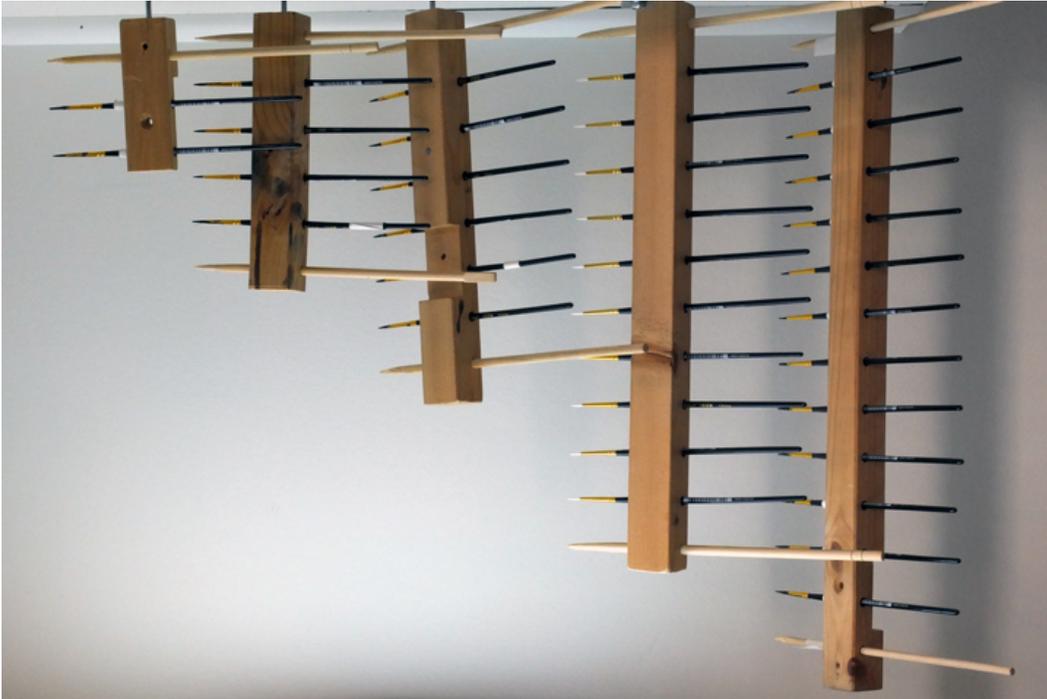
Figure 21 Allemano, Luigi. *Pantographic Brush Arrays*. 2012.

Looping is a compositional device by which I build tension in several works, perhaps most notably in *Motion Study no. 5: Canon*. Of course, looping is closely related to rhythm in that the continuous repetition of an image sequence or audio recording will result in a rhythmic pattern or 'beat'. In *Motion Study no. 5* the audio consists of sampled fragments of hand-drawn 16mm sound that are played in regular intervals via a digital sampler and manipulated with a single performance of an analog delay device.

The animation of the drawings features patterns of circles and spots, first one, then two, looping and accumulating in a fashion similar to that of the musical form of the canon, also known as the round. At a certain point the screen becomes full of looping figures

and when it seems that the tension can be built no further, the figures suddenly reduce to a lone spot that quickly reignites the rhythmic biological pulse before exploding into spots of ink (Figure 22). With a beginning, middle and ending, *Motion Study no. 5* is perhaps the most traditionally narrative of all the *Motion Studies*, suggesting among other things the life cycle, the climactic moment of procreation, or perhaps even the unsustainability of an accumulating population.
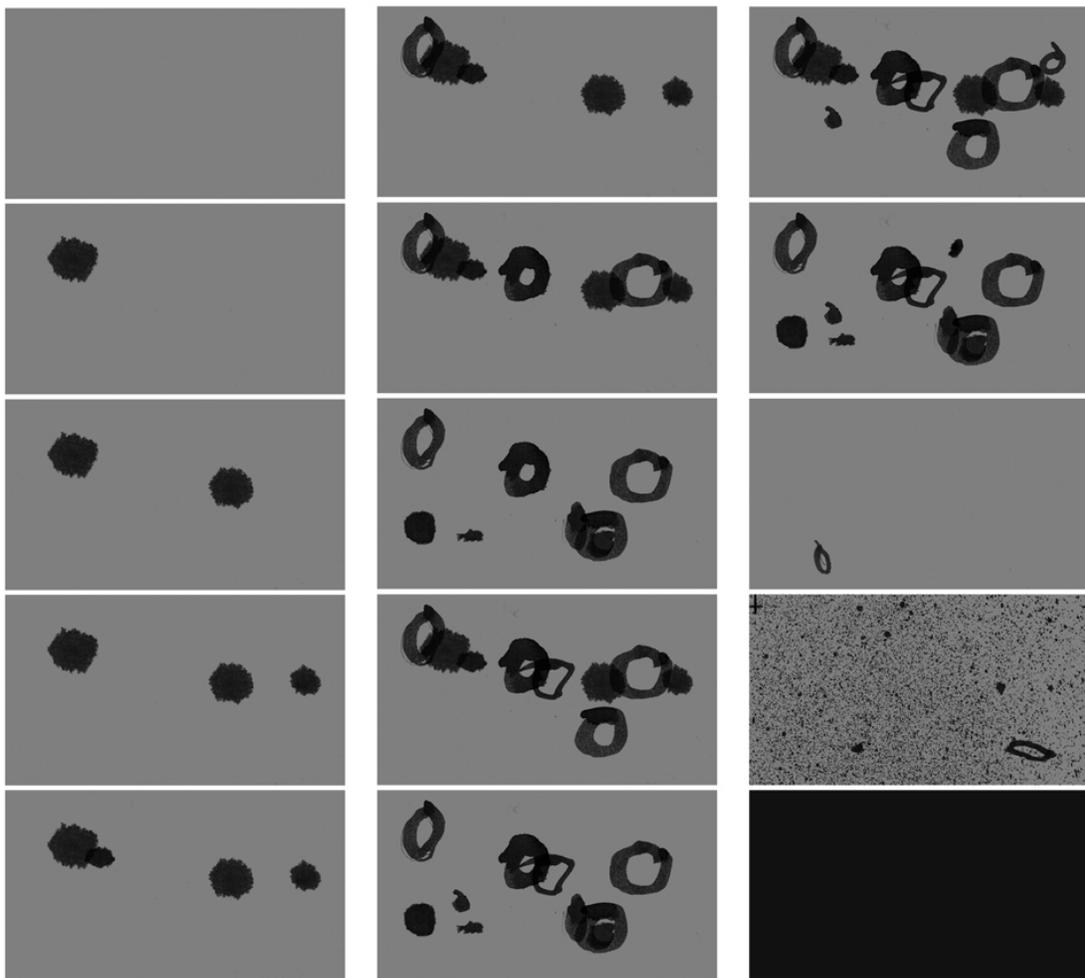
Figure 22 Allemano, Luigi. *Motion Study no. 5* **(stills). 2012**

3. Improvisation in Animation

A common view of musical improvisation sees the musician as one who performs 'on the spot' without any preparation or logical design, expressing purely spontaneous utterances through an instrument, guided only by feeling and intuition[24]. My own view as an improvising instrumentalist is that 'pure spontaneity', the kind that one encounters in everyday life when negotiating unexpected circumstances and events, is *not* analogous to the extemporizations of a musician. In this chapter I will attempt to describe my understanding of musical improvisation and I will explain how I use it as a basis for the approach I take in the production of animation, a medium whose orthodox methodology is adverse to works of spontaneous individualistic expression.

Improvisation may be thought of as a creative activity in which the improviser establishes a 'situation' wherein a work is initiated through action, and decisions are made about the work in reaction to the changing conditions of the situation, without preconception of how the finished work will look or sound. To clarify, the definition I propose does not suggest that the entire improvisatory act is unpremeditated; it is the state of the improvisation when it is finished, when it arrives at its state of fixity as determined by the improviser, which is unpremeditated. Unlike the situation of 'everyday improvisation' however, the improvising artist has control over the parameters of the creative activity and thus, the work of the artist involves negotiating degrees of control (or the lack thereof). The proposed definition applies to many fields of artistic inquiry

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[24] The introductions found in two books on improvisation serve as important references to the definition of spontaneity in musical improvisation; Paul Berliner's exhaustive book on the subject of jazz improvisation, *Thinking In Jazz: The Infinite Art of Improvisation* (de Thornley Head 165), and Derek Bailey's seminal survey of several ethno musical genres, *Improvisation: Its Nature and Practice in Music* (Bailey).

including theatre, dance, painting, et cetera, and as I will endeavour to explain in this

discussion, animation. In the *Motion Studies* and in *Improvisation no. 1*, the parameters

of control have primarily focussed around rhythm, tempo and duration. It is important to

note that all three are temporal characteristics, in keeping with the notion realized during

my research that animation is not so much the art of making pictures move as it is the art

of *generating* and controlling time[25]. Subsequent to this realization, all of my studio

work is staked on the premise that in order to establish a coherent relationship between

picture and sound, only the parameters of rhythm and tempo need correspond. This frees

me to work with other formal visual characteristics such as colour, composition and

texture and formal musical characteristics of pitch and amplitude in a highly intuitive and

ad hoc way.

 There is a paradox in applying principles of extemporaneous music performance to

hand-drawn frame-by-frame picture making. One practice is contingent upon real-time

conditions to which the improviser must respond immediately while the other depends on

a slow, laborious process of generating time incrementally without regard to real-time

circumstances. A direct transposition of improvisatory practices from live performance

to animation is therefore problematic. Making graphics move in real-time works counter

to the ontology of frame-by-frame picture making in the sense that the defining

characteristic of hand-drawn animation, as I have already emphasized, is the incremental

generating of time, a characteristic separating it from lens-based cinematic forms based

in the recording of continuous 'real-time'.

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[25] See Chapter 2: Real Time, Cinematic Time and 'Made Time for an in depth discussion of this notion based
   on an important concept posited by Mary Ann Doane in her book *The Emergence of Cinematic Time:
   Modernity, Contingency, the Archive* (Doane)

Instead, I attempt to transpose important *conditions* of musical improvisation to my

picture-making process. As with musical improvisation, I work chronologically without

the ability to alter the past or to know the future, but with the ability to remember the past

and respond to it in the present. In *Improvisation no. 1*, this condition is achieved by

painting and drawing over the same paper surface in an accumulative fashion with

materials that cannot be erased after the fact apart from being painted over, an 'additive

palimpsest' of sorts. In Figure 23 we see the same paper surface in two different states.

Figure 23 Allemano, Luigi. *Improvisation no. 1***. 2013**

In the earlier state (left), the dynamics of the mark making has already been built up to

the extent that the resulting animation has become chaotic. The last strip in the sequence

on the left is then over-painted with a wedge-shaped transition leading to an entirely

over-painted version of the same paper (right), making way for a new, less cluttered

image sequence. Below the obfuscating layer of dark grey paint the cumulative traces of earlier marks are visible.

In this way, I may refer back to what has been drawn, but in order to advance forward in time, I must draw over what is already on the page[26]. As when improvising in a musical situation, and counter to the methods of classical orthodox animation, I cannot jump ahead in time, work out of sequence and then return to fill in the interstices after the fact. The result of this process, when the scans are assembled as an image sequence, is a continual loop of animated marks that accumulate, building in complexity and density over time.

Licks and Riffs: The motif theory

In order to react quickly to changing conditions, improvisors may develop a vocabulary of motifs from which to draw upon during the improvisatory act. Generally speaking, the motifs will be developed in the context of an idiom. For example, bebop musicians will accrue melodic phrases, known in the vernacular as "licks", or primarily rhythmic phrases called "riffs", stylistically indicative of the musical genre called bebop. Likewise, flamenco musicians, blues players, Indian raga performers and instrumentalists of many other styles accumulate such material with formal traits common to the respective idiom[27]. This "motif theory" is used by detractors of improvised music to

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[26] Of course, before drawing over the entire image, I take a digital scan, committing the image as it 'was' to the digital domain for assembly in the animation sequence.

[27] Bailey explains the relationship between the improviser and the idiom thus: "No idiomatic improviser is concerned with improvisation as some sort of separate isolated activity. What they are absolutely concerned about is the idiom: for them improvisation serves the idiom and is the expression of that idiom. But it still remains that one of the main effects of improvisation is on the performer, providing him with a creative involvement and maintaining his commitment. So, in these two functions, improvisation supplies a way of guaranteeing the authenticity of the idiom, which also, avoiding the stranglehold of academic authority, provides the motor for change and continuous development." (Bailey 18)

deny its practitioners the possibility of creative expression, claiming that it is little more than an exercise in using regurgitated clichés originating outside the work[28]. Yet, when the theory is applied to common speech it becomes clear that it would be impossible to engage in meaningful discourse if one were only to use memorized phrases. The use of motifs cannot form the entire methodology of improvisation. How and why the motifs are selected and when they are used form a critical part of the process.

Figure 24 Allemano, Luigi. *Motion Study no. 2: Point and Line to Melody* **(still)**

In my works I have developed a vocabulary of motifs inspired by a number of sources including Kandinsky's text on abstraction, *Point and Line to Plane* (Kandinsky). This was a starting point arrived at through research in the origins of 'visual music', a term that was first used by the critic Roger Fry in 1913 to describe the Russian painter's efforts

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[28] Cognitive psychologist Philip Johnson-Laird coined the term "motif theory". His theory is quoted in George Lewis's *Improvised Music After 1950: Afrological and Eurological Perspectives*. (Lewis 106).

to arrive at a non-objective pictorial form equivalent to music (Bullen 469). Although

Kandinsky's theorization of the correlations between visual art and music is very

subjective and at times highly esoteric[29], his notions of the "basic elements" of art, point

and line, are a rich source in terms of improvising with visual components (Kandinsky

20). I have restricted my repertoire of marks to simple ink dots (points) and lines, and

only occasionally in more dynamic configurations such as circles or angles (Figure 24).

The process becomes a method of improvising beats with brushstrokes, literally marking

time, where the aesthetic qualities of the dots, dashes and lines are secondary to the pulse

they create when played back as animation.

Inspired also by the recently published Cy Twombly *Catalogue Raisonné of Drawings*

(Roscio), I use a form of automatic writing to generate a bank of marks from which to

select motifs with potential for rhythmic variation. Twombly was known to have

"…practised drawing in the dark in order to make his lines less regular, 'perfecting a kind

of meandering and imprecise graphology'." (Serota 27). In practice sessions with the

brush array, I draw in the dark, or with eyes closed, so as to be unable to look at the

drawing as I make it. The mark making is done freely with an emphasis on feeling the

gesture of a brushstroke. Often the gestures are made in reference to a melodic "lick"; I

mentally visualize the contours of a pitch sequence as it might appear in traditional music

notation and then trace those contours on the unseen page. While a far cry from the

powerful expression found in the 'practiced imprecision' of Twombly's line, my

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[29] In describing Kandinsky's theories as esoteric I mean to suggest that the notions of compositional elements common to music and visual art put forth in such texts as *Point and Line to Plane* (Kandinsky) are based less on empirical correlations like the colour-pitch relationships posited in *Opticks* (Newton) than they are on theosophical concerns like the expressive power of the line.

automatic writings have proven to be a fruitful method of creating a repertoire of individualistic gestures highly conducive to rhythmic improvisation (Figure 25).
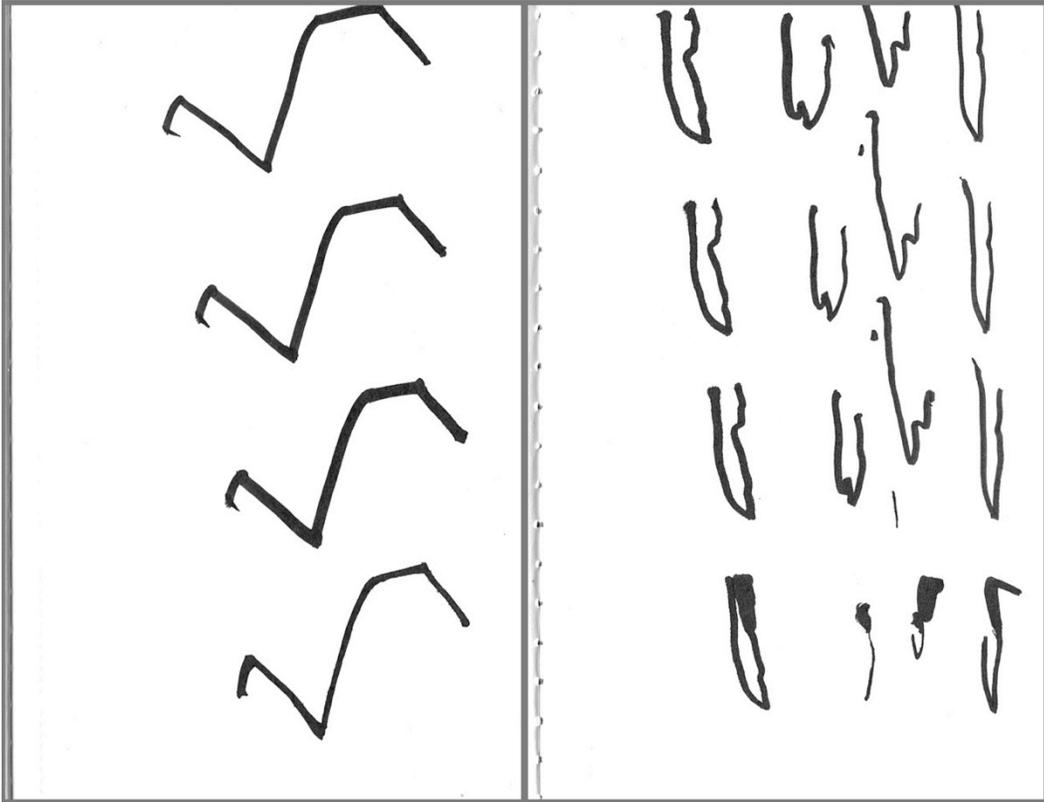
Figure 25 Allemano, Luigi. *Sketchbook drawings*. 2013.

The third source of inspiration for my mark making has come from a transcription piece, in which I transcribe Lye's *Free Radicals*, discussed below.

Quotation

The role of the motif in my process, then, is not to fill the database of an information storage and retrieval system, but to serve as a signifier of memory, linking the present work to the past, to what Lewis calls "known" styles (Lewis 107). For example, my use of the asterisk in *Motion Study no. 2* (Figure 26) makes reference to the same mark in a section of *Free Radicals* (Len Lye) (3:18 – 3:32) where Lye's virtuosity with the medium is particularly impressive while my continuous vertical brush line draws connections to the vertical line found in the 'direct animation' of McLaren and others.
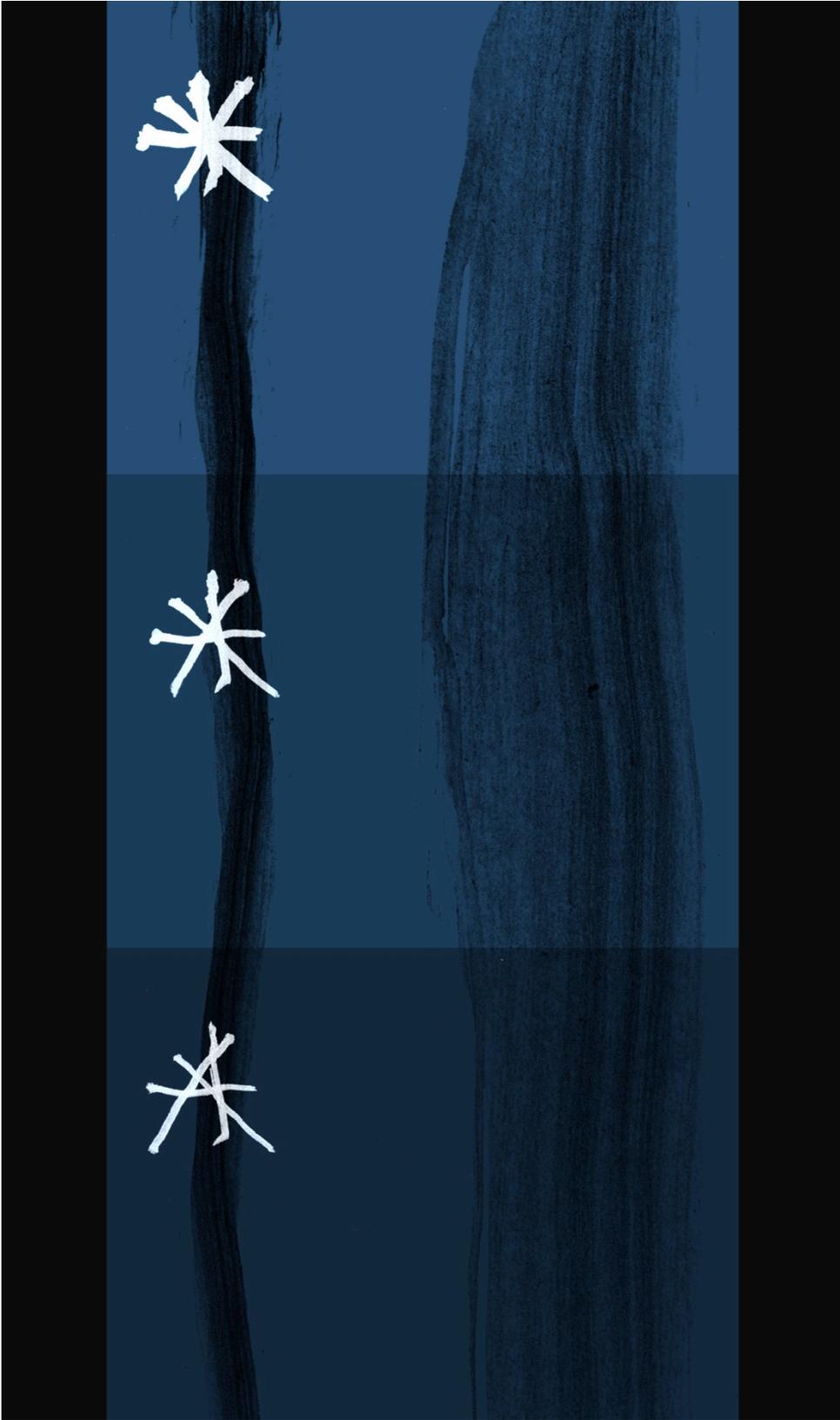
Figure 26 Allemano, Luigi. *Motion Study no. 2* **(stills). 2011.**

In both of the above cases, the motifs I use acknowledge the works of predecessors in the idiom of 'direct animation'. Both are selected at the time of improvisation with little other reason than that they might form interesting contrasts visually and kinetically. During that moment of the improvisation, it feels right to draw upon the gestures that result in the given motifs; a long uninterrupted vertical 'drag' for the 'McLaren' line and four short staccato stabs for the 'Lye' asterisk. Regardless, the choice of motif is not entirely experiential; this form of quotation is intended to contextualize my practice, to serve as tribute to works that have inspired me and perhaps even to function as a wink to the viewer-listener who shares my enthusiasm for this vernacular form of animation. In the context of bebop, the quotation is used similarly to invoke references to music both inside and outside of the idiom, demonstrating not only the ingenuity of the improviser to incorporate external references 'on the fly' but also demonstrating the effort of the improvisor to situate the performer and the listener within the work. More simply stated, the quotation is a way to share a common point of reference with the viewer-listener. Perhaps most importantly, the mark-making motifs I use serve as a starting point from which I can develop a unique variation on a "known" style, ideally moving the idiom forward in a small but significant way.

Lifting Lye: Transcription as "Intersubjective Confirmation"

As discussed in the earlier section of this essay called *Bagirmi Beat:* Drawing Sound Frame-by-Frame, the transcription of recorded improvisations is a method used by musicians to develop improvisational skills, particularly in the genres of jazz where the process is known as *lifting (stealing)*. The process begins when a musician responds to a particular recording that resonates with him or her, sparking the desire to emulate the

performance captured therein and to understand its inner workings. The first step is to memorize the recording by rote, playing along with it on a musical instrument. For some, the process is complete when the recorded improvisation is committed to memory such that the player can reproduce it at will. However, for others, the process continues with the notation of the memorized recording. It is this attempt to translate the nuances of the recorded performance into written musical notation, essentially a complex system of ideograms, which interests me. The process is potentially problematic. Author and improvisor Derek Bailey: "Transcription, it seems to me, far from being an aid to understanding improvisation, deflects attention towards peripheral considerations" (Bailey). However, while Bailey prefers to describe improvisations in a way that says something about the "intuited experience", essentially through ekphrasis[30], he freely admits that neither method of translation reveals the entire "truth" about improvisation. What is important in these two forms of describing improvisation is that both are "concerned with intersubjective confirmation"[31]. In other words, transcription and ekphrasis are equally valid methods, even if equally insufficient, to confirm what is deemed important to the *listener* of a recorded improvisation.

In my ongoing work of transcribing Len Lye's *Free Radicals*, I use the brush array and multiple accordion-fold sketchbooks to notate almost frame-for-frame the image sequences etched into black film stock as improvised by the artist in the original film (Figure 27 and Figure 28). At one level, the process is an exercise in looking, similar to blind contour drawing and the copying of master paintings, affording me insight into the techniques behind the work. On another level, the transcription speaks to the importance

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[30] Ekphrasis is used here to describe the exercise of conveying the experience of an artwork through writing.

[31] Thomas Clifton, quoted in (Bailey) p.xi.

of labour and the handcrafted in the ontology of animation, to my own subjective

response in experiencing Lye's improvisation and to the impossibility of capturing the

prosodic in his work. For the viewer, the work presents in a static format the subjective

translation of a time-based work such that it may be viewed 'all-at-once'. Like the

written transcription of a recorded jazz improvisation, this project will result ideally in a

representation that is visually interesting in its own right, and one that offers the

possibility to discover connections in the construction of the original subject that may not

be evident when it is experienced in its original form.

Figure 27 Allemano, Luigi. Book 1 of *Transcription of Len Lye's Free Radicals*

Figure 28 Allemano, Luigi. Book 1 of *Transcription of Len Lye's Free Radicals*

Marking the Space: Initiating the Work

I feel that the inception of the improvisatory act occurs internally in the physiology of

the improviser; a mental preparation in which the current conditions are assessed,

followed by an action, then another preparation, in a continuous loop of action, feedback

and reaction. For a musician, this cycle can happen rapidly, in real time, to the extent

that preparation and action become simultaneous and self-perpetuating. It is difficult to

describe how this process might be transposed to animation, but as philosopher Gary

Peters writes: "…the initiation of a work requires the marking of an unmarked space,

although it is important to recognize that the marked and the unmarked are qualitatively

different. The absence of art (the unmarked) does not demand art whereas the presence of

art (the mark) demands a continuation that is governed by the available mark-making

resources, thought both materially and as a history of mimetic patterns." (Peters 12).[32]

**Figure 29 Allemano, Luigi. Music notation from *Improvisation no. 1*.**

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[32] Peters' metaphor fits conveniently into the mark making process I adopt wherein the improvisation begins
with a blank sheet that is marked (literally) and is subsequently developed through a repertoire of motifs as
described in the following section.
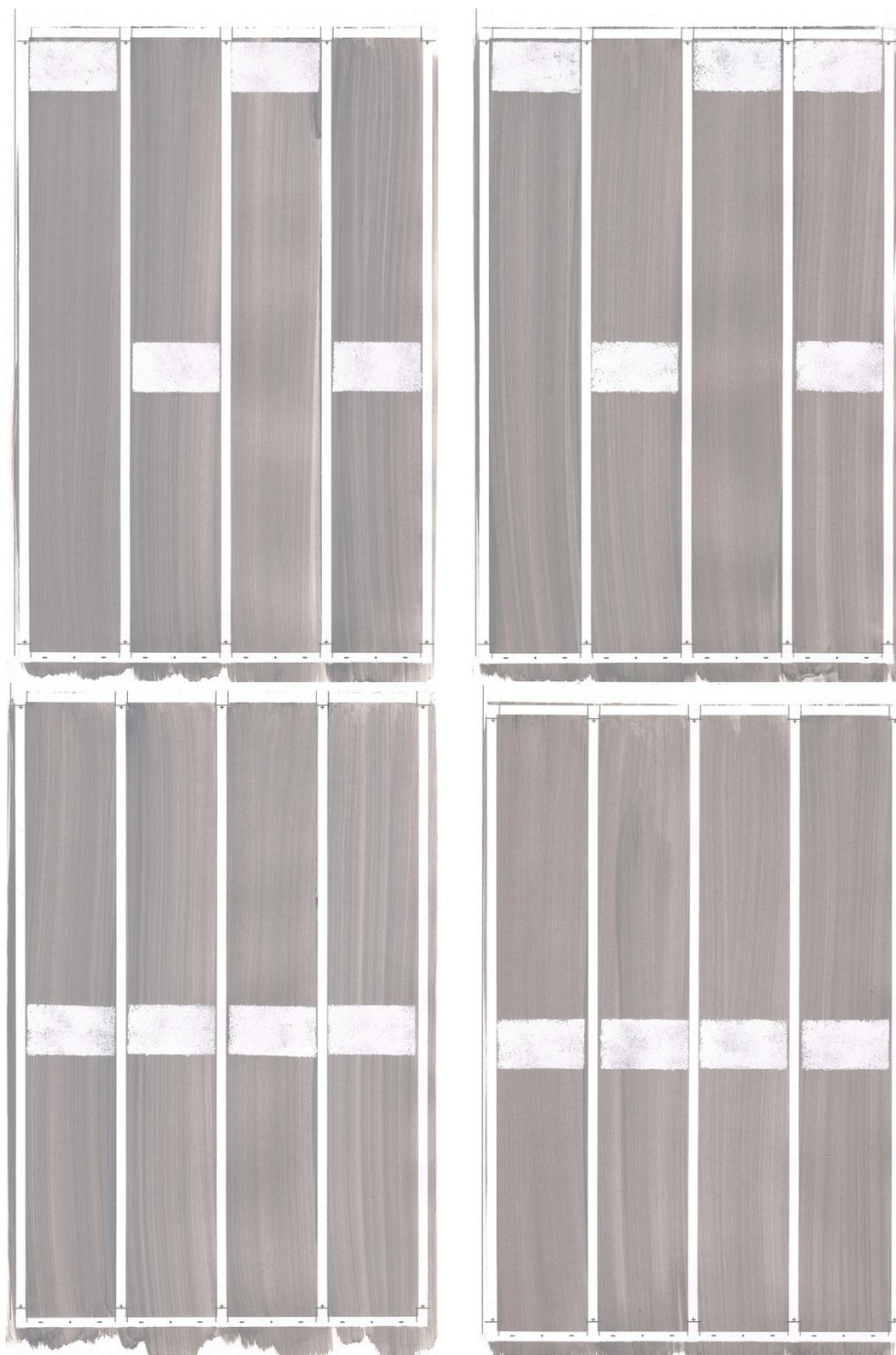
Figure 30 Allemano, Luigi. *Improvisation no. 1* **(production artwork).**

The approach I have taken in *Improvisation no. 1* begins with an internalisation of the rhythmic pattern, memorized through repeated listening, heard in the improvised music used by Lye as the foundation of *Free Radicals*[33]. I transcribe the pattern as accurately as possible, aware of the futility in attempting to notate every subtle nuance of the original performance (Figure 29). Working intuitively, I then engage in a literal interpretation of Peter's concept, marking the unmarked space of the paper strips that have been prepared in advance with a neutral grey gouache texture. I mark rhythmic intervals with white paint, spaced to correspond to the musical rhythms of the transcription (Figure 30). Subsequently, I am free to work with the soundtrack knowing that regardless of the qualities of the sounds I choose, the resulting combination of image and sound will synchronize[34].
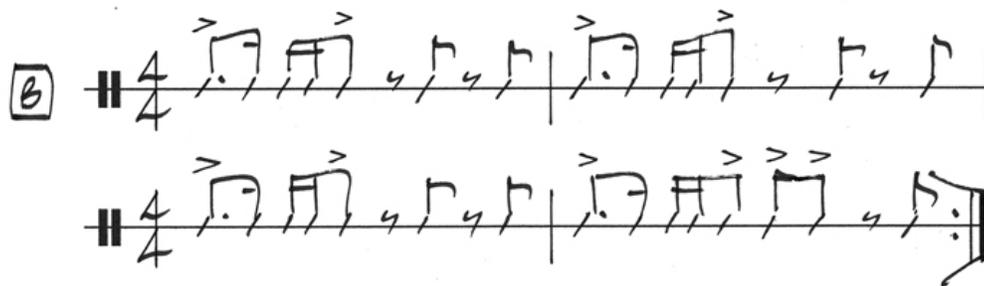
Figure 31 Allemano, Luigi. Music notation from *Improvisation no. 1*

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[33] The only credit for the music in *Free Radicals* indicates that it was performed by "The Bagirmi Tribe of Africa" (Len Lye). Extensive research has failed to come up with a specific recording identification although it is quite possible that Lye took it from a field recording found in the Smithsonian collection.

[34] This method is similar to the use of traditional bar sheets upon which specific moments of synchronization in the image and sound can be preplanned. The difference lies in the use of the bar sheet as a reference; in my method the paper strips *are* the bar sheets. Once they are painted over, they lose their function as a record of earlier synchronization decisions.
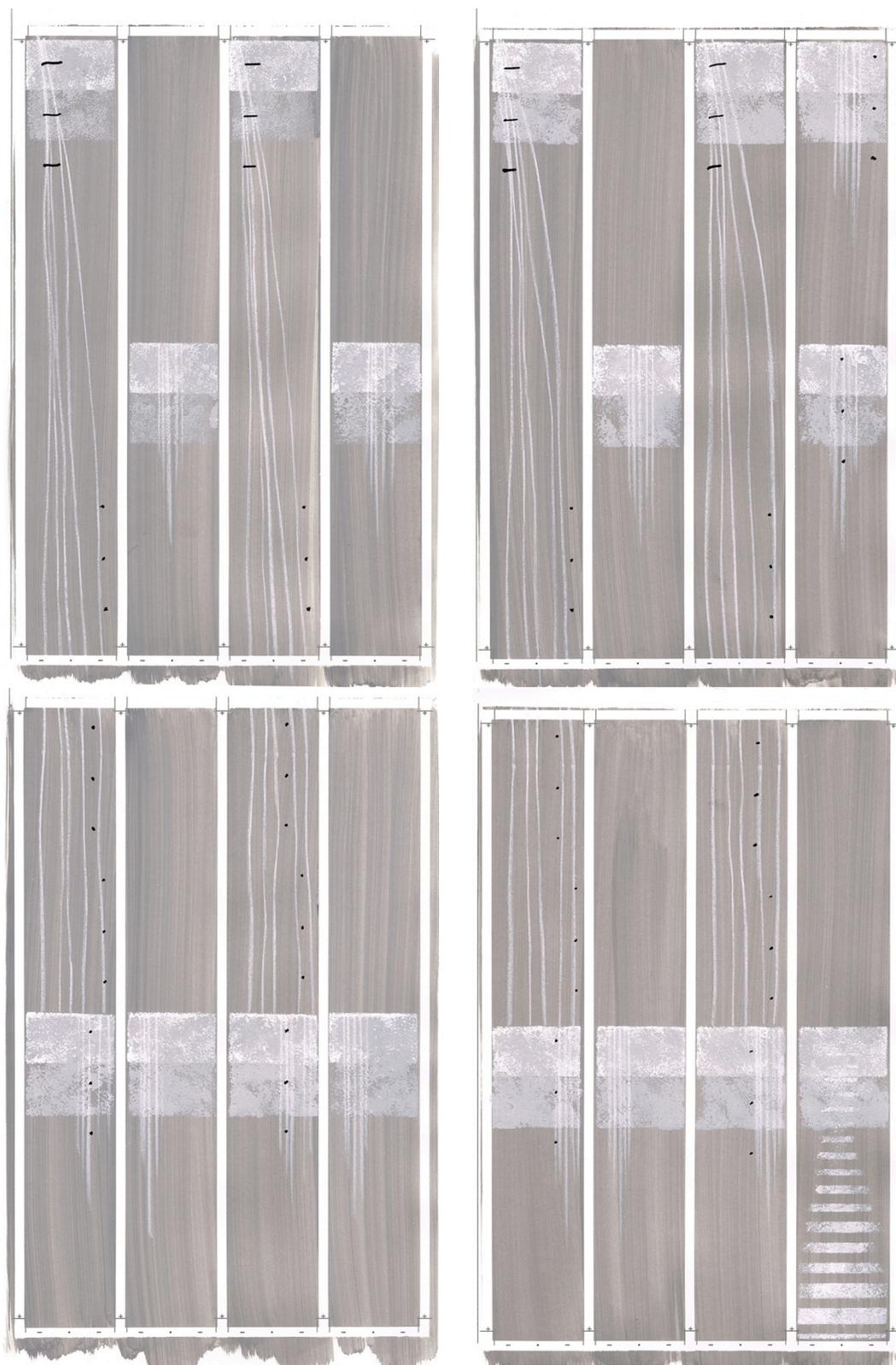
Figure 32 Allemano, Luigi. *Improvisation no. 1* **(production artwork).**

After the basic rhythm is executed as a visual pattern on the paper strips, a second rhythmic pattern transcribed from the same sound recording is added. Here, white vertical lines have been added to emphasize the rhythms of the first phrase while marks corresponding to the musical rhythms of the second phrase from the transcription (Figure 31) are made with the brush array and black ink (Figure 32). From this stage, the process of improvisation in the mark making grows and builds upon itself in a cycle of feedback, as described earlier in this chapter, until a moment is reached when the improvisation feels finished, as will be discussed in the concluding chapter.

It should be noted that as each series of four sheets is marked, I compose a corresponding sequence of the music. The technicalities of this equally improvisative process are discussed in Chapter 2. Composing Pictures and Music: A Unified Approach, but here I would claim that the integrated method of generating image and sound in what are eight-second cumulative loops is a defining characteristic of my methodology. Apart from McLaren, there are few historical examples of animators working in animated images and music composition within a single work from which I can draw analogies, but I hope that my work speaks to the interdisciplinary potential of animation, a process that has been removed in orthodox methodologies.

The Stakes of Improvisation

The improviser takes risks in many ways, one of which is deviating from the familiar

responses to situational change that he or she has prepared in advance. This is when the

improvisation takes on a sense of greater urgency, or greater interest, breaking from the

expected. In the context of a group improvisation, the deviations form part of what

creates energy and excitement for the other participants, including the listener – the

challenge to respond to the unexpected[35]. In the context of a solo improvisation, the

stakes are no fewer when the improviser ventures into unknown territory. Peters makes

the case that in all improvisation, "the fundamental relationship is not dialogical -

between improviser and improviser - but between improviser and improvisation". This

idea speaks to what Peters describes as "… the inevitable situatedness of the improviser

within a work, the contingency of that work, and of the agility necessary to avoid

becoming trapped in the communicative community created by it." (Peters 3). In other

words, the artist can never extricate him or herself entirely from the work but in the

activity of improvisation, the stakes are higher because the immediate expression of the

self demands that the artist sacrifice the possibility to retract what has been expressed.

The agility Peters refers to, as I have already said, is achieved through preparation, but

how does one account for this "communicative community" in the context of a solo

improvisation, especially one that takes place in a sequestered practice such as

animation? I would argue that the relationship between *the work* and *the viewer-listener*

functions as such a community. For the studio-based artist then, there is the same need

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[35] To be clear, a direct analogy cannot be made between live music performance which by its very nature exists in real time and animation which can be played back repeatedly after the fact. A better comparison would be between the *recording* of a live musical improvisation and a work of improvised animation. In both cases, the viewer – listener might still find surprising elements within the work even after repeated viewing – listening.

shared with live performance to situate both the artist *and* the viewer-listener within the improvisatory work. In each of my *Motion Studies* and *Improvisations*, I have attempted to do this in three ways: I use rhythm, not narrative, as a form of generating an empathetic response, I use materials that reveal their materiality in potentially seductive ways and I use exhibition strategies that allow the process to reveal itself.

These strategies run counter to orthodox animation in some ways. Rhythm is common to all forms of animation in the sense that it pervades any movement that has a cyclical nature but also in the sense that editing strategies in narrative forms will often be described as having 'a rhythm'[36]. The rhythmic structure in a narrative may generate an ebb and flow of emotional response, but it will most often be in support of the dramatic content within the narrative. In my works, there is little or no narrative strategy and therefore rhythm is used as a driving force and formal structure in and of itself, tying my methodology to those of music and dance.

The materiality of the paper, ink, crayon and brush arrays and the way that I use them are problematic to orthodox animation in that they are imprecise and idiosyncratic. Commercial animation tools and methodologies are designed for the conformity of line and the mass production of a highly contrived graphic design. In *Improvisation no. 1* and the *Motion Studies* I have embraced the imprecision of the method and materials in order that the individualistic expression essential to my methodology can be brought to the foreground. These materials *feel* right in terms of fast, improvisatory execution of image sequences.

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[36] In regard to rhythm in motion picture editing, the references are many, but the primary resource is Eisenstein's *The Film Sense* (Eisenstein 48).

Related to the notion of revealing process, in orthodox animation, with its roots in vaudeville, the spectacle of the moving drawings are subordinate to the narrative they are meant to convey even if the process of animation is made evident in the work [37]. Although today's audience is privy to the basic mechanics of animation to a much greater degree than was the audience in early animation history, the medium retains its allure. On this premise I exhibit my works as audio-visual media alongside the materials used in their making, a sort of museological display designed to invite the viewer-listener to engage with the process behind the work. The brush arrays in the vitrine serve to offer clues of the process behind the nearby audio-visual works while functioning as improvised sculptural works in their own right (Figure 33 - Figure 35).
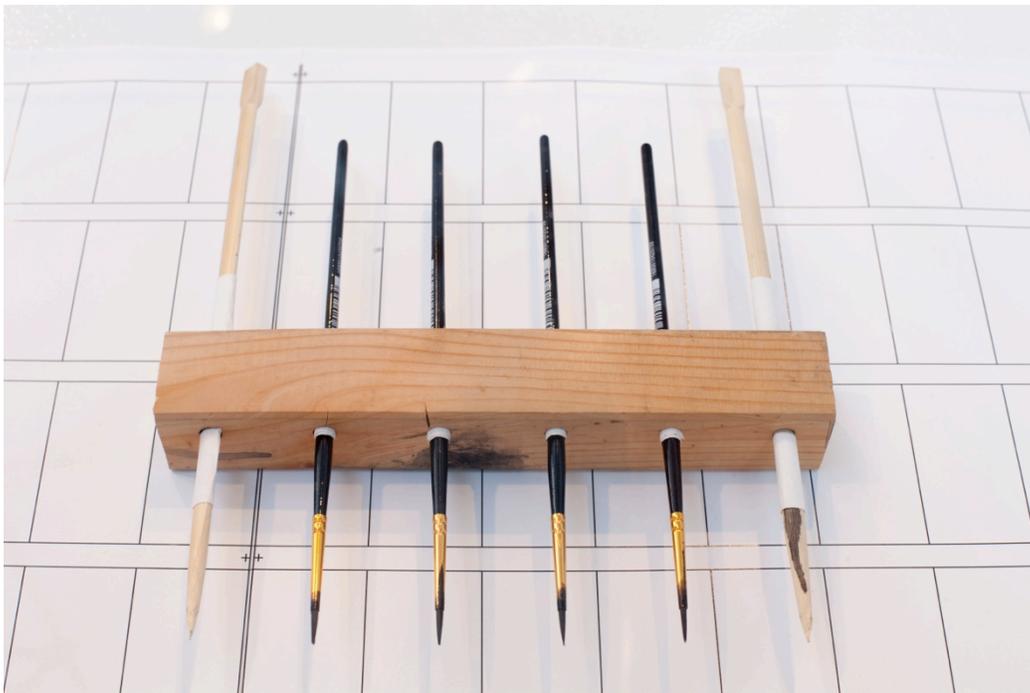
Figure 33 Allemano, Luigi. *Pantographic Brush Arrays*. (2012).

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[37] An excellent example of animation's vaudeville origins can be found in *Le Théatre Optique* as described in one of the few biographies of Emile Reynaud (Auzel) and in *Gertie the Dinosaur* as described in the biography of Winsor McCay (Canemaker).
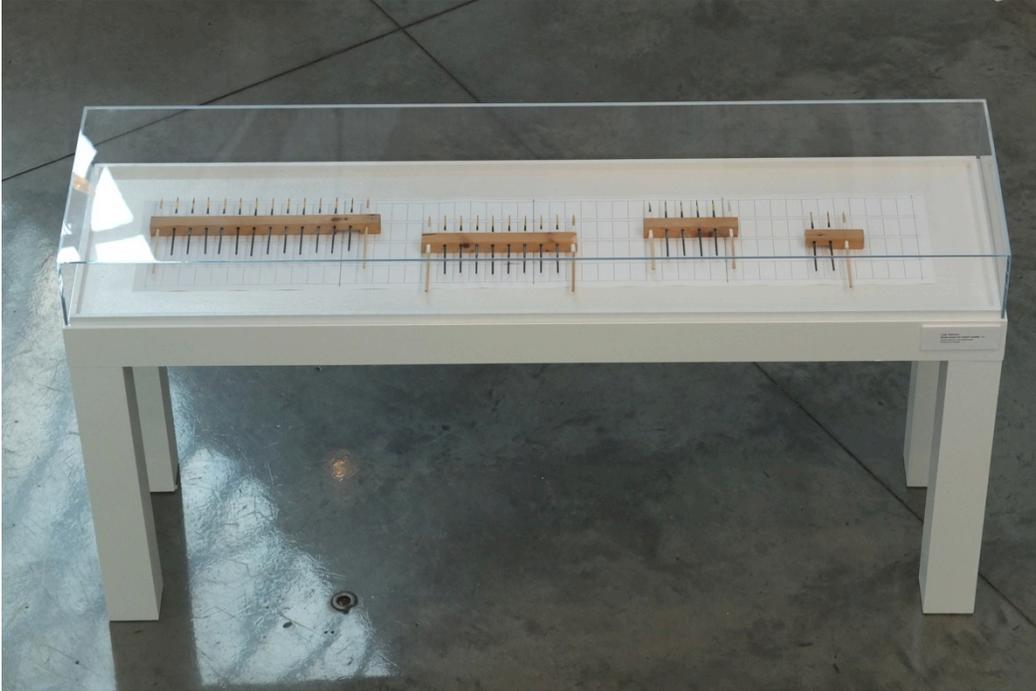
Figure 34 Allemano, Luigi. *Pantographic Brush Arrays*. **(2012).**
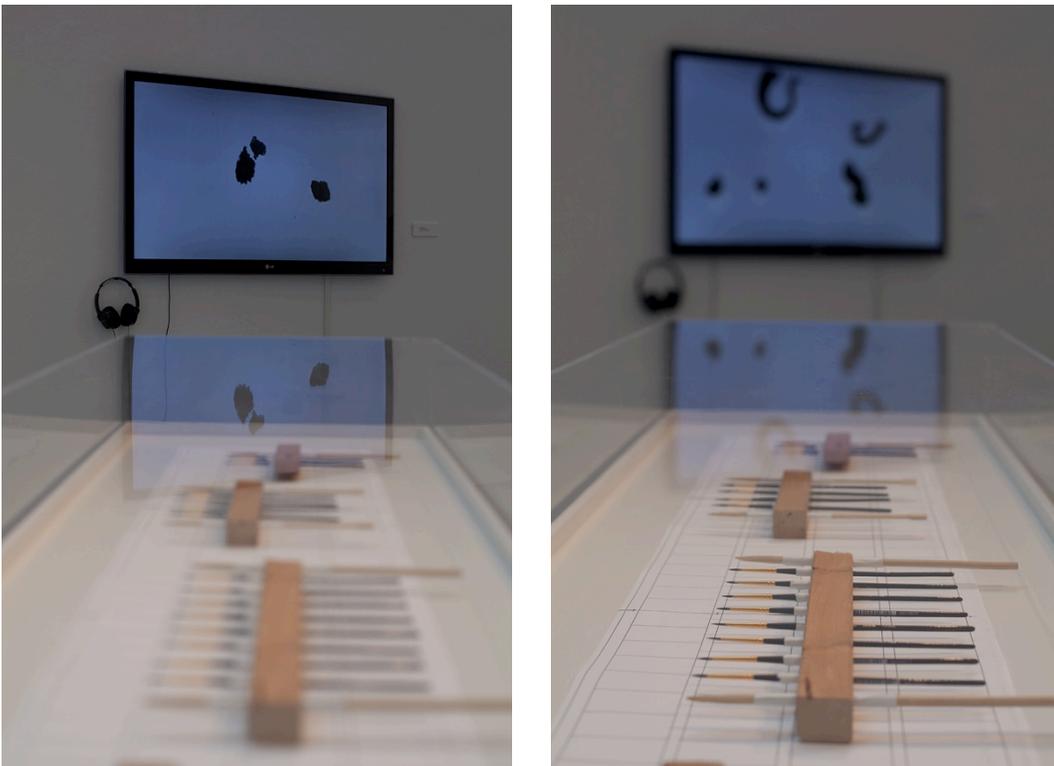

Figure 35 Allemano, Luigi. *Pantographic Brush Arrays*. **(2012).**

The "communicative community" to which Peters refers might also be seen as the

relationship that emerges between the work and the improviser as the work is produced.

The process I have devised in this project, conducive as it is to unexpected results, requires a certain amount of negotiation with the work in order to maintain it, as will be discussed in the following section.

Measuring Success

As with any act of improvisation, success is never certain, but apart from averting boredom, how do we determine the conditions of success in improvised animation? Peters proposes that the primary concern of the improviser is to maintain the work, to devise strategies that will allow the work to continue to happen and then to determine the point at which the improvisation should finish (Peters 60). In *Improvisation no. 1: Cumulative Loops,* the 'additive palimpsest' process does not allow for editing. There is no possibility to select the 'best takes' as would be the case in a recording session of improvised music. What is at stake is the possibility that upon its fixity, the point at which the improvisational activity ceases and the work becomes only a recording of the improvisation that occurred, there is nothing of the phenomenological experience remaining in the work.

Another potential point of weakness in an improvisation is when the risks taken in the making of the work disrupt the balance that the improviser attempts to maintain between rehearsed, mimetic gestures and those that are truly new, truly "unknown". A tangential divergence that becomes so convoluted that it causes the improviser to lose confidence in the work results in the work being aborted prematurely, a "false start" or "train wreck" as it is known among musicians. Peters describe the key to "success" in such an instance as *failing gracefully*:

"To fail "gracefully" is to fail successfully. It is to recognize that such failure is necessary for the work to continue. Such failure is liberatory in two ways but also tragic on account of this very dualism. The sacrifice of performers is a necessary part of the work's happening (the avoidance of boredom), but this failure liberates the artist from the task of trying to gather and hold together both the origin and the event or performance of the work within the temporality of aesthetic production: the duality of creation and preservation. And the artist *needs* to be liberated from this task in order to fully recognize its impossibility and, thus, its significance." (Peters 60)

In other words, a successful improvisation me be seen as one in which interest is maintained long enough in the improvisatory act itself for the improviser to sustain the work until a satisfactory moment of conclusion is reached[38].

Finally, at stake is my own concept that the orthodox industrial model of animation, with its system of pre-planning, departmentalization and specialization has an alternative, one in which the vision of a single artist can remain situated in the work. Even within the canon of what is called 'experimental animation' where we can find examples of virtuosic improvisation in the visuals as in the works of Len Lye and Oskar Fischinger, there is a reliance on an external audio component, the 'free ride' of pre-recorded music that McLaren spoke of[39]. My work shows hopefully that the medium of animation has great potential to expand and include the individual artist who is interested in a unified medium of drawings *and* music, a medium that is highly conducive to improvisation.

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[38] This concept is explored more fully in Chapter 4. *Ad libitum, Ad Infinitum*: When Is Improvisation Finished?

[39] Norman McLaren, quoted in *On the Creative Process* (1971): "I think the filmmaker who uses existing music gets a free ride. And film music of any type can cover up weaknesses in the visuals. It is an easy way out." (McWilliams 31)

4. *Ad libitum, Ad Infinitum*: When Is Improvisation Finished?

In discussing the development of the methodology and works that have emerged over the course of this thesis project, I outline the strategies that I employ in initiating and developing a work of animation-and-music improvisation. It seems logical therefore to conclude with a brief discussion of how I determine when an improvisation is finished. With regard to this question, improvisation can be thought of in terms of the individual improvisatory 'act' or work of art, and also in terms of a broader approach to one's improvisation practice.

As an activity played out in an individual work of art, my improvisations follow several strategies by which I determine their conclusion. In some of the *Motion Studies* I follow the conceptualist tactics of Sol LeWitt whose declaration, "The idea becomes a machine that makes the art"[40] holds a parallel to my process; the *improvisation* becomes an activity that makes the art. Although LeWitt's mandate to obviate the subjective in his work runs counter to my own ideology, his idea to "select the basic form and rules that would govern the solution of the problem" has built into it the useful predetermination of the duration of a work before it is completed[41]. For example, in *Motion Study no. 9: Synchresis* I choose to work with four distinct rhythmic phrases, each two musical bars in length at a tempo of one hundred twenty beats per minute, each appearing on the screen consecutively in an additive sequence of four lines (Figure 36). These factors result in a basic unit of eight seconds, which is multiplied by the number of iterations of the eight-second loop required for each line within it to be viewed with its

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[40] *Paragraphs on Conceptual Art* (LeWitt).

[41] Ibid.

own sound. Thus, the parameters of quantity and tempo in combination with the conditions of the audio-visual relationship (each line is heard with its own sound additively) determine the overall duration of the improvisation to be eighty seconds; the 'basic form and rules' govern this outcome.
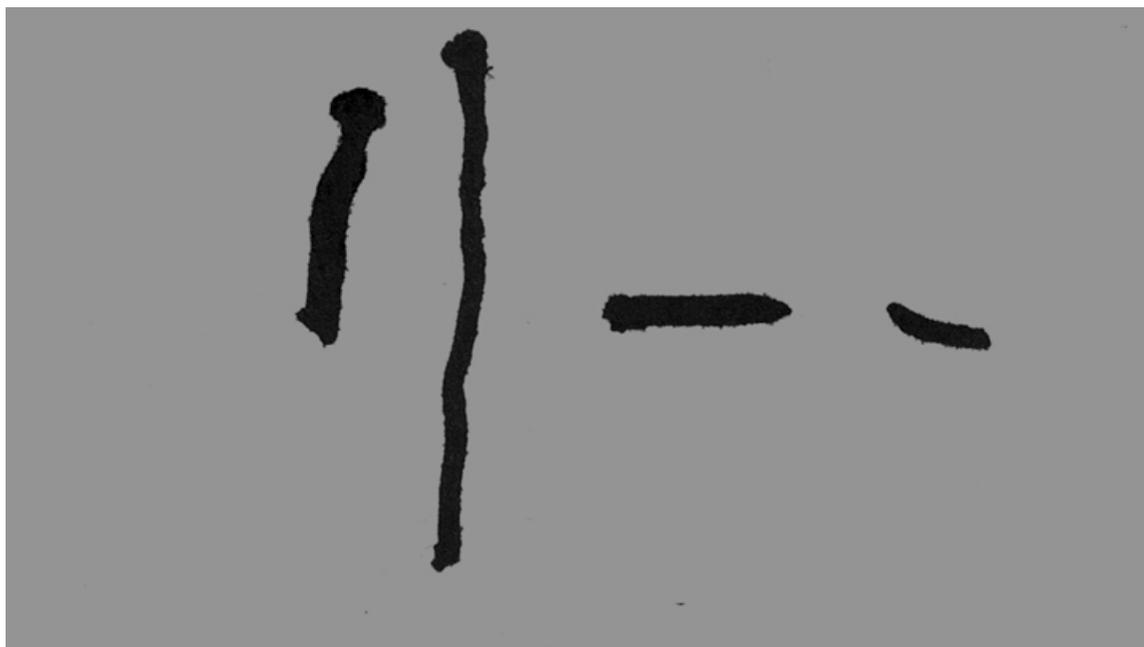
Figure 36 Allemano, Luigi. *Motion Study no. 9* (still).

In *Motion Study no. 7: Duration*, the form and rules are even simpler; I choose to create the animation of a line such that it appears on the screen for one minute. This choice is intuitive, based on the feeling that one minute is the minimum amount of time required for the effect of the work to be induced in the viewer-listener, the impression that nothing more will develop in the pulsing of a single horizontal line beyond that which we see and hear in sixty seconds. In this way, the improvisation is reduced to the most basic temporal aspects, rhythm and duration, and again, its duration is known in advance.

In the case of an open-ended form such as that of *Improvisation no. 1: Cumulative Loops*, determining the point at which the improvisation is finished becomes more

difficult. As with a live musical performance, factors both external and internal come into play. The external considerations of improvisation in the context of a graduate studies degree program demand acknowledgment of the calendar and other requirements of the course of study. In other words, the conditions of the program of study necessitated a short-form approach, and hence, the durations of each improvisation were pre-determined to fit within the limited studio time available[42].

Another external factor is the response from colleagues and instructors who participate in critiques of the improvisatory work-in-progress. This external factor is an important one and in some ways resembles the interaction between a musical improviser and the audience; the response from others, positive or negative, can influence the decisions that are made by the improviser in an effort to maintain interest in the work[43]. The momentum can be lost if the response is negative. On the other hand, the momentum can build if the response is positive, and in both conditions the improviser receives an external indication of when the activity has gone on 'long enough'. By and large, I have been extremely fortunate in this regard with no shortage of encouragement from fellow students, visiting artists and instructors alike. From their sympathetic responses I have been able to sustain improvisation over a longer period than I might have working in total isolation.

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[42] A similar approach might be found in early recordings of jazz improvisation; the limitations of the recording medium and the cost of access to studio equipment required that improvisations be made to finish within a certain amount of time.

[43] In an important work that refutes the significance of external feedback, I would be remiss if I did not acknowledge that Oskar Fischinger improvised on his monumental 1947 animation oil painting *Motion Painting no.1* for five months on a single roll of film without seeing any of it until it was finished (Russett 63). The risk in Fischinger's activity was mediated by the experience he gathered in the approximately twenty-five years of filmmaking prior to embarking on this, his longest and most elaborate improvisation.

The internal factor to be acknowledged with regard to finishing an improvisation is more fickle. I turn here to the article *When Is a Work of Art Finished?* (Hick) wherein the author outlines recent thinking in aesthetics literature on this subject. While it is beyond the scope of this essay to deal with such a broad concept in depth, the main conclusion Hick brings to bear is that once a work is published with the author's consent, it can safely declared to be finished[44]. Any subsequent change to a published work by the artist would result in a new work. Implicit in this judgement of the conditions of 'being finished' is the supremacy of the artist's intent; it is the artist's assessment of the work as being finished that is required before a work can leave the realm of the unfinished. Len Lye's re-editing and re-release of the 1958 version of *Free Radicals* as a truncated film in 1979 would therefore constitute two separate works, each with different outcomes. As an improvisatory work I would agree that *Free Radicals* exists therefore in two different finished versions, each reflective of what constituted for Lye at different periods of his practice a finished work of art[45].

In the case of *Improvisation no. 1*, I have published the work-in-progress online in the 'virtual studio' and indeed it is my own assessment of when the work ceases to be 'in-progress' that will deem when the published version is finished. This is a confirmation of Bailey's notion introduced earlier in my paper that the primary relationship of improvisation is not external, in other words it is not the relationship between collaborating improvisers that is essential, nor is it the relationship between improviser

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[44] The meaning of publishing is further complicated in the context of the internet where works are distributed and perhaps even produced online. As is discussed further in this section, my decision to publish the work in progress in the virtual studio blurs the boundary between finished and unfinished art, but I would argue that as the artist, it is I who retains the ultimate say in when the work can be seen by others.

[45] I should clarify that it is the later, truncated 1979 version of *Free Radicals* to which I refer throughout this essay.

and audience. It is the 'internal relationship' between the improviser and the improvisation itself that is most important. In this way, it is the feeling that the work is sufficiently developed that it can be stopped without a lingering impression of interruption that tells me *Improvisation no. 1* is finished. This feeling is gauged against the assessment of whether any further development in the extemporization would be 'drawing things out'. A measure of success in improvisation might then be seen as the recognition of the right moment to conclude just as it is about to pass, and to conclude in that moment, no earlier and no later.

In the broader context of my animation and music composition practice, my hope is that the newfound approach to improvisation documented in this paper is far from arriving at a conclusion. As I have experienced in my activities as a performer of improvised music, the practice of improvisation is never-ending and ever evolving. Development of technique, motifs, vocabulary and even one's stance on what constitutes improvisation is an ongoing process of growth, accumulation, reduction and re-thinking. In the words of Norwegian pianist and theorist Tord Gustavsen, "Dilemmas are there to be explored and experienced – going for the extremities or going for the intriguing movements of synthesis, but hopefully avoiding ending up in a non-profiled middle-of-the-road state." (Gustavsen 43). As Gustavsen suggests, in developing a practice of improvisation, the improviser's principle challenges are to mediate risks, to develop existing vocabularies and to avoid the predictability of a 'known' situation. This is something that I have strived to do, and will continue to do, in exploring and experiencing the 'dilemma' of improvisation in animation.

5. *Offline Exhibition:* Outside Cinema and the Concert Hall

Figure 37 Allemano, Luigi. *Improvisation no. 1: Cumulative Loops.*
Gallery installation view. 2013. Photo: Minttu Maari Mäntynen.

The culmination of this research project is the graduation exhibition *Offline*, held in the Charles H Scott Gallery, July 2013. Thematically the title of the exhibition refers to the significance of presenting work in a physical space, an environment much different from the 'virtual space' of the predominantly online experience of the MAA Low-residency Program.

The gallery can be thought of as a hostile environment for conventional cinematic works. Brightly lit and acoustically chaotic, a traditional gallery setting blanches the projected image and muddies the sound. Visitors roam freely, disrupting the seating conventions and fixed duration of the experience of orthodox cinema. However, taking inspiration from the compelling exhibition of audio-visual media works by sound artist Ryoji Ikeda at DHC/ART in Montréal (2012), I approached the gallery as an opportunity to present my work in an immersive and contemplative context that is for me, entirely new. While Ikeda's *datamatics* overwhelms the gallery visitor with visual and oral information via multi-screen installations and speaker arrays that attempt "to materialize pure data" (Ikeda), my objective is to create a more pensive environment similar to that in which I found myself often as a young musician: alone in a darkened room listening repeatedly to recordings of jazz improvisations who's prosody and evocative power I wished to understand and emulate. Ideally, the viewer-listener engages with *Improvisation no. 1: Cumulative Loops* long enough or frequently enough to discover the stream of decisions that were made during the act of improvisation, the quotations of predecessors working in the idiom and what philosopher Henri Bergson describes as essential to the empathetic draw of dance:

"Thus the perception of ease in motion passes over into the pleasure of

mastering the flow of time and of holding the future in the present. A third element comes in when the graceful movements submit to a rhythm and are accompanied by music. For the rhythm and measure, by allowing us to foresee to a still greater extent the movements of the dancer, make us believe that we now control them." (Bergson 12)

Here, Bergson offers a description that translates well to my concept of audio-visual improvisation, the idea that the viewer-listener can empathize with the improviser's thinking embodied in the work and recognize the improviser's development of the ad hoc relationships between sound and image to the extent that they feel they can anticipate the progression.

Thus, during the *Offline* exhibition I presented *Improvisation no. 1: Cumulative Loops* as a video installation in a darkened space with a three channel sound system. The work was presented on a large, high-definition LCD display and three speakers. In addition to the sharp detail and luminescent color of the screen, the room was acoustically treated to offer optimal listening conditions. A bench was provided for gallery visitors, inviting them to spend time with the piece as it looped continuously.

In this form, *Improvisation no. 1: Cumulative Loops* is the record of an improvisation in animated drawings and sonic collage that, ideally, transmits the thinking behind its making and presentation. It is a large, luminous object made manifest in digital technology and exhibited on that with which it was created: computer, screen and speakers. A cyclical audio-visual experience with apparently infinite duration, the piece is presented in such a way that the viewer-listener can engage with it for as long or as frequently as desired. It demands one's visual attention in order to make sense of its aural component. These characteristics place the work outside of the conventions of cinema and the traditional forums for music.

The piece represents the repositioning of my practice somewhere between cinema, music and art. Navigating this new point of view is challenging but invigorating. The context of the gallery brings a sense of unanticipated change to my thinking and a renewed excitement about what it is that I make, two conditions that are ideal for the activity of improvisation.

Figure 38 Allemano, Luigi. *Improvisation no. 1: Cumulative Loops.* **HD still. 2013.**

Addendum: Future Improvisations

The research in this project has led me to a juncture from which I am eager to explore several possible directions. In this final chapter I will touch upon briefly a few of the ideas and thematic concerns I am considering for future research projects.

The Digital Pantograph and the Infinite Strip

During the production of *Improvisation no. 1: Cumulative Loops* it became apparent that the process of digitizing the paper strips results in the final form of the image residing in the digital domain. As discussed earlier, the use of traditional materials such as ink and paper was necessary in order to create the temporal conditions of musical improvisation, but if these conditions are removed from the process, it is conceivable that pantographic image sequences with formal characteristics of direct animation could be created directly through digital means. Working with digital image files derived from scanned paper, it is clear that the main challenge lies in reconciling the long vertical form of the film or paper strip with the landscape format of the computer display. The exciting difference presented by digital tools is that a strip could be of virtually infinite length, thereby opening the possibilities to a 'direct' animation film of virtually infinite duration.

Along with the paper strip system developed in my process is the pantographic brush array. It would seem that in order to move my process into the digital domain this mechanical instrument would need to have a digital equivalent. To this end, I have begun research on how to script in various graphics software programs such that an input device like the graphics tablet or touch display may be used to draw images in a pantographic sequence. Creating repetitions of handmade gestures through such input devices is

relatively simple; the art lies in scripting an algorithm so that the iterations of a single mark contain inconsistencies like those of the brush array. While the notion of 'random' may be impossible in terms of writing code, I feel that the authoring of such code offers the means to regulate the amount of chaos in a way that is similar to my development of the brush array. Building one's own tools with physical materials has it's parallel in digital media: coding, scripting and algorithms.

Glissando

The brush array drawing device has built into its imprecision the tendency to generate visual rhythms. This is because a single gesture is repeated with only small variations in individual brushstrokes while subsequent gestures will be different enough as to make a regular interruption in the resulting animation. The viewer perceives this interruption as a rhythmic beat. While I have explored in depth the importance of rhythm in my process, it seems that a new approach would be logical to explore: the arrhythmic. A simple yet potent component of arrhythmic musical expression can be found in the sliding between pitches, a technique known as the glissando. The digital brush array proposed above would offer the ability to create pantographic image sequences whose variations are nearly imperceptible. Unlike the intentionally twitchy movement of the brush array, the animation generated through a digital pantograph would be fluid and continuous like the changing pitch of a musical glissando. Composers such as Penderecki, Ligeti and Coates have explored the glissando in musical composition; it is interesting to think of how one might generate a hand-drawn moving image equivalent.

Indeterminacy and Conceptualism

Although it was not discussed in this paper, research into musical improvisation brought forth notions posited by George Lewis that improvised music coming from the Afrocentric tradition lies in opposition to the Cageian school of indeterminacy[46]. Discussion of Lewis' stance is beyond the scope of this paper but it does bring forth the interesting prospect of working with chance operations in a way that may not be found within the jazz idioms I have explored thus far. My process might be expanded to include ideas from Cage, LaMonte Young and the Fluxus Group through a system in which image and sound are combined at random, the results being more heavily reliant on chance. Lewis' main critique of Cage seems to lie in the latter's effort to sublimate the trace of the improviser in a work of music (Lewis). My stance is that the author of the *system* of chance operations does leave a mark; the parameters and variables selected by the composer to enter into the system are in some ways an aesthetic expression. One could argue that Cage's 'prepared piano', filled with randomness and chance as it may be, is still immediately recognizable as a system devised by a singular author.

Another area of interest in my research that was mentioned only briefly in this paper is the notion of conceptual art as posited by Sol Lewitt. In his *Paragraphs on Conceptual Art,* Lewitt presents the notion that the idea is the machine that drives a production of the artwork *(LeWitt)*. In other words, a system of rules and procedures is all that is required for a work of art to exist; the aesthetic result is secondary, perhaps even negligible. While I am not entirely certain how I might incorporate this notion into my process, I am intrigued by the idea of procedural art. It might be possible to devise a system in which a

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[46] Lewis' argument can be found in a paper entitled *Improvised Music After 1950: Afrocentric and Eurocentric Perspectives* (Lewis).

bank of image sequences and sounds are combined according to a set of instructions. The final work would be of little aesthetic value according to Lewitt's proposition, something that at first glance seems problematic to me, but I feel that further explorations in this direction could lead to new ways of thinking about animation, ways that lie outside of cinema.

Exploring Farther Outside of Cinema

In this paper I have discussed the challenge of presenting work in the art gallery. I wish to extrapolate on these developments through works that diverge even farther from the formal aspects of cinema. Shapes like the square and the vertical 'portrait' rectangle are alternatives to the fixed landscape proportions of the cinema screen, shapes that merit further experimentation. Additionally, current digital technology allows for multiple channel video and sound. This opens my work to the possibility of multi-screen formats for the visuals and more immersive, spatialized fields for the sound.

Beyond these technical concerns lie some ideas that have germinated in the Motion Studies. In particular, there is the hand written text of *Motion Study no. 3: Analog Usurped*. I am intrigued by the idea that calligraphy can function both as a carrier of meaning and as an object in itself. Equally exciting are the possibilities of combining hand written text with sound recordings, whether through deliberate design or through chance operations.

Finally, there is the impact of the online experience I feel resonating at the conclusion of this low-residency graduate program. The Internet, the tools with which we create and consume content on it and the increasingly familiar nature of online interaction have become an important aspect of my practice. The potential to generate and disseminate a

work of art on the same device and to publish work immediately, or even as it is being

constructed from one's studio, is the new paradigm for media artists. I am not certain that

this new paradigm will ultimately supplant cinema methodologies in my practice, but as

an alternative mode of expression, it is one I feel compelled to explore.

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Appendix I: Visual Documentation CD (image files)

Figure 1
Bagirmi Beat. 2011. 16mm film with optical sound. Luigi Allemano.

Figure 2
Bagirmi Beat (detail). 2011. 16mm film. Luigi Allemano.

Figure 3
Notebook with musical notation of *Free Radicals*. 3.5 x 5.5". 2011. Graphite on paper.
Luigi Allemano.

Figure 4
Motion Study no. 7: Duration (HD video still). 2012. Luigi Allemano.

Figure 5
Motion Study no. 7: Duration (exhibition image detail). 11 x 17". 2012. Ink on paper.
Luigi Allemano.

Figure 6
1,440 Lines (from Motion Study no. 7). 30 pages, each 11 x 17". Arrangement variable.
2012. Ink on paper. Luigi Allemano

Figure 7
Motion Study no. 3 (stills). HD video stills. 2012. Luigi Allemano.

Figure 8
Improvisation no. 1 (stills). HD video stills. 2013. Luigi Allemano.

Figure 9
Motion Study no. 6: Criss-Cross. 11 x 17". 2012. Gouache on paper. Luigi Allemano.

Figure 10
Book vs. Scroll (L) and stills from *Motion Study no. 3* (R). Diagram. 2012. Luigi
Allemano.

Figure 15
Brush arrays (construction photo). Dimensions variable. 2011. Wood, bamboo,
paintbrushes. Luigi Allemano.

Figure 16
Tests after Len Lye. 11 x 17". 2012. Ink on paper. Luigi Allemano.

Figure 17
Motion Study no. 2. (still). HD video still. 2012. Luigi Allemano.

Figure 18
Motion study no. 1. HD video stills. 2011. Luigi Allemano.

Figure 20
Motion Study no. 8: Colour Space. (still). HD video still. 2013. Luigi Allemano.

Figure 21
Pantographic Brush Arrays. Dimensions variable. 2012. Wood, bamboo, paintbrushes. Luigi Allemano.

Figure 22
Motion Study no. 5 (stills). HD video stills. 2012. Luigi Allemano.

Figure 23
Improvisation no. 1: *Cumulative loops.* 11 x 17". 2013. Gouache, ink on paper. Luigi Allemano.

Figure 24
Motion Study no. 2: Point and Line to Melody (still). HD video still. 2011. Luigi Allemano.

Figure 25
Sketchbook drawings. 3.5 x 5.5". 2013. Ink on paper. Luigi Allemano.

Figure 26
Motion Study no. 2 (stills). HD video stills. 2011. Luigi Allemano.

Figure 27
Book 1 of *Transcription of Len Lye's Free Radicals.* 3.5 x 105". 2012. Ink on paper. Luigi Allemano.

Figure 28
Book 1 of *Transcription of Len Lye's Free Radicals.* 3.5 x 105". 2012. Ink on paper. Luigi Allemano.

Figure 29
Music notation from *Improvisation no. 1.* 4 x 8.5". 2013. Ink on paper. Luigi Allemano.

Figure 30
Improvisation no. 1 (production artwork). Each page 11 x 17". 2013. Gouache and ink on paper. Luigi Allemano.

Figure 31
 Music notation from *Improvisation no. 1*. 4 x 8.5". 2013. Ink on paper. Luigi Allemano.

Figure 32
Improvisation no. 1 (production artwork). Each page 11 x 17". 2013. Gouache and ink on paper. Luigi Allemano.

Figure 33
Pantographic Brush Arrays. Dimensions variable. 2012. Wood, bamboo, paintbrushes. Luigi Allemano.

Figure 34
Pantographic Brush Arrays. Dimensions variable. 2012. Wood, bamboo, paintbrushes. Luigi Allemano.

Figure 35
Pantographic Brush Arrays. Dimensions variable. 2012. Wood, bamboo, paintbrushes. Luigi Allemano.

Figure 36
Motion Study no. 9 (still). HD video still. 2012. Luigi Allemano.

Figure 37
Improvisation no. 1: Cumulative Loops. Installation view. HD video, LED display, three channel sound system. 2013. Luigi Allemano. Photo by Minttu Maari Mantynen.

Figure 38
Improvisation no. 1: Cumulative Loops. HD video still. 2013. Luigi Allemano.

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Appendix II: Audio-Visual Documentation DVD (media files)

Index #

1. *Improvisation no. 1: Cumulative Loops.* (3:20) Luigi Allemano. 2013. HD video with stereo sound.
2. *Motion Study no. 1: Line, Texture and Rhythm* (00:30) Luigi Allemano. 2012. HD video.
3. *Motion Study no. 2: Point and Line to Melody* (1:25) Luigi Allemano. 2012. HD video with stereo sound.
4. *Motion Study no. 3: Analog Usurped* (1:10) Luigi Allemano. 2012. HD video with stereo sound.
5. *Motion Study no. 5: Canon* (00:45) Luigi Allemano. 2012. HD video with stereo sound.
6. *Motion Study no. 6: Criss Cross* (00:30) Luigi Allemano. 2012. HD video.
7. *Motion Study no. 7: Duration* (1:00) Luigi Allemano. 2012. HD video with sound.
8. *Motion Study no. 8: Colour Space* (00:25) Luigi Allemano. 2012. HD video.
9. *Motion Study no. 9: Synchresis* (1:30) Luigi Allemano. 2013. HD video with stereo sound.

10. *Bagirmi Beat* (1:30) Luigi Allemano. Stereo audio recording.

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NOTE: All source video files are HD 1080p but presented here in SD video format to conform to technical requirements of the MAA thesis guidelines.