Interloops in audiovisual works

Quek Wenxian Lynette

PhD
University of York
Music

September 2020

Abstract

This portfolio presents eight original audiovisual works, plus six experimental studies that fed into their creation, alongside a written commentary that articulates the research that formed and manifests in the works. These artworks include elements of various forms of sound and visual art practices, including film, sculpture, music and sound, as well as incorporating processes of performance, installation and recordings. Aiming to achieve a balance and integration of the audio and the visual, they explore various possible forms of audiovisual coherences. Overall, through creative practice research and its critical discussion, the portfolio examines interrelationships between sound and image. It configures these as a process of audiovisual looping, here termed an 'interloop', in which each element continually affects the other, extending out towards the audience and the space of reception, and feeding back into the work itself. A form of conversation between the audio and visual elements is therefore established: an on-going dialogue aimed at achieving a sense of synchronicity in the presentation of audiovisual works. The works in the portfolio are presented as fixed medium video, live performance documentations, web and software applications, sound sculpture, and scores.

The portfolio submission and commentary are also available online (hidden link) at https://sites.google.com/view/lq-phd/

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13. *(frenetic silence)*

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Information about works

1. *Study 1: Flicker*

   Length: Continuous

   Format: 00:24, MOV video file, 496 x 500px (trailer)

2. *Study 2: Screen Noise*

   Length: 01:07

   Format: MOV video file, 1920 x 1080px

3. *Study 3: Moving Fences*

   Length: 09:37

   Format: MOV video file, 1920 x 1080px

4. **& interlooping*

   Length: Continuous

   Format: Software Application and MOV video file (16:00, 1280 x 800px)

   Showcases: YO!Collective Exhibition, York College Gallery, York, UK, 22 November – 20 December 2018.

   Sound Thought 2019, Centre for Contemporary Arts, Glasgow, UK, 16-17 February 2019.

   PhD Research Seminar for the Maestría and Doctorado of the Facultad de Música de la UNAM, Universidad Nacional Autonoma de Mexico (National Autonomous University of Mexico), Mexico City, Mexico, 25 February 2019.

application.macosx (calibrated for OS X El Capitan 10.11.6):
https://drive.google.com/file/d/1MtGuyhnmVQY9UdqfbS1gn-7-vSeONQ3L/view?usp=sharing

application.windows64:
https://drive.google.com/file/d/1hVLxkGx3hhKanEgcbxv4bOtocqpmkxvF/view?usp=share_link

application.linux64:
https://drive.google.com/file/d/10tWqLY2qumDme_4ta_W4RYmm2HgLeJU6/view?usp=share_link

5. *RESONANCES*

Length: 05:00

Format: MOV video file, 1920 x 1080px

Premiere: The Chimera Ensemble, Rymer Auditorium, University of York, York, UK, 5 May 2017.

6. *Recordeur I-II*

Length: 09:09

Format: MOV video file, 1280 x 720px, with graphic score

Audio premiere: Postgraduate Forum (with paper presentation), Rymer Auditorium, University of York, UK, 2 March 2017.

Audiovisual premiere: Sound Thought 2017 (Festival of Music and Sound Research, Composition, and Performance), Centre for Contemporary Arts, Glasgow, UK, 10 May 2017.

Other showcases: Activating Inclusive Sound Spaces Conference, University of Huddersfield, Huddersfield, UK, 8-9 July 2017.

C/C/D (Composer/Computer/Distance) Conference, Sheffield, UK, 3-4 May 2018.

Music, Medievalism, and Modernism; Between Old and New Conference, Paper Presentation, "Between old and new repertoire, instruments and styles: new works for different recorders and electronics," Institute of Musical Research, University of Huddersfield, Royal Music Association (RMA), Huddersfield, UK, 28 June 2018.

Music and Poetry in Shandy Hall, Shandy Hall, Coxwold, UK, 30 June 2018.

PhD Research Seminar for the Maestría and Doctorado of the Facultad de Música de la UNAM, Paper Presentation, Universidad Nacional Autonoma de Mexico (National Autonomous University of Mexico), Mexico City, Mexico, 25 February 2019.

Ciclo de Música Electroacústica Concert, Temporada 2019, LIS Laboratoria de Imagen y Sonido, Campus Cultural, Isla Teja, Universidad Austral de Chile, Valdivia, Chile, 17 May 2019.

Electronic Music Concert Cicio MUAK (Mujeres Artistas Kompositors, Women Artists Composers), Museum of Contemporary Art of Quinta Normal, Santiago, Chile, 9 November 2019.

Audio CD release: BEYOND: Works for Recorders and Electronics, Carmen Troncoso, York, UK, 2018.

7. *Vorpmi*

Length: 14:53

Format: MP4 video file, 1280 x 720px

Premiere: Expanding Film #1, PICA Studios, York, UK, 5 October 2017.

Other showcases: Electronic Music Concert, Rymer Auditorium, York, UK, 24 May 2017 and 29 November 2017.

Ibrida, Festival Delle Arti Intermediali (Hybrid, Festival of Intermedia Arts), Forli, Italy, 11-13 May 2017.

8. *Study 4: Silent film*

Length: No fixed length

Documentation: 03:10, MP4 video file 1280 x 800px

Format: Live performance with visuals

3 studies with ensemble: ish, William Barnardo (accordion), Gaia Blandina (cello), Florencia Frete (piano), John McAreavey (electric guitar), Federico Pendenza (classical guitar), Lynette Quek (laptop), Rymer Auditorium, University of York, York, UK, 19 November 2018.

9. *Study 5: The Giraffe Race*

Length: ~06:40

Trailer: MP4 video file, 1280 x 720px

Format: Live performance with visuals

3 studies solo and with ensemble: Barrington Brook (percussion), Desmond Clarke (oboe) & Lynette Quek (saxophone); Gaia Blandina (cello) & Catherine Robson (violin); Lynette Quek (synthesizer), 2017.

10. *Study 6: On the Sensations of Tone II*

Length: ~15:00

Documentation: MP4 video file, 1920 x 1080px, with score

Format: Live performance

Performance: The Chimera Ensemble, Sir Jack Lyons Concert Hall, University of York, York, 2 March 2018.

11. *Typing An Email*

Length: No fixed length

Trailer: 01:05, MP4 video file, 1280 x 800px

Documentation: MP4 video file, 1280 x 800px, 29:15 / 03:56 / 09:24

Format: Live performance and web application

Premiere: LQ + quip + mattrobson, Wharf Chambers, Leeds, UK, 27 November 2018.

Other showcases: Lates: Good Vibrations, Presentation and performance, National Science and Media Museum, Bradford, UK, 26 September 2019.

Basic version: https://www.openprocessing.org/sketch/590011
V2.1: https://editor.p5js.org/lynettequek/full/kKO0wYvET
V2.2: https://editor.p5js.org/lynettequek/full/ylYaK1klq

12. *-ect -act*

Length: ~20:00

Format: Live performance

Trailer: 03:00, MP4 video file, 1920 x 1080px

Documentation: MP4 video file, 1920 x 1080px, with scores

Premiere: Gaia Blandina (cello), The Chimera Ensemble Concert, Sir Jack Lyons Concert Hall, University of York, York, UK, 17 November 2017.

Digitised version premiere: Vick Low (cello), "Typing An Email" Solo Showcase, Third Space at Goodman Arts Centre, Singapore, 28 December 2017.

Double-bass premiere: John Marley (double-bass), Postgraduate Forum (with paper presentation), Sir Jack Lyons Concert Hall, University of York, York, UK, 26 May 2018.

Other showcases: PICA Open Day, PICA Studios, York, UK, 9 December 2017 (Gaia Blandina, cello).

MMus Performance Recital, Middleton Hall, University of Hull, Hull, UK, 23 May 2018 (Bethany Nicholson, cello).

Sound, Image, and Interaction Doctoral Symposium, Paper & Poster Presentation, Madeira Interactive Technologies Institute (M-ITI), Madeira, Portugal, 4 October 2018.

2019 WOCMAT Conference (15th International Workshop on Computer Music and Audio Technology), National Tsing Hua University (NTHU), Hsinchu, Taiwan, 13 December 2019.

13. *(frenetic silence)*

Length: ~30:00

Format: Live performance with video

Trailer: 02:00, MP4 video file, 1920 x 1080px

Documentation: MP4 video file, 1920 x 1080px, with scores

Premiere: Catherine Laws (piano with objects), Neil Luck (voice 1), Anna Snow (voice 2), Voice Recognition, Rymer Auditorium, University of York, York, UK, 10 April 2019.

14. *on-screen / off-screen*

Length: ~25:00

Format: Live performance, with video (*Steppers)* and sound sculpture (*a slab of folly)*

Trailer: MP4 video file, 1920 x 1080px, 01:00 / 07:00

Documentation: MP4 video file, 1920 x 1080px, with score

Premiere: The Assembled, Rymer Auditorium, University of York, York, UK, 15 November 2019.

List of accompanying material

Media

The works submitted for the portfolio include video files and audio files, named accordingly.

Scores

If available, scores for the submitted works are attached in the Appendices at the back of the document as well as in PDF format, named accordingly.

Study 1: Flicker (video file)

Study 2: Screen Noise (video file)

Study 3: Moving Fences (video file)

Study 4: Silent Film_3 studies (video file)

Study 5: The Giraffe Race 1 (video file)

Study 5: The Giraffe Race 2 (video file)

Study 5: The Giraffe Race 3 (video file)

Study 6: On the Sensations of Tone II (video file)

Study 6: On the Sensations of Tone II Score (PDF file)

Work 1: *& interlooping (video file)

Work 2: RESONANCES (video file)

Work 3: Recordeur I-II (video file)

Work 3: Recordeur I-II Score (PDF file)

Work 4: Vorpmi (video file)

Work 5: Typing An Email 1 (video file)

Work 5: Typing An Email 2 (video file)

Work 5: Typing An Email 3 (video file)

Work 6: -ect -act 1 (video file)

Work 6: -ect -act 2 (video file)

Work 6: -ect -act 3 (video file)

Work 6: -ect -act Score 1 (PDF file)

Work 6: -ect -act Score 2 (PDF file)

Work 7: (frenetic silence) (video file)

Work 7: (frenetic silence) Score (PDF file)

Work 7: (frenetic silence) Chase Scuite (audio file)

Work 7: (frenetic silence) Chase Scuite Score (PDF file)

Work 8: on-screen / off-screen (video file)

Work 8: on-screen / off-screen (audio file)

Work 8: on-screen / off-screen – Steppers (video file)

Work 8: on-screen / off-screen – a slab of folly (video file)

Work 8: on-screen / off-screen Score (PDF file)

Online Portfolio and Commentary

The works submitted for the portfolio are available to view online (hidden link) at https://sites.google.com/view/lq-phd/. The accompanying commentary is also available on the same webpage.

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Acknowledgments

Deepest thanks and gratitude to the Music Department at the University of York. The environment and people made me feel as if with family of a second home. I will never forget the kindness, friendliness, and sincerity I was treated with. I would also like to thank the Department of Music for the Lyons Celebration Award in 2018-2019, as well as the Department research fund for supporting my travels in bringing my works and research further.

Catherine L. and Federico R., thank you for the guidance, encouragement, and support you both have given in such different but important ways.

Gaia, thank you for all the fun, late nights, travels, meals, care, qb, mischiefs, adventures that we shared, the list goes on…

Carmen, Carlos, Ignacio, and Sofi, thank you for having me as part of the family, including me in your many adventures and memories.

Ben E., thanks for having me assist you in your tech mess. I love it.

Jez W., thank you for all the guidance you gave from the beginning.

The Assembled, Spread, and PG2, thanks for the fun times.

Huge thanks to performers and collaborators that have contributed to and supported the works. I had fun, hope you all did too.

All this wouldn't have been possible without the support of my family. Thank you for trusting and allowing me to fly free, even though you three have no idea what I'm doing!

Lastly, thank you York.

Author's declaration

I declare that this portfolio and document is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, university. All sources are acknowledged as references.

Composition:

On the Sensations of Tone II (2016). For amplified octet, and electronics.

Some words

"The audiovisual contract actually remains a juxtaposition at the same time as it creates a combination."

Michel Chion[1]

"The sound makes us see the image differently, and then this new image makes us hear the sound differently, which in turn makes us see something else in the image, which makes us hear different things in the sound, and so on."

Walter Murch[2]

"Moving images and graphics gives musicians visual cues suggesting emotion, energy, rhythm, pitch, volume, and duration. I believe in the power of images to evoke sound."

Christian Marclay[3]

"Film may be acousmatic in a sense."

James A. Steintrager[4]

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[1] Michel Chion, *Audio-Vision: Sound on Screen*, trans. and ed. Claudia Gorbman (New York: Columbia University Press, 1994): 188.
[2] Chion, 1994: xxii.
[3] "The Wire 25: Screen Play," Electra, Nov 22, 2007, accessed Sept 27, 2020, http://www.electra-productions.com/projects/2007/screen_play/overview.shtml
[4] Michel Chion, *Sound: an acoulogical treatise*, trans. and ed. James A. Steintrager (London: Duke University Press, 2016): xxiii.

Chapter 1. Introduction

This portfolio contains fourteen original audiovisual works – six studies and eight main works. This accompanying textural commentary presents relevant background information and a commentary on each work, explaining the underpinning ideas, the research questions, and the creative methods.

I start by explaining the background to the research, briefly introducing the topic but also my personal practice and how it led to the research. This is followed by an overview of the research questions, aims, and outputs.

In the chapters that follow, I discuss the artistic works in the portfolio, linking them to the underlying questions and explaining their influences and processes. The works are presented in chronological order, and they shift from solo fixed media works towards more collaborative pieces incorporating live performance.

The works in the portfolio are attached together with this document but can also be accessed online. Ideally, each work should be viewed prior to reading the relevant commentary. Media files can be viewed and listened to locally via the media platforms QuickTime and VLC, or online via Vimeo and Soundcloud. Scores are presented as PDF files accompanying the commentary and are also available online.

1.1. Background: towards 'interloops'

Artists and researchers have always been interested in exploring interrelations between audio and visuals across various combinations. Forging relationships between these different media not only addresses how one might invoke the other in the imagination, but other imaginative relations are also provoked by the ways in which audio-visual relations are described and implemented: we refer to the use of imagery in music,

soundpainting, visualised sound, sound-induced visuals, and so on. From these titles alone, there seems to be a form of hierarchy where one element takes prominence over the other. For example, when considering imagery in music, music is the prominent form, with images induced from the sound source. Visualised sound concretises that, acting like a music visualizer on any music player. Another example is Soundpainting, a practice created by Walter Thompson that utilises visual sign language to activate sounds from performers. In contrast, sound is sometimes induced from the visual, for example in paintings such as those by Wassily Kandinsky where rhythmic gestures and melodic motifs are implied. A form of hierarchy is perhaps especially present when images are projected in live music performances: audiovisual discrepancies often occur due to imbalances in prominence between sound and image, and these can also distract attention from the intended integrative experience, momentarily foregrounding one medium. These practices have informed the creative development of my projects, and are further discussed in the commentaries on the individual artworks.

The crossovers between audio and visual media are also intriguing in terms of their creation, creative, and production processes. Sound and image are both intangible objects, requiring a medium to store and manifest their respective contents: a space for sound to be projected within, and a canvas or surface for image to be displayed upon. When audio and visual media are presented together, as an entity, these elements can cohere but also sometimes clash, working against each other to form dissonances and imbalances. These clashes can also be artistically productive and interesting, especially in the digital domain of programming, where short circuits occur during mistakes in typing, misuse of programming symbols, miscalculations, or overloading of data as material. This portfolio explores such relationships, defining them in terms

of an 'interloop' that aims to demolish systems of hierarchy, showcasing works that result from the combination and integration of audio and visual elements working alongside each other, conceptualising the looping interaction between them in the creation and experience of practices.

1.2. Starting Points

> The point was not to link different arts with one another but to find an appropriate means of expression for a particular idea, to test concepts in another field, or simply to extend one's own radius of effect.[5]

The incorporation of a range of media in the portfolio arose from my mingled personal practice. From initially studying music theory – for which I developed a real passion – I branched out into recording arts for music and live sound reinforcement, moving on to computer music and electronics, before then heading towards experimental and contemporary laptop performance. I realised I was not happy to stick to one thing; I was interested in everything that came my way, and in linking together the different elements and processes. Through experience, I found myself handling audio and visual media of various kinds, trying not to conform to any superiority, or rather questioning the form of hierarchy present in such works and how best to achieve equality. The same occurs when viewing audiovisual work, mainly films, video art, installations, sound sculptures, and performance, where the audiovisual package should present itself evidently without displaying imbalance, or be intentional if so. This concoction of various fields, but all still considered within the term 'music' and 'sound', directed me towards multi-disciplinary experimentations and allowed a wider range of outcomes across the expansive field of art. This blurring of the lines of such territories

[5] Dieter Daniels and Sandra Naumann, *See This Sound*, 57

seemed to allow me more artistic freedom to incorporate media that I felt could express my research goals. The development of my creative practice is not only seen in the pieces presented in this portfolio, but the expansion from music to audiovisuals in different formats became my working preference more broadly.

Therefore, while sound recording is probably the main form of my musical practice, I often find myself interested in and endeavouring to incorporate other art forms and practices, including those that already integrate music and sound as part of the work: film, installation, ensemble improvisation, and other implementations of integrations of computer or other technologies. The contents of the portfolio therefore reflect on this personal practice and interest, showcasing a series of works integrating the audio and the visual (terms which, as discussed below, themselves need some careful consideration, due to their different uses and implications. In my practice as a musical improvisor, the spontaneous responses of performers intrigue me, prompting me to try to understand them, alongside my exploration of the collaborative methods of improvisors. This finds its way into my creation of audiovisual works where image and sound are presented simultaneously as a combined entity.

Overall, with its inquisitive approach to the nature of audiovisual crossovers, the portfolio represents an investigation of audiovisual relationships: an exploration of hierarchies and imbalances and their possible resolutions, which also presents various audiovisual relationships. The primary concern is to examine audiovisual loops, where sound and image are reliant on each other, through a variety of composition and performance strategies aimed towards discovering new modes of and conditions for audiovisual coherence and non-coherence.

1.3. Underpinning issues: sound and image

Michel Chion states: "when sound adds meaning to an image, this meaning seems to emanate from the image alone." [6] This notion of 'added value' in audiovisual correspondence exists, for example, when a sound supplements an image to emulate a natural occurrence during a film scene, having the value of sound being contained in the image itself.[7] In this context, a form of audiovisual 'contract' is presented: "a kind of symbolic contract that the audient-viewer enters into, agreeing to think of sound and image as forming a single entity."[8] Reciprocally, added value also exists where "sound shows us the image differently than what the image shows alone, and the image likewise makes us hear sound differently than if the sound were ringing out in the dark."[9]

Chion, however, approaches this subject very much from a filmic point of view, with emphasis on how sound supplements the on-screen image: he goes on to state that the image is the dominant factor in audiovisual relationships in film, with sound attaching itself as *part* of the image.[10] It might well be argued that in the projection of image onto screen, whether in a cinema or other spaces dedicated to showing film and performance, the visual is contained within a specific space, circumscribed by the restricted field of projection. Sound, which exists spatially, does not situate itself within such definite constrains. Arguably, this causes sound to be neglected, considered supplementary, in terms of the attributes of 'added value' in relation to the image. This might also lead to the question of what the added value of

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[6] Michel Chion, *Sound: an acoulogical treatise*, trans. and ed. James A. Steintrager (London: Duke University Press, 2016): 152.
[7] Chion, *Audio-Vision,* 5.
[8] Chion, *Audio-Vision*, 216.
[9] Chion, *Audio-Vision*, 21.
[10] Chion, *Audio-Vision*, 21-22.

the *visual* might be to *sound*, whether the image can be projected onto sound, instead, to create complementary audiovisual relationships.

In much experimental music practice and in other live art practices with a strong sonic element, visual elements can be important – even core – to the creation of the work, even if the prime focus is placed on the auditory aspects of the work. There might often be a strong focus on the visual aspect of the sonic interactions – on aspects of sound production technique or gestural behaviour, and on staging and graphic notation or other visual scores that might be used in the processes and presented as part of the performance: all these might contribute towards the outcome of the work. Additionally, in such current contemporary practices, an additional visual element is often included, in the form of visuals or film projected during live musical performances. Inevitably, in much of this work there is often an imbalance in the approach to creating, combining, and presenting sound and visuals: the focus is distributed across audio, visuals, and performance, often forming a hierarchy in the experience. This is not necessarily a problem in all occurrences, but identifying these issues prompted me to question where the possibilities might lie for different forms of interrelationships, that would elevate the experience of audiovisual works.

Interestingly, Holly Rogers articulates the gallery space as an enhanced environment in which video art is merged into art music: where visual art can become an intermedial art that comprises both auditory and visual elements.[11] She states that the gallery space has "dissolved the physical, as well as aesthetic, boundaries between author (composer/artist), performer, and audience."[12] The same notion can be applied when bringing visual pieces into the concert hall: with immersive projections and

[11] Rogers, *Sounding the Gallery,* 152.
[12] Ibid.

multi-channel sound, the conventional staged approach of performance is dissolved. This confirms that a balance of audio and visuals can exist within any space in which they are presented in, physically and as media.

1.4. Research questions

From the above, the key research questions examined through this practice research portfolio involved exploring how to establish a balanced and non-hierarchical audiovisual relationship within creative practice that includes musical performance, film, and other sound and visual media.

Situating myself as the single-author audiovisual creator, I developed a personal approach towards such creative practice, exploring how I might create audiovisual balance. Through this, I examine how audiovisual loops form – between image and sound, creator and performer, viewer and space – challenging myself to try to achieve a sense of convergence in the interrelationships. The question of "which comes first the chicken or the egg" – in this case the audio or the visual – therefore arises. Could there be an instance where they both come into existence and develop at the same time, eventually forming an entity that loops in on itself? Taking as a starting point the overlap between audio and visual discussed above, the methods of conveying sound and image are examined, identifying potential attributes for heightened audiovisual relationships.

1.5. Research aims

It is challenging to attempt to set out how audiovisual relationships occur and how sound and image complement one another. Individual responses and inherent subjectivity inevitably come into play when viewing such multimedia works. As many

audiovisual studies have noted, "such relationships remain vague and are based purely on associations."[13] Rather than making definitive claims, the aim of the portfolio is to investigate various approaches used to transmit information within audiovisual practice, while also providing methods to form possible audiovisual combinations. Taking a practical approach developed through my own practice, the portfolio aims to produce heightened awareness of the relationship between sound and image, alongside foregrounding such sound-image relationships in performative works. This also involves seeking ways to use images to trigger improvisational musical structures, subsequently using actions to induce perceived visuals.

I aimed to create audiovisual pieces with balanced audiovisual languages. In each piece, different combinations of audiovisual coherences are examined through the creation and presentation formats. The intention was also to make the pieces versatile and able to exist in multiple forms and situations. For example, one of the pieces, *-ect -act*, explores the inclusion of varying musical instrumentation in different performance spaces. The outcome of the portfolio is a demonstration of possible ways to form non-hierarchical audiovisual correspondences, creating heightened associative relations between sound and visuals. I define this in terms of an 'interloop': a situation in which the space the work is presented in integrates audio and visual elements, looping back relationships on one another to create new ones. The portfolio of works and their discussion explores and documents how the interloop manifests within the works.

A series of practical approaches is presented in the portfolio, each corresponding to different methods of developing audiovisual relationships, drawing on different audiovisual references and influences, employing different processes of

[13] Dieter Daniels and Sandra Naumann, *See This Sound,* 214.

working, and different means of presentation. I envisioned outcomes in the form of works that appeal visually and aurally on equal levels.

1.6. The portfolio of creative works

The portfolio consists of six studies and eight main works that develop the ideas and processes of the studies. The order in which the pieces are presented is determined by the particular relationships between the studies and the main works. Studies 1-3 were particularly important for aspects of the development of four main pieces: **& interlooping*, *RESONANCES*, *Recordeur I-II*, and *Vorpmi*. Initial tools and ideas were explored in these three studies before creating the more substantial work. Studies 4-6 fed more into the final works: *Typing An Email*, *-ect -act*, *(frenetic silence)*, and *on-screen / off-screen*. The studies from number 4 onwards incorporate aspects of live performance, incorporating them in different scenarios with different outcomes in the main works.

Study 1, *Flicker,* uses a one-to-one mapping relationship between sound and image, created through computer language interaction, to examine responses between the audio and visual in the digital domain.

Study 2, *Screen Noise*, was created out of a process of reviewing video works that have accompanying composed soundscapes; it drew this review into the territory of noise, as a practical means of researching the relationship between audio noise and visual noise.

Study 3, *Moving Fences*, is a creative exploration of the Rubens' Tube – an apparatus used to illustrates acoustic waves – in the form of composed textural soundscapes with a digital visual recreation.

Work 1, *& *interlooping,* creatively explores an audiovisual application in which sound and image are self-manifesting. Building particularly on Study 1 *Flicker*, this system operates independently, with audio and visual elements manifesting and expanding continuously when the system is running.

Work 2, *RESONANCES*, draws, in particular, on Studies 2 and 3, with the audio and visual components both composed according to harmonic resonance.

Work 3, *Recordeur I-II*, includes an additional element of performance: a collage of recorded music improvisation is presented with visuals that demonstrate the attributes of time, harmony, and texture in the collage: combines various practices of music and wider performance. Works 2 and 3 both explore musical elements with different visual illustrations.

Work 4, *Vorpmi*, utilises one-take improvisations as the basis for the creation of visuals. In Works 2 and 3, visuals are composed based on impressions of the soundtrack, whereas in Work 4 the visuals are created solely from the acoustic attributes of the sonic improvisations applied through digital mapping parameters.

Study 4, *Silent* Film, examines the physical reaction of musical performance prompted by digital images through live improvisations, as if putting sound to silent film.

Study 5, *The Giraffe Race*, develops from Study 4 but includes an additional sound source as a form of hindrance, trigger, and response. A number of ensembles were presented with the same visuals and the different responses examined. From this, different relationships of visuals to sound were explored through musical performance.

Study 6, *On the Sensations of Tone II,* is the only piece in this portfolio that calls directly upon an existing composition by another composer. After establishing that musical attributes are essential to visual representation, the methods of visual

representation are examined by situating the visual projectionist as a performer, who creates images live alongside the performing musical ensemble.

Work 5, *Typing An Email,* takes the notion of the visual projectionist as a performer even further. The laptop is utilised as an audiovisual performance instrument, where the audiovisual creation process is evident to the audience, presented on screen: both sound and visual materials are generated according to what is typed.

Work 6, *-ect -act*, examines collaborative processes between musical performer and visual projectionist in live audiovisual performance. It also incorporates into this the use of visual scores and performative gestures. As in Work 5, *Typing An Email,* the process of creating sound and image is also displayed to viewers during the performance, as part of the piece.

Work 7, *(frenetic silence),* examines sound in film: how it is implemented, described, and presented. The piece reflects on the performative aspects of sound creation for film – Foley – and recreates these processes as performance, dramatizing the production of image-sound characteristics and relationships in film.

Work 8, *on-screen / off-screen,* takes on the notion of performance of sound in film focusing on the art of Foley, highlighting Foley to be a form of acoustic music and performative sound art. The elements of performance, sound, and image are combined in the last four works.

Chapter 2. Studies 1-3

The three studies presented in this chapter – *Flicker, Screen Noise,* and *Moving Fences* – demonstrate initial experimentation in audiovisual relationships, examining various

possible forms of audiovisual interaction. The studies are included in the portfolio to show the process of practice research towards the development of the more substantial, original pieces. They each take reference from existing audiovisual works by other artists, focusing on three aspects of audiovisual practice – synchronicity, noise, and rhythm and frequency – and adapting them into different approaches.

2.1 *Study 1: Flicker*

To view: Study 1_Flicker (video file)

Flicker is a short study that examines direct synchronicity between visuals and sound using real-time MIDI communication from Processing – an open-source computer programming language and Integrated Development Environment (IDE) designed for electronic visual arts[14] – to any Digital Audio Workstation (DAW) of choice.

With a direct one-to-one input-output relationship based on set parameters, the aim here was to create an integrated audiovisual entity. *Flicker* uses fixed parameters to trigger the visual contrast (black to white) and auditory pitch (low to high), with these two elements in parallel and unison throughout the piece, generated with random materials. Pitch is portrayed visually in a straightforward manner, with low pitch corresponding to black and high pitch corresponding to white, following the values of MIDI and grayscale colour representation. Characteristics of the sound and visual elements are transferred from one realm to the other: a form of conversation between sound and image processing.

The piece is influenced by the Structural Film movement of the 1960s, responding to flicker films pioneered by Peter Kubelka and Tony Conrad. Flicker films

[14] "Processing," *Processing*, accessed 20 Oct 2018, https://processing.org/

are "characterised by the use of rapid alterations of light with dark frames."[15] In *Arnulf Rainer* (1960), Kubelka uses black and white frames for the visuals, and white noise and silence for the audio. This intense piece exploits the extreme ends of the auditory and visual spectra; it is composed of sequences of light flashes – or the sudden absence of light – and sounding bursts of white noise – or the sudden absence of sound. The sequential use of light and darkness, sound and silence, also draws attention to the four basic components of cinema.[16] An analogy can also be seen between white light, as a representation of the full visible spectrum, and white noise – a flat frequency across the whole audio spectrum. After initially presenting separate audio and visual patterns, Kubelka then plays around with perceptual effects wherein patterns are difficult to distinguish.[17] Light and sound are used contrapuntally, interspersed with moments of synchronicity between the audio and visual elements; although they are contrapuntally contrasting, they advance towards a singular audiovisual entity.[18] Aligning the extreme ends of the audio and visual spectra highlights this contrasting synchronicity for the viewer. The notion of film as rhythm – as a metric art form – was being explored in this era and is apparent here. We might see this drawing out of the musical characteristics of film (and vice versa, in other films) as a first step towards a synchronised audiovisual entity, hence my focus on this work and adaption of it into my own study.

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[15] Edward S. Small & Joseph Anderson, "Whats in a flicker film?" *Communication Monographs*, 43:1, 29-34.

[16] Stefan Grissemann, "Frame by Frame: Peter Kubelka," *Film Comment*, September-October (2012), accessed Sept 3, 2019, https://www.filmcomment.com/article/peter-kubelka-frame-by-frame-antiphon-adebar-arnulf-rainer/

[17] Michael Brooke, "Black Frames, White Noise," *Sight & Sound*, November 2012, Vol. 22, No. 11: 66-67.

[18] Marcel Schwierin and Sandra Naumann, 'The Musicality of Abstract Film,' in *Audiovisuology: Compendium*, ed. Dieter Daniels and Sandra Naumann (Cologne: Verlag der Buchhandlung Walther König, 2010), 29.

In *The Flicker* (1966), Conrad similarly uses black and white frames in rhythmic flickers, trying to achieve an illusion of colour and rhythmic patterns.[19] This is accompanied by a continuous soundtrack on an electromechanical synthesizer.[20] Additional audio effects consisting of tape delays and reverb are applied in the soundtrack. Overall, film here is imagined as an environment[21]: with the combined intensity of the powerful visual imagery and electronic sound world, the experience is immersive and atmospheric, seeming to expand outwards to encompass the viewer. Conrad creates an audiovisual entity that feels more like a situation than a 'work', provoking different levels of auditory and visual perception. In this film, Conrad avoids the filmic conceit of a fully black or fully white screen inducing silence, instead using these to induce sound, and this is something that is further explored in my *Study 4: Silent Film* in the context of live performance.

Overall, *The Flicker* feels more immersive and coherent, audiovisually, than *Arnulf Rainer*, due to the more extensive continuity and interplay between the two elements, and the immersive effect. In the context of my creative research, exploring the use of flickering images and static sounds in their most basic form was a means to focus closely on the technical and aesthetic dimension of synchronisation within the audiovisual entity. *Flicker* acts as a proof of concept, in which initial ideas are explored on the digital domain, mimicking similar effects as the original analogue work.

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[19] "The Flicker: Tony Conrad," Lux, accessed Sept 2, 2019. https://lux.org.uk/work/the-flicker

[20] Brandon Stosuy, "Film," The Village Voice, May 10, 2005, accessed Sept 2, 2019. https://www.villagevoice.com/2005/05/10/film-404/

[21] Alan Licht, "Tony Conrad 1940-2016: Breaking The Frame," The Wire, Apr 2016, accessed Sept 2, 2019, https://www.thewire.co.uk/in-writing/essays/tony-conrad-1940-2016-breaking-the-frame

2.2. *Study 2: Screen Noise*

To view: Study 2_Screen Noise (video file)

Screen Noise also examines the full audio and visual spectrum, this time in the form of audio and visual noise. It builds from concepts and practices of noise in the work of composers and sound artists such as Russolo[22], Schaeffer[23] and Cage[24], combining this with an exploration of video noise as the "raw material of audiovisuality."[25] As Yvonne Spielmann notes, in the context of audio and visual noise, video can exist as a "genuinely audiovisual medium". [26] This observation prompted a creative examination of this medium in *Screen Noise*.

In contrast to the randomly generated materials of *Flicker*, fixed audio composition takes precedence in this study. The approach taken was in certain respects a conventional process of composing for film: sounds were composed according to the on-screen images, with scrutiny of the movements, patterns, and textures of the visuals informing the composition. In the production stage, the visuals were continuously generated utilising the values of Perlin noise, developed by Ken Perlin in the 1980s to implement "procedural textures, shapes, terrains" in graphic applications,[27] creating

[22] Luigi Russolo, *The Art of Noises*, trans. Barclay Brown, (New York: Pendragon Press, 1986): 28.
[23] Pierre Schaeffer, *In Search of a Concrete Music*, trans. Christine North and John Dack, (London: University of California Press, 2012): 132.
[24] John Cage, "The Future of Music: Credo," in *Audio Culture: Readings in Modern Music (Revised Edition)*, ed. Christopher Fox and Daniel Warner, (London: Bloomsbury Academic, 2017): 25.
[25] Yvonne Spielmann, *Video: The Reflexive Medium*, (Cambridge, MA: The MIT Press, 2008): 198.
[26] Yvonne Spielmann, *Video: The Reflexive Medium*, 8.
[27] "noise()," *Processing*, accessed 31 Jan 2023, https://processing.org/reference/noise_.html

fluid moving imagery. The image stream was then 'fixed' into a film for which the audio soundtrack was composed.

More specifically, the audio was treated as causing a type of interference in the work: literally so, through the use of various types of audio interference, including radio frequency interference, telephone static interference, and audio feedback. The study examines how an interfering medium (in this case sound) affects the perception of another medium (visuals). The initial, continuous generation process for the visuals might itself be considered as a type of uncontrolled interference, but in a very different sense to the audio, where the interferences are inserted decisively to create a fixed composition. The visual patterns may or may not be perceived as corresponding directly to what is heard: metric correspondences are apparent, but other relationships are more ambiguous, which effects the sense of interference. Against the gritty nature of the sounds, the visuals serve not to guide, but rather as an accompaniment in this instance. During the more static moments in the soundtrack, the visuals complement with their activity. Amongst the bustling visual movements, the stagnant quality of the audio calms the piece down, but also creating a kind of dissonance between sound and image.

2.3. *Study 3: Moving Fences*

To view: Study 3_Moving Fences (video file)

Moving Fences consists of fully composed audio and visuals. This study examines audiovisual rhythm and frequency, using a digitally modified version of a Rubens' tube (also known as the standing wave flame tube): an apparatus used to represent acoustic standing waves visually. A Rubens tube acts as an oscilloscope, using flames to show the relationship between sound waves and sound pressure. The sealed tube

contains inflammable gas, and has holes drilled into it and a speaker attached to one end, so as to create soundwaves within the tube. The pressure of the soundwaves pushes gas out of the holes, which is set alight to make flames. The changes in soundwaves (and sound pressure) produce different flame heights.[28] The digitally modified Rubens' tube can be controlled using Processing parameters.

The study expands linearly in audiovisual rhythm and frequency. The visuals were first created on Processing, then exported as a video file before the audio composition was created in response. This process of film creation followed by audio composition was similar to that of Study 2. However, in this case, I improvised, on my laptop, using a range of digital tools as I would in usual improvisatory performance settings, in response to the images to create the auditory materials, which develop from slow-moving monotonous low frequencies to fast polyphonic high frequencies. This produces a direct impression of the image through sound: the improvisation responded to the movements of the visual patterns, their direction and flow.

This is perhaps most effective during the higher frequencies with the fast movements, because the direct relationship between sight and sound is more apparent here. The low monotonous frequencies do have a rhythmic flow, but their rate is slower and change is not as prominent, audibly, compared to higher frequencies: overall, it is the faster and higher material that manifests the one-to-one audiovisual relationship more clearly and in more detail. The impact of the low frequency material is perhaps more psychological and atmospheric, and with fewer incidents to signify the intricate mapping of sound to image, there is perhaps even a temporary sense that the audio and visual elements might be acting more independently.

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[28] ChemEngUofU, "Ruben's Tube Theory – Outreach, Chem Eng, Univ of Utah," ChemEngUofU, Feb 18, 2011, accessed Oct 19, 2018, https://www.youtube.com/watch?v=BbPgy4sHYTw

Overall, the audiovisual relationship in this study is direct and straightforward, keeping to the one-to-one mapping parameters, but employing live performance in the process.

Aspects of the three studies fed into subsequent portfolio projects on various levels. Often this was indirect: 'findings' of these studies permeated – infused – later into the work. The processes of these studies were deliberately straightforward in certain respects, both in the broad sense of process – initially simplifying the audiovisual field into the two separate domains so as to work separately with audio and visual elements before examining their interaction – but also in a more specific sense of homing in on defined, limited fields of visual and/or audio materials (black and white, sound and silence, noise, soundwaves, and so on). This straightforwardness aided a growing sense of the materials and interactions that might be explored: this underpinned more complex experimentation in later works. However, there are also more direct and identifiable relationships. For example, **& interlooping* uses similar triggering processes to those explored in a more limited field in *Flicker*, noise is deployed as disturbance in *Recordeur I-II*, and *RESONANCES* draws on the aesthetic representation of the technical components of sound, first apparent in *Moving Fences*.

Chapter 3. Work 1*: *& interlooping*

To view: Work 1_*& interlooping (video file)

**& interlooping* employs a self-generating audiovisual software system that I developed specifically to aid my artistic exploration of the interaction of audio and visual elements in the digital domain. It draws on Study 1, *Flicker*, where similar triggering parameters were utilised that subsequently informed the development of this

software system. Instead of having disparate audio and visual systems running alongside one another, **& interlooping* calls on one audiovisual system to run both audio and visual elements; a system that absorbs new and current information, re-interprets it, and creates new audiovisual results. **& interlooping* is thus a closed-circuit continuous loop within itself: a direct example of an interloop.

In programming languages, for example C and C++, '*' is used to denote a pointer. A pointer stores a piece of data in the form of a memory address. The pointer works together with an 'address-of' operator, denoted by '&', to signify a reference point.[29] Therefore, '*&' is used to represent stored data points which are reused: this is essentially the process the software system is executing to return continuous information from new information. The software is thus able to generate new audiovisual materials on its own by capturing newly generated materials. In this case, frequency is responding to the visuals and, vice versa, the visuals to sound. This back-and-forth transmission, learning, and presentation of data is central to an interloop.

**& interlooping* is a '2-channel' video: the screen is split into two halves, across which different results of interactions are presented, simultaneously. This centre split causes the visual attention to be separated. Likewise, the audio corresponds to visual events on each side of the screen, dividing the stereo attention. This splitting acts as an audiovisual representation of the two-way operation of the piece: of its taking in and putting out.

**& interlooping* works generatively without being affected by external affecting factors: the system retrieves information from each half of the audiovisual

[29] Chua Hock-Chuan, "C++ Programming Language: Pointers, References and Dynamic Memory Allocation," Nanyang Technological University, 2013, accessed Sept 2, 2019. https://www.ntu.edu.sg/home/ehchua/programming/cpp/cp4_pointerreference.html

material and re-generates within itself, forming independent changes within. Synchronisation is heightened by means of real-time retrieving and generating. The self-generating nature of the software system renders fixed parameters unnecessary: alterations form with every run of the application. This provides a similar – but never quite the same – experience across repeated reception, avoiding stagnation across multiple viewings.

The audiovisual correspondence becomes more evident as the application runs on. More visual fluctuations are introduced, resulting in increased auditory interventions and, subsequently, ever-changing audiovisual interaction. The continuous feeding back of information creates a constant binding of the audio and visual elements: this is how interlooping manifests in this piece, through the working of the digital system. Importantly, the experimentation here led to the concepts for similar feedback systems in the performative works presented later in the portfolio.

Chapter 4. Work 2: *RESONANCES*

To view: Work 2_RESONANCES (video file)

RESONANCES is an audiovisual piece created through audio processing and editing, with the visual content devised so as to reflect sound patterns as if they were viewed through an oscilloscope. The piece acts as an aesthetic representation of the technical components of sound: of auditory elements including frequency, harmonic ratios, amplitude, rhythm and stereo panning. This work draws on aspects of Study 2, *Screen Noise* and Study 3, *Moving Fences*, examining techniques in audio and visual composition, as well as exploring the order in which the components are prepared and

layered together. However, *RESONANCES* focuses on the basics of sound, utilising them as materials for the portrayal through the visuals.

Inspiration for this piece was drawn in part from early methods of creating visual representations of sound using the harmonograph and geometrical Lissajous figures. The harmonograph – versions of which were first put to use in the mid-nineteenth century – is a mechanical apparatus that creates geometrical visualisations of sound frequency and phase relationships using pendulums. The drawings created are Lissajous curves (also called Lissajous figures[30]): parametric figures discovered by French mathematician, Jules Lissajous, through utilising tuning forks, light beams and mirrors as reflectors. These figures represent harmonic ratios, or motions, of combined sound waves, portraying their frequency, amplitude, and phase relationships.[31]

Harmonic resonances have been understood since the Pythagorean era,[32] with harmonic ratios established by experimenting with the vibrations of strings, altering the length of the stagnant position relative to the vibrating portions that created sound.[33] With the idea of having resonances as the main audio material of this piece, a recording session was held to record objects that produce low, mid-range, and high frequencies. This provided a wide spectrum of frequencies to work with.

The instruments recorded include the cello and electric bass, as well as non-conventional instruments including various gongs and even a fire extinguisher. These instruments were chosen as sources for recording due to their wide range of

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[30] Anthony Ashton, *Harmonograph: A Visual Guide to the Mathematics of Music,* (Glastonbury: Wooden Books, 2005), 2.
[31] Myles W. Jackson, *Harmonious Triads: Physicists, Musicians, and Instrument Makers in Nineteenth-Century Germany,* (Cambridge, Massachusetts: MIT Press, 2006).
[32] Anthony Ashton, *Harmonograph: A Visual Guide to the Mathematics of Music,* (Glastonbury: Wooden Books, 2005), 4.
[33] Ibid, 16-19.

frequencies and resonance tails. The gongs covered the middle to high frequency ranges, while also providing mellow to harsh tones that varied across their various shapes and sizes. The cello and electric bass provided the middle to low-end frequency ranges, with the performer only recording pizzicato gestures with acute attacks. The fire extinguisher was an unexpected discovery – hitting the exterior of the fire extinguisher with a mallet or against a solid surface produces a high ringing tone that also includes mid-range frequencies. Single struck tones and short phrases from these instruments were recorded, ensuring that the full sustain and release of the sound (within the Attack-Decay-Sustain-Release (ADSR) envelope) was recorded up to the point of complete silence. Subsequent editing of this recorded library of sounds involved removing the initial 'attack' from each recording, retaining only the instrumental resonances. These edited audio files formed the core material for the music soundtrack. The piece starts off with the unprocessed low frequencies, gradually manipulating and processing these sounds, eventually ending the piece with processed high frequencies. This forms a linear exploration of the frequency spectrum, as well as manifesting the digital manipulation process.

In this piece, the visuals were created after the completion of the music. Fast Fourier Transform (FFT) algorithms were employed to produce an audio analysis of the soundtrack, transforming functions of time into frequency,[34] and these were then embedded within the visual parameters. The harmonic ratios that produce the resonant components of the individual sounds and their methods of visual presentation form the basis of the development of the visuals: feeding the sounds into the harmonograph,

[34] G. D. Bergland, "A guided tour of the fast Fourier transform," *IEEE Spectrum,* vol. 6, no. 7, (1969): 41.

produced drawings of curves corresponding directly to these ratios.[35] When made to rotate in an opposite motion, the number of loops, or curves, appearing from the central figure equates to the sum of the two numbers of the harmonic ratios. As frequency beating occurs as the harmonic ratios shift and their discrepancy changes, the repetitive patterns react accordingly to create a constantly moving image.

The harshness of the sound timbres is also directly reflected in the representation of the lines: curved lines represents simple timbral sounds, and straight lines sounds with complicated waveforms. The vertical lines across the screen directly correspond to audio amplitude and stereo panning of the sounds – a greater emphasis on the left side represents audio panning towards the left, and vice versa. The sizes of the visual figures are also related to amplitude levels – smaller figures represent a softer volume, and vice versa.

During the last section (starting 03:12), an expanded representation of both audio and visual elements is presented. A central visual figure is formed on screen, with patterns and shapes taken from Lissajous curves in response to the overtones and simple harmonic ratios of the sounds: some self-generated examples of the Lissajous figures can be seen in figures 1-3. The horizontal lines across the centre of the screen once again relate to amplitude and stereo direction.

[35] Anthony Ashton, *Harmonograph: A Visual Guide to the Mathematics of Music,* (Glastonbury: Wooden Books, 2005), 20 – 37.

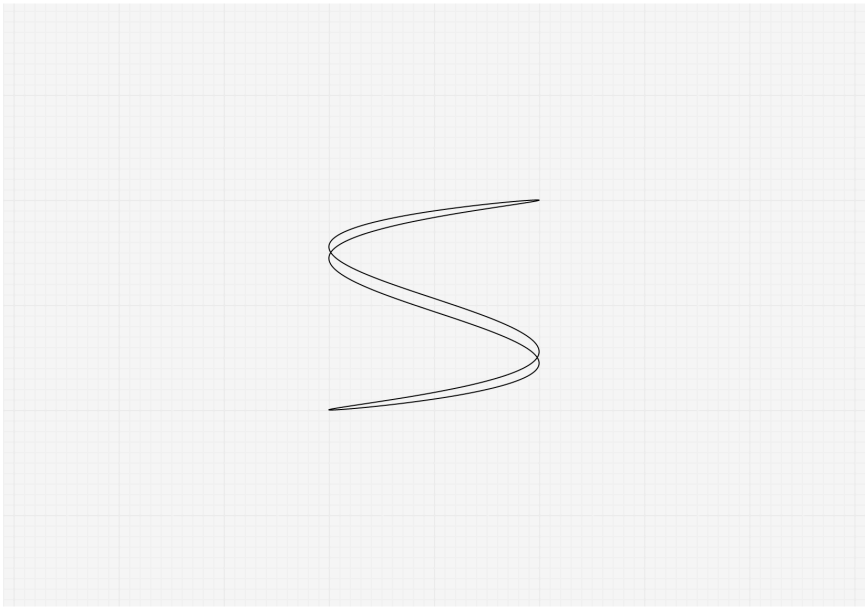

Figure 1: Second overtone Lissajous curve

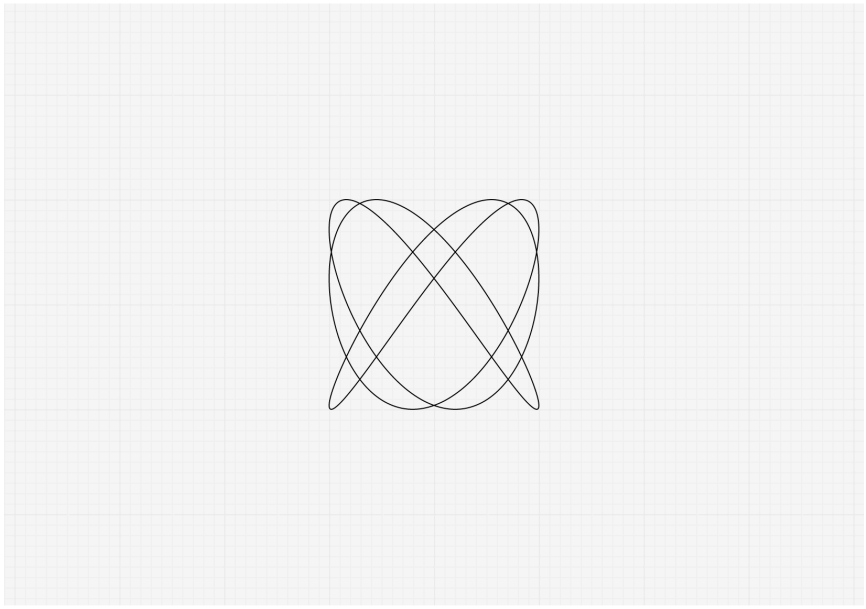

Figure 2: Perfect fourth (4:3 ratio) harmonic Lissajous curve

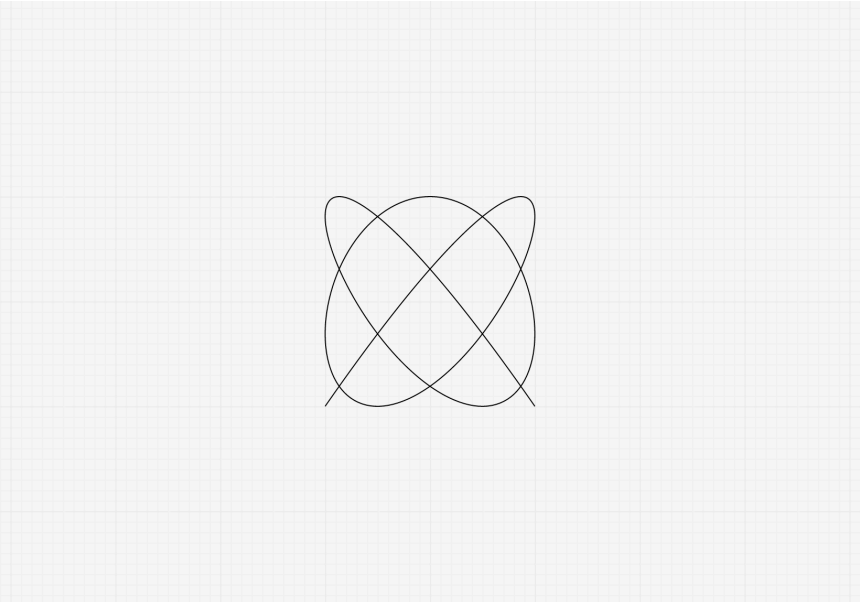

Figure 3: Major third (5:4 ratio) Lissajous curve

The transitions across the four sections of the piece are based on audio cues, each of which introduces a new section that incorporates additional audio and visual processing that transforms and develops from previous sections. A concurrent break in both audio and visuals – indicated by a new timbres and introduction of new visual elements – acts as a cue point to highlight moments of synchronisation: this is related to Michel Chion's notion of this kind of 'cue' as "a salient moment of an audiovisual sequence during which a sound event and a visual event meet in synchrony."[36] The use of these cue points in *RESONANCES* reaffirms the audiovisual relationship at a point of meeting, initiating a new reference point for the audiovisual coherences.

Overall, the sounds of this piece are quite complex, creating a somewhat progressive narrative structure, whereas the visuals are more simplistic, straightforward, and self-contained. This creates a contrast within the whole audiovisual representation. At the same time, the development of the visuals in relation to the harmonic content produces an integration of musical and auditory attributes; an

[36] Chion, *Audio-Vision,* 58.

enhanced relationship between the audio and the visual, in which both proceed in the same direction, evolving together.

With its immediate and effective synchronicity of sound to visuals using FFT audio analysis, and the derivation of the visual from the parameters of the sound, *RESONANCES* serves as a reflection of different visual representations of sound, somewhat reminiscent of analogue techniques but brought into a contemporary setting through digital means.

Chapter 5. Work 3: *Recordeur I-II*

To view: Work 3_Recordeur I-II (video file)

Recordeur I-II is a piece of collaborative work realised with recorder instrument performer Carmen Troncoso. The piece was devised and produced across a series of recording and editing sessions. Recording sessions involved live improvisations between Troncoso (performing) and myself (audio processing) that were fully recorded and utilised in the creation of the piece. The result is a piece of abstract reflection on the relationship between instrument and sound. It is also the first piece in the portfolio that incorporates live performance with an external performer.

Recordeur I-II is a piece in two movements that explores the possibilities of the electroacoustic recorder by utilising software and hardware manipulation processes. This piece in the portfolio expands out from the previous studies and works, where different audio processing tools and visual processing techniques are incorporated in the development of the piece, and this broadened the areas of audiovisual introspection, deepening my creative research. The starting point of the collaboration was the desire to explore the potential of Troncoso's Mollenhauer

Modern Alto Recorder which had a new electret microphone system installed, making the acoustic instrument electroacoustic. This allowed the once conventionally-placed concert hall instrument to enter the control room of the recording studio not just for standard recording but with the possibility of different kinds of interactions, due to its electroacoustic status; this was where our collaboration began. The electroacoustic recorder could be connected by a line cable into my DAW of choice, facilitating a direct audio feed but also avoiding audio feedback during live recording and processing.

The collaborative process between Troncoso (as performer) and myself (as sound artist) led to an interweaving of roles. This involved considering and playing with the ambiguity of the meanings and origins of the word 'recorder'. In this two-way explorative endeavour, Troncoso (the *recorder* player) was devising methods of portraying and producing sounds on the electroacoustic recorder, while I (the audio *recorder*) was capturing and creating new adaptations of the instrument through the use of various signal editing and processing techniques, pushing the boundaries of the 'recorders'. The title of the piece (*Recordeur*) reflects this, and eventually we created a phrase that represented our processes and aims of the project: 'The recorder (device) recording (action) the recorder (instrument).'

The project was divided into two phases, starting with the audio and expanding to incorporate visuals thereafter. In the initial stage of the project, explorative improvisatory sessions with the electroacoustic recorder were undertaken to create and produce sounds, textures and timbres. Troncoso combined the natural voice of the recorder with some extended techniques such as humming (producing vocal tones simultaneously with recorder tones), random finger movements, and various articulations involving, for example, lip effects, *frullato*, airy sounds, *tremolo*,

glissandi, microtones and different vibrato techniques. These sounds were processed live during the recording sessions, creating an experimental dialogue and performance interaction between the two of us.

Audio signals from the electroacoustic recorder were sent into reverberation hardware units (the Lexicon PCM81 and Bricasti M7 reverb processors) and processed in real time. As an initial exploration, I decided to work with reverb processors, and this proved an apt choice. While these were able to recreate the natural acoustical habitat of a recorder – the basic instrument dating back to the Neolithic times, with its development into a form very like the current western instrument taking place in the Medieval period – they also added further timbral and spectral details to complement the performative elements. With this being an improvised recording, we were not score reading while playing, but rather reacting and creating sounds in the moment. This real-time application of hardware sound processing evoked the performative collaboration between the recorder performer and the sound artist, who was also the recording engineer, providing a tangible performance experience for both performers.

From the recording sessions, a bulk of interesting performance material was generated, recorded, and developed. The various sonic gestures were catalogued into a library of sounds, which could be further manipulated. These sounds were then further digitally processed, edited, and through-composed into two phases (the two movements) to form the audio version of the piece. The treatment of these processed sounds transforms and enhances the timbral and spectral elements of the electroacoustic recorder, producing new varieties and adaptations of the instrument.

For the composition process of the first phase of the piece, Troncoso and I held a series of listening and editing sessions, in which we identified, intricately extracted, and pieced together the elements we wanted to utilise. Audio files were edited in fine

detail, zooming in on the complexities of the sounds and manipulating them using a range of techniques, including time stretching and reversal effects. This process brought together the two separate sonic and performer entities, utilising audio analysis and processing to draw out connections between the sonic materials, woven together to form a piece of music that contained the various features from the study by both *recordists*. This constituted the first movement of the piece, incorporating only the sounds recorded from the initial improvisatory session, created collaboratively.

For the second movement, I took the recorded materials that had not been utilised in the first movement and broadened the range of these sounds through further audio processing. Here, the electroacoustic recorder was brought into a different realm, where its natural voice was blurred, hidden and employed to generate new materials, transforming the recorder sounds as if transporting it away from its origins. A more experimental and electronic nature is thereby introduced during the second movement, creating a contrast with the first movement, while also demonstrating my personal contribution, drawing on (and drawing together) my background in experimental music and digital sound processing.

The processes of piecing together the audio composition, as described above, are somewhat similar to certain approaches to film editing in which footage from different shots is compiled within the same scene, after which different scenes are compiled within the final film sequence. The intricate sound editing is also comparable to processes of working with frames in film, where multiple fast-moving frames are combined to create a sequence of events. Thinking through – and working with – this relationship situates sonic composition within the creation workflow of the other, visual, medium. This also highlights the relevance of sound art and composition processes within the apparent purely visual art form of film.

After finalising the audio composition of the piece, my role as a sound artist expanded into the field of visual representation. The same methodology was applied in the creation of visuals as used for the sound: the aim was to produce contemporary visual textures and timbres from sound analysis, while still leaving the watcher able to identify the visual portrayal of the recorder, as both an electroacoustic instrument and in its original form. The visual content was influenced by pioneer computer visual graphic artists such as John Whitney, in terms of the aesthetic utilisation of computer graphic processes, and also stylistically by contemporary artists who established the modern audiovisual scene, including Ryoji Ikeda and Alva Noto: their work influenced the audiovisual processing choices. Graphical illusion and slit-scan techniques were explored and utilised in the treatment of the visuals: I wanted to exploit their static but multidimensional, time-based qualities:[37] I was interested in how that affected time-based relationships with sound. Fast Fourier Transform (FFT) algorithms were incorporated in a similar process to that of *RESONANCES*.

The visuals created for the first movement focus on the exterior appearance of the electroacoustic recorder, in an upright, standing position. Horizontal movements left and right across the screen portray a sense of time, giving a sense of constant processing and visual transformation. Taking on Chion's notion of audio cues, an auditory lead to a new section (starting at 2:04) signals the entrance of graphics along the horizontal plane, but moving up and down across the screen, related to the audio frequencies of the piece, represented in a format similar to a spectrum analyser. The research into rhythmic and frequency-driven elements in Study 3, *Moving Fences*, is also apparent in this work. In this respect the visual image portrays the harmonic

[37] Golan Levin, "An Informal Catalogue of Slit-Scan Video Artworks and Research," *Catalogues and Lists*, 26 Feb, 2015, accessed 17 Aug, 2017, http://www.flong.com/texts/lists/slit_scan/

richness of the sound textures. These graphics on the vertical and horizontal planes then interweave in the next, final section of the first movement, forming a tighter, more coherent relationship between the representation of the instrument as a visualised object and the accompanying sound, as well as converging the relationship between Troncoso and myself as performers in different practices.

As with the music of the second movement, the approach to the visual component is more experimental, introducing new shapes and spreading across a wider area of the screen. Starting with a top-down cross-section of the image of the electroacoustic recorder, we explore, visually, the internal body of the instrument, transformed through parallel FFT analysing methods. At timecode 7:26, a burst of noise erupts, and this is represented directly, visually, with the screen filled up with an array of lines, conveying the sonic energy of white noise randomly spread across a wide audio frequency range. This relationship is manifested at the occurrence of the burst of noise: this is the point of most light. This aspect of the work developed from Study 2, *Screen Noise,* where bursts of noise were introduced within the sonic composition itself, as a form of disturbance and breakage of the musical rhythm, with the visuals responding in a similar manner. Overall, in the second movement there is a less direct relationship between audio and visuals, but the images in this section nevertheless relate to the textural elements of the audio, engaging the audience in a different mode of audiovisual interaction.

A graphic score transcription of the piece was created after completion of the sonic composition (see Appendix 1), as a means of representing the piece but also as part of our process: it facilitated particular analysis of the musical structures and content, and this fed into our creative decision-making. It allowed us to understand and break down the progress of the project, from the improvisatory recordings, through

the processes used in the manipulation and creation of the audio materials, to the finished piece. Finally, the graphic score also manifests the piece as a different kind of audiovisual entity.

With elements of abstraction applied in this piece, the performance of the traditional recorder is shifted into contemporary realms, while also situating the new electroacoustic instrument in the broader interdisciplinary context of audiovisual work developed through collaborative efforts. As part of the portfolio, *Recordeur I-II* examines performative sonic improvisation as the basis for audio transformation and composition, to which visuals are subsequently composed, incorporating analogue and digital processes.

Chapter 6. Work 4: *Vorpmi*

To view: Work 4_Vorpmi (video file)

Vorpmi is an audiovisual project that explores the interaction between sound and visuals in terms of improvisation and abstraction. In this project, the visuals are produced using an image of the sound source. Parameter mapping is used to determine the visuals according to the characteristics of the sounds. This project utilises one-take recordings of musical improvisations, processing and manipulating these recordings, before visuals are set to them. It also creates a closed circuit interloop, similar to Work 1, **& interlooping*. *Vorpmi* also develops from aspects of Study 1, *Flicker*, revisiting digital systems and their triggering parameters, but now incorporating live musical improvisations as an additional factor.

Vorpmi is more a project than a piece, as the processes and procedures within it could be repeated and executed with other instruments. This version of *Vorpmi* in

the portfolio contains sounds of the saxophone, whistle, piano, and two atmospheric soundscapes, and involved collaboration with musicians with different instrumental expertise.

Vorpmi draws on the ideas of Wassily Kandinsky who classified three types of paintings:

1. Impression: A direct impression of outward nature, expressed in purely artistic form.
2. Improvisation: A largely unconscious, spontaneous expression of inner character, the non-material nature.
3. Composition: An expression of a slowly formed inner feeling, which comes to utterance only after long maturing.[39]

To summarise, an impression is an interpretation of the exterior: what we hear, see, and experience. Improvisation, in Kandinsky's terms, is an interpretation of interiority, operating on a spiritual level: it involves what comes to us and how we feel in the moment, affected by our surroundings and experiences. 'Composition' is an interpretation formed through the synthesis of interior and exterior, developed over time.

Vorpmi utilises these concepts, applying them first to the process of musical composition before then creating the visuals. Utilising concepts of abstract art seemed apt for this project and in the context of this portfolio as a whole: the period in which Kandinsky and other pioneers of abstract art were working was one in which the idea of painting and sound existing in close relation was important in both conception and application.

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[39] Wassily Kandinsky, *Concerning the Spiritual in Art*, trans. M.T.H. Sadler (New York: Dover Publications, Inc., 1977): 57

Starting with improvisation, a one-take recording was produced by three solo instrumental performers: myself on saxophone, Carmen Troncoso on whistle, and Barrington Brook on piano. I requested that they each perform an improvisation of any length and in any style. I did not brief them on Kandinsky's concepts prior to the recording, or provide any other background information. This allowed them to be free of preconceptions and bias, and to play without a sense of purpose in their performance. Performing without any form of visual score or direction also heightened the internalised, personal qualities of their outputs. Additionally, I recorded two soundscapes – one of a spontaneous long walk across a field, and the other of a co-sharing workspace.

The decision to use improvisation in some of the portfolio projects derived from my personal practice; my background in solo and ensemble improvisation. The act of improvisation prompts simultaneity and real-time reaction to concurrent events. In improvisation, the hierarchical roles of the leader-performers and soloist-ensemble are not entirely discarded, but often these shift around the performance space, with individual performers subtly negotiating roles in the course of performing, reacting to the performance gestures and sounds of others to create responses. This opens up a flexibility of combination, collaboration, and degrees of synchrony in the process of sound generation.

Having recorded the improvisations, I was concerned with Impression. I took these improvisations as objects of my experience, and applied audio editing and manipulation processes to the improvisations, combining them to create a new piece of audio work. The newly generated material thus created a new form of Composition, and this process progressed to include the visual element. Similar to Kandinsky, I undertook an abstract approach for the visuals, based on the results of the

Improvisation and Impression stages. I applied parameter mapping through the programming language MaxMSP[40]; this creative input from digital technology formed another Impression, this time from the perspective of a non-human system. The method here is similar to that of Steina Vasulka's *Violin Power*, she utilises the sound produced by the violin to affect the video image of her performing on the violin, therefore transforming the acoustic instrument into a video generator as well as sound producer.[41] In the live performance of *Violin Power*, Vasulka employs MIDI parameter mapping where each string of her MIDI violin corresponds to a different video parameter – stop frames, speed, direction, and disk location – alternating these settings for every performance.[42] For *Vorpmi*, MIDI parameters were assigned to the different ways the visuals could be manipulated: this included an extended range of speed, direction, colour changes, visual distortion, and horizontal and vertical shifts. Utilising a photo image of the instrument and landscape, the visuals in *Vorpmi* react to the audio composition: the visual portrayal is latched onto the auditory element of the piece – when sound changes, visuals change accordingly. In the context of the portfolio, it presents a particular approach to having sound as the prominent leading factor in an audiovisual context.

Vorpmi thus draws together concepts of painting, practices of sound, and processes of interpreting these through video. It is a project that continues to expand, reworked in new manifestations with different combinations of instrumental performance, atmospheric environments, and individualistic interpretations.

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[40] "Max," *Cycling74,* accessed 20 Nov 2019, https://cycling74.com/products/max
[41] "Violin Power," Smithsonian American Art Museum, 2015, accessed Sept 4, 2019, https://americanart.si.edu/artwork/violin-power-77216
[42] Yvonne Spielmann, "Steina: Violin Power, 1978," Daniel Langlois Foundation for Art, Science, and Technology, 2004, accessed Sept 4, 2019. http://www.fondation-langlois.org/html/e/page.php?NumPage=485

Chapter 7. Studies 4-6

This second set of studies incorporates performative elements from live musicians and artists. In the pieces, generative visual stimuli affect musical performance, while that performance creates a heightened experience of the visual imagery for the viewer, moving between and across digital and analogue platforms. These works also challenge the notion of having a visual reaction to implementing an action. They utilise scored and instruction concepts, while also striking a balance between live projections and improvised performance.

7.1. *Study 4: Silent Film*

To view: Study 4_Silent Film_3 studies (video file)

Silent Film is a study that incorporates fixed visuals and live musical performance in ensemble settings. Departing from previous approaches in the portfolio, which in most respects treat the audio element as the starting point, *Silent Film* and the next study, *The Giraffe Race,* take visuals as the point of departure. Here, the visuals undertake the same function as audio in the previous works: they try to induce and initiate sound, which is developed in response to what is seen.

The visuals for *Silent Film*, created in Processing, were developed in relation to the Fibonacci sequence. This choice derived from the many and diverse uses of the sequence in the arts, including music, sound art, and visual arts, from Leonardo da Vinci's Mona Lisa to structures used by composers ranging from Bach to Beethoven, from Satie to Stockhausen, and beyond. Composer Joseph Schillinger also established a mathematical System of Musical Composition (1946) based on the Fibonacci

sequence.[43] Notably, the experimental filmmaker Ellen Mary Bute was inspired by Schillinger's system and attempted to produce visual works that complemented his composition methods. Schillinger originally devised this system in an attempt to forge close relationships between music and image, enlisting the help of Bute: he wanted to create a "film to prove that his synchronisation system worked in illustrating music with visual images."[44] However, Bute failed to finish the work due to the complexity of Schillinger's system and the limitations of technology in the 1930s-1940s (which might, in later years, have assisted the process): "the intricate image, reminiscent of Kandinsky's complex paintings, would have taken a single animator years to redraw thousands of times."[45] However, Schillinger's musical system remained an aesthetic influence for Bute in her future works.

Similarly, I utilised the Fibonacci sequence in the visual structure of *Silent Film*. Generated geometrical figures appear according to time mapped to the Fibonacci sequence. Images emerge at 1000-1200ms, 3000-3500ms, 5000-5800ms, and so on. The intention was to create flashes of visual impact, each lasting less than a second, reminiscent of flicker films.

Utilising the same method as *Vorpmi*, instrumental performers were asked to perform a group improvisation, but this time in reaction to the visuals produced for *Silent Film*. The improvisation should be recorded live, in one take: the first performance, recorded this way, is presented in this portfolio in its original form

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[43] Mario Livio, *The Golden Ratio: The Story of Phi, the World's Most Astonishing Number* (New York City: Broadway Books, 2003): 193.
[44] William Moritz, "Mary Ellen Bute: Seeing Sound," *Animation World Magazine* (May 1996) Vol. 1, No. 2, accessed Sept 5, 2019, https://www.awn.com/mag/issue1.2/articles1.2/moritz1.2.html
[45] William Moritz, "Mary Ellen Bute: Seeing Sound," *Animation World Magazine* (May 1996) Vol. 1, No. 2, accessed Sept 5, 2019, https://www.awn.com/mag/issue1.2/articles1.2/moritz1.2.html

unedited. Improvisation was chosen as a means to capture direct first impressions of the visuals.

I devised this piece with improvising ensemble *ish* at the University of York. We performed the piece three times, producing three individual studies with them – three different musical responses to the visuals – and each produced interesting results from the same visuals. The visuals were projected onto a huge screen, taking up the size of the full auditorium wall (the Rymer Auditorium at the University of York). This scale, with the geometric content, produced quite a harsh and aggressive visual effect, with sudden brightness contrasted with long periods of darkness, then sudden hits of light again. This in turn induced a heightened sense of perception and performance for the players.

The first study was created the first time the ensemble saw the visual images and their pacing: the study comprises their original impressions, rendered in their musical responses. After a first iteration, we repeated the process twice, but this time the performers were aware of the visual rhythms, the mood of the film, and its effects. The first recording thus presented itself as the original impression, while the next two presented a growing experience of the film by the ensemble.

Often, players would associate black or darkness with nothingness in terms of sound. However, black frames did still provoke elements of performance from the ensemble. In particular, due to the abruptness and harshness of the images, performers tended to be caught off-guard, and performers were not always able to react with sudden change, instead sometimes continuing their sounds, holding on to their previous sound world. In this respect – when a sudden change to blackness actually resulted in this kind of continuation – blackness sometimes acted as a form of anticipation – a space of preparation – then with whiteness as a form of release.

However, the nature of the visuals pre-empts any regular, safe process of always being prepared for change, or of the images developing according to a predictable structure. The ensemble found that this force of expectation affected the performance considerably: they continued to play with an expectation in mind, able to latch on immediately to changes and expand their soundscapes when they occurred. This resulted in a certain continuity in the evolution of the sound, in contrast to the quick appearance and disappearance of the moving images. The desire to latch onto the visuals, despite sometimes failing, trying to achieve a personal synchronicity, results in a kind of personal rhythm in the responses of the individual performers, which then transfers across the improvising ensemble.

Dieter Daniels and Sandra Naumann write: "We can perceive rhythm with three senses at the same time: we can

1) hear it,
2) see it
3) feel it in our muscles;

and that is what gives it power over our entire organism."[46]

Different performers exhibit different response time, especially during improvisation practices. An instant is not enough for performers to fully express their intentions: they cannot predict the next visual change. However, as an improvising ensemble, staying relevant to each other is a key factor. Listening takes precedence and leads the development of the improvisation; visuals now play the role of stimulus, providing common ground for a coherent group consensus.

Overall, introducing a live music ensemble, reacting to visuals, marked a shift in the audiovisual relationships explored so far, both through the fundamental change

[46] Dieter Daniels and Sandra Naumann, *See This Sound,* 255.

to making the visual element the starting point, but also in the use of a more collective, rather than individual, response. The presence of ensemble performance altered how the layers of sound and image operated in relation to one another – a different kind of interlooping – with, perhaps, a more immersive experience created.

7.2. *Study 5: The Giraffe Race*

To view: Study 5_The Giraffe Race 1 (video file)
To view: Study 5_The Giraffe Race 2 (video file)
To view: Study 5_The Giraffe Race 3 (video file)

The Giraffe Race is a study developed from *Silent Film*, likewise incorporating live instrumental ensemble performance in response to visuals. *The Giraffe Race* derives from a chapter of Italo Calvino's novel, *Mr Palomar*. Calvino writes of the giraffe as a disparate entity: its inharmonious movements between fore and hind limbs lacking consistency, the fore limbs providing the starting impetus and the hind limbs following along without any precise method. Calvino also describes how the giraffe's neck moves without any apparent relation to the actions of the limbs.[47] He sees in this movement a reflection of the spots on the giraffe's body, "arranged in irregular but homogenous patterns;"[48] consistency broken up, segmented. This makes the giraffe an entity of unsynchronised harmony in design, anatomy, and movement. To summarise, *The Giraffe Race* is concerned with patterns, design, unevenness, incoordination: with inner harmony but unsynchronised harmony.

Taking inspiration from this chapter, the visuals in *The Giraffe Race* feature a growing and contracting rhombus in the middle of the screen: this forms the main

[47] Italo Calvino, *Mr Palomar*, translated by William Weaver (London: Vintage Books, 1999): 71.
[48] Calvino, *Mr Palomar*, 72.

visual element. Musicians were asked to improvise in reaction to the visuals accordingly to their own interpretations, taking into consideration the varying size of the central lozenge.

The Giraffe Race includes an additional digital sound element in the form of short bursts of noise. These occur in relation to the appearance, sizes, and positioning of solid lozenge shapes emerging on and disappearing from the screen: size determines the volume of noises, and position of the stereo panning. These bursts of digital sound could act as interference for the performers, or as a prompting agent to provide a form of metrical structure. These sounds also emulate those of film frames: each projected film frame creates a click with every shutter movement. In projected films, these clicks are often audible, thus becoming a form of interference for the viewers. Turning this around, *The Giraffe Race* situates the noise bursts as prior to the soundtrack: they affect the performers, who create that soundtrack, rather than just the viewers. The performers can take on the role of consolidating these interferences into their sound creations, conceiving the performance as the final resulting accompanying audio. The digital sounds also alter the performers' timbral qualities: in practice the instrumentalists adapted their approach to timbre, employing techniques that would enable them to match the harshness of these digital sounds.

The lozenge shapes that appear concurrently with the noise bursts only occur once for each individual frame. However, due to the limitations of human visual perception, visual delay causes the impression of multiple lozenges moving and occurring at the same time: we cannot perceive each frame. Stop motion animation works similarly: objects to be photographed are physically adjusted in small increments between each frame, to create an impression of continuous motion when a

sequence of frames is produced as a fast sequence.[49] There are therefore disparities in *The Giraffe Race* between what is seen and what is heard with the electronic noise bursts: the visuals are too fast to be perceived in direct relation to the incidence of the accompanying sound. This forms a kind of asynchronous synchronicity: despite their discrepancy, the visuals are still clearly related to the on-going noise bursts. These contrasting but seemingly coherent audiovisual accompaniments act as a barrier for the performers, deliberately and productively thwarting their likely desired responses. This induces what Calvino describes as "uncoordinated movements of the mind, which seem to have nothing to do with one another and are increasingly difficult to fit into any pattern of inner harmony."[50]

The title also introduces the idea of a race, which manifests, through the processes described above, as a race equally between musicians, between sound and visuals, and between audience and performer perceptions.

In the novel as a whole, Calvino explores three themes that are:

1. Generally corresponding to a visual experience, whose object is almost always some natural form.
2. Containing anthropological elements, or cultural in the broad sense; and the experience involves, besides visual data, also language, meaning, symbols.
3. Involving more speculative experience, concerning the cosmos, time, infinity, the relationship between the self and the world, the dimensions of the mind.[51]

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[49] Annette Kuhn and Guy Westwell, *A Dictionary of Film Studies*, (Oxford: Oxford University Press, 2012): 403.
[50] Calvino, *Mr Palomar*, 72.
[51] Calvino, *Mr Palomar*, 116.

This provides the context for an underpins the content of *The Giraffe Race*. The passage encapsulates the themes of anthropology, rhythm, connections between interior and exterior nature, but also aspects of visual experience. The piece is therefore structured into three segments, lasting, respectively, two minutes, three minutes and one minute, and each is related to the relevant themes. A similar thematic experience is aimed at the execution of the piece. The human to digital reactions in the realisation of the piece through musical performance aims to challenge notions of locked rhythms (of the digital sounds) and free improvisation (of the musical performance), comparing the intention to respond in a personal way with the coherence of group performance.

I created three versions of this study with three groups of performers, inviting any form of instrumental combinations. In terms of audiovisual relationships that were produced, it is worth noting some key aspects of the performers' reactions. The initial reaction to the lozenges is to respond accordingly with pitch and intensity – the smaller the lozenge the lower the intensity and pitch, vice versa. With non-pitched instruments such as percussion, the same dynamic alterations occurred but with rhythmic variation replacing pitch – smaller lozenges provoked less rhythmic change, and vice versa.

As the piece progressed, the performers tended to introduce new gestures in the form of rhythmic sequences, as a direct response to the fast-moving noise bursts. This shift occurred after familiarity with the original visual and sound sources, forming a communal audiovisual fortissimo. When the visuals remain more stagnant for a while but are then followed by a sudden decrease or increase in size, the instrumental gestures often change much more drastically, as if in anticipation of or yearning for the change. Also in these more stagnant sections, performers tend to start to explore more, often producing an asynchronicity with the visual gestures. Overall, these observations indicate the mimetic and anti-mimetic relationships that formed in the

audiovisual relations, produced by the giraffe-inspired combination of patterning and incoordination.

In a group performance, performers also react to what they are hearing within the ensemble. If one of the performers is reacting much more to the stimulus, the ensemble dynamic naturally increases, or the soloist backs down over time to adjust and fit in. Performers are more observant and aware of their environment, directed towards the common aim of achieving a coherent musical result, complying with rules of group improvisations. Therefore, for the third study, I decided to execute this piece as a soloist, but utilising several digital instruments (synthesizers). Unlike in the ensemble versions, here the noise bursts blend in well with the synthesizers, due to their similar digital qualities, textures, and choices of rhythmic movement. I combined the synthesizers together, with parameters affecting separate characteristics of each synthesizer, and in this version the sound precedes the visuals, due to my anticipation and acknowledgement of the upcoming entry. As a result, this version formed a reciprocal response towards the intention of the piece in its reversal of the audiovisual priorities.

7.3. *Study 6: On the Sensations of Tone II*

To view: Study 6_On the Sensations of Tone II (video file)

On the Sensations of Tone II is a composition by composer, pianist, and electronic musician Anthony Tan, written in 2016 for amplified octet and electronics. Tan's composition is based on German physician and physicist Hermann Helmholtz's classic text *On the Sensations of Tone as a Physiological Basis for the Theory of Music* (1863). The book integrates physics, physiology, and psychological elements of

listening to explore the perception of sound.[52] In his composition, Tan examines "a more physiological experience of sound, moving beyond historically conditioned notions of consonance and dissonance, and towards the ear becoming an active participant in the listening process rather than a submissive sense organ."[53] I created visuals to accompany a performance of this piece at a concert by the University of York's ensemble, Chimera, in 2018, as a means of creatively exploring these experiences of sound from the perspective of a live visual projectionist, operating as part of the performing ensemble.

This study therefore differs from the other pieces of work in this portfolio, where I devised both the audio and the visual elements. Instead, it comprised a visual response to a fixed ensemble composition by a composer with whom I had no contact. To understand the piece in full was therefore the first step. The visual elements were added after analysing the score and attending rehearsals of the fixed ensemble, so as to appreciate the sonic qualities of the piece in performance.

In creating the visual aspect of the piece, I drew on representations of basic concepts of sound and audio signals, and on some of the technical accounts given in Helmholtz's book. These different visual elements were programmed on Processing, while also implementing a user interface for live performance utilising the keyboard on a laptop.

In the first section, the fundamental component of sound is introduced with the visual representation of a basic sine wave. The frequency and amplitude of the sine

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[52] Hermann L.F. Helmholtz, *On the Sensations of Tone as a Physiological Basis for the Theory of Music*, translated by Alexander J. Ellis, 3rd ed. (London: Longmans, Green, and Co., 1895).

[53] Anthony Tan, "On the Sensations of Tone II," Programme notes for *On The Sensations of Tone II: for amplified octet and electronics*, Canada: Commissioned by New Music Concerts Toronto, 2016.

wave could be adjusted accordingly to the x and y-axis of mouse movements respectively. To complement the mood and dynamics of the opening section of the piece, the monochrome sine wave moved slowly with low amplitude. (see figure 4)

Figure 4: Sine wave altered by mouse movements

On the cue of the conductor, a sudden attack continued with rapid gestures from the ensemble, featuring percussion, indicating fast moving visuals with striking colour tones as compared to the monochrome start. This generates a unified direction in both sound and visuals reflecting to Chion's notion of cue points, discussed earlier. Red, green, blue (RGB) values were used in combination to represent a broad array of colours. In digital imaging, these values consolidate to form the additive colour model to represent the colour spectrum, as well as being the most sensitive wavelength of light to the human eye.[54] RGB colours were utilised to reflect on the sensitivity of light, corresponding to that of the sonic composition.

[54] Robert Hirsch, *Exploring Colour Photography: A Complete Guide* (London: Laurence King Publishing, 2005): 13.

In substantial sections of the piece, I provided a visual counterpart to musical fluctuations in tempo, rhythm, and texture, with a live, responsive change from the visuals through the mouse and keyboard user interface of the laptop: the frequency, amplitude, and rhythm of the visuals were constantly adjusted according to sounds being produced during the live performance, in direct reaction to the composition and providing an interpretation external to the musical score (see figure 5).

Figure 5: Sine waves with rhythmic elements

Later in the piece, bass drum strokes lead into a sustained section for brass and electronics. With a change in sonic qualities, the visuals adopt a new representation of sound, employing text. Here, descriptions of and technical terms for the ear, sound, physics, physiology, and psychology are displayed in a linear, left-to-right, up-to-down manner (see figure 6). The text includes terms from Helmholtz's book, including "tone", "sensations", "siren", "cochlea", "vibration", "transverse", as well as harmonic ratios including "80:81", "15:16", all generated continuously, at random. This use of text responds to the electronics part in this section as well, which features a radio voice speaking text. Here, then, I used the visual element to explore the three-way

relationship between sound, text, and image, all cohering around concepts from Helmholtz.

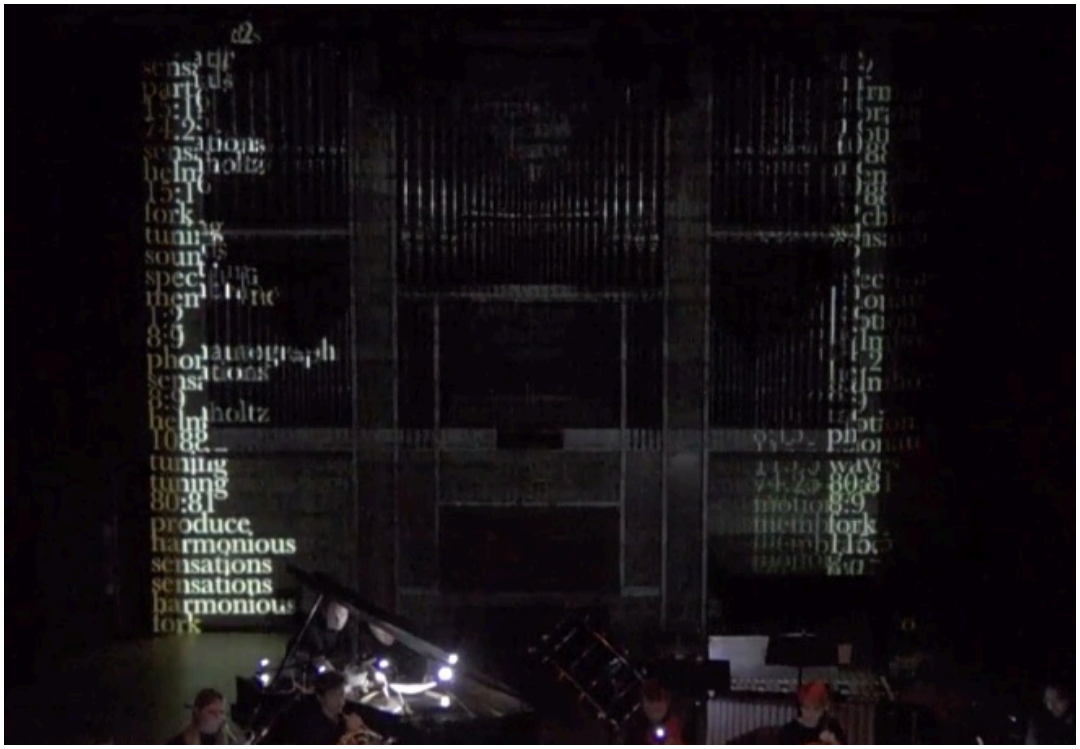

Figure 6: Generated text referenced from Helmholtz's book

The piece reaches a cosmic sonic quality during the final sections. It progresses away from natural acoustic instrumental sounds, towards the introduction of more augmented digital, often somewhat surreal, sounds. This includes the radio static sound from hand-held radios operated by the brass and percussion players of the ensemble. The sonic texture of this section is rather sparse, low in density and dynamics, and with hardly any progressive gestures. The visuals acknowledge this, introducing minimalistic representations of digital noise: those of black and white televisions and radios, which could represent a plethora of sounds without any specific attributes (see figure 7).

Overall, the piece starts with immense audio and visual intensity in terms of tone and visual colour, as well as audio dynamics and visual impact, thereafter decaying towards the end to end in audio and visual silence.

Figure 7: Minimal representation of digital noise

I performed the visuals live, together with the conductor and ensemble, situating myself as part of the ensemble, practicing and rehearsing as if a traditional performing musician. From experience, the performative acts of music technologists are often quite static, pressing buttons and moving faders. However, I created a separate visual score for the visual performer (see Appendix 2), as well as applying extended techniques for performance on the laptop, creating a personal customised user interface.

The laptop was thereby transformed into a performative instrument. The numeric keypad was assigned to different visual components. For example, numeric

key 1 was assigned to the sine wave, numeric keys 2, 5, 6, 7 assigned to the fast-moving boxes each referring to a separate colour (white, red, blue, green respectively), and numeric key 4 to the generated text, and so on. This customisation of the keyboard assignments accommodated my performative actions. As such, I felt more integrated into the performance of the piece: there was an equivalence between visual and music performance.

The decision to project the visuals without a screen was intended to blend the images with the music ensemble as well as the performance space. The different projection areas of images were all calculated accordingly to the size of the Sir Jack Lyons Concert Hall at the University of York. Without a screen, the formal show-and-tell presentation format was removed. Instead, there was a unified, composite performance space, with audio and visual components presented on the same platform. This system could then be adjusted accordingly to any performance space thereafter.

With the visuals set to react to a fixed composition, I was closely referencing details of the piece; the intricacy of pitch and rhythmic arrangements, texture density, points of new sonic material, and structure. In this respect, it made sense to create the visuals so as to coincide quite straightforwardly with the music, forming an audiovisual harmony while nevertheless remaining cautious of creating excessive visual correspondences. Returning to the fundamental components of audio and visuals was the core of the approach. With basic sine waves and standard geometrical figures, the visuals could be understood more apparently in relation to the audio, with correspondences in frequency, amplitude, rhythm, texture, structure, density, mood, and background context all illustrated.

Chapter 8. Work 5: *Typing An Email*

To view: Work 5_Typing An Email 1 (video file)
To view: Work 5_Typing An Email 2 (video file)
To view: Work 5_Typing An Email 3 (video file)

Typing an Email constitutes an immediate response to and development from the previous study, *On The Sensations of Tone II*, further building on the notion of operating live visuals as a laptop performer, in response to audio composition. There are two versions of *Typing an Email*. The first, Version 1 discussed below (and manifested in the first video file), is a fixed composition with live visuals set to it. The second is a live-typing audiovisual system, which exists in two versions: these are versions 2.1 and 2.2, discussed further below and linked to video files 2 and 3.

The intention of this project was for the processes of a laptop performer to be opened up and made obvious to the viewers. Sometime before this, after a performance, I had received a comment from an audience member: "you look like you're typing an email." He continued: "I don't know what you're doing, but you look like you're typing an email, on stage."

This stuck with me for a long period in which I was trying to break away from assumptions about and clichéd perspectives on laptop performers. For example, when electronic music band Kraftwerk performs, standing behind their iconic pedestals, it is often unclear how they are performing with a live set-up in replicating their album releases almost perfectly. When, during a performance in Amsterdam, their setup was visible to audience members in the gallery, many online comments echoed my experience of the email example:

> Is it an email?
>
> … not checking email during a live set.

> It might be more embarrassing to learn Kraftwerk can't remember their own lyrics than it would be that they're checking email while they play.
>
> I would assume I might pay 50€ to watch them check their email while standing up.[55]

Young-Hae Chang Heavy Industries, set up by Young-Hae Chang and Marc Voge, is a web art group that utilises text to state a position, convey a message, or narrate a story, superimposed with jazz accompaniments. Their often quite aggressive statements form a juxtaposition with the light-hearted backing tracks: this pushes the textual meaning and purpose into prominence, while the sounds serve as a rhythmic underlining and background accompaniment.

With all this in mind, I decided to incorporate my thoughts (even rants) about technological tools as instruments into this project, incorporating aspects of this as text, conceiving it as an audiovisual project in which: "I write a message, performing. Stating my thoughts, audibly."[56]

Compared to previous works, a different piece of software application was utilised for the creation of the visuals: p5.js. p5.js is a JavaScript adaptation of Processing, for use on a web browser.[57] It opens up the possibility of drawing on online resources, including online libraries and user interfaces, via the web and HTML5, allowing the project to expand beyond local resources on the personal computer. Trials and experiments with the code have also taken place on p5.js code supporting and

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[55] Peter Kirn, "Kraftwerk Live Rig Exposed – But Are They Really Checking Email?" Creative Digital Media, Feb 27, 2015, accessed Mar 9, 2020, https://cdm.link/2015/02/kraftwerk-live-rig-exposed-really-checking-email/

[56] Lynette Quek, "Typing an Email(Teaser)," Vimeo video, 1:05, posted by Lynette Quek, Sept 17, 2018. https://sites.google.com/view/lq-phd/works/typing-an-email?authuser=2

[57] "p5.js," p5.js, accessed Sept 11, 2019, https://p5js.org/

editing sites.[58] p5.js is also a portable device, operating and supported solely on the browser, in contrast to Processing, which operates as a desktop application. Such systems have broader potential, due to their versatility for use on any available browser on any operating systems.

The visuals, in the form of text and abstracted images, were created through live-typing on the computer keyboard, where a key-pressed event triggers a visual response. In designing the system, keyboard keys were assigned to different abstract visual configurations, initialised in sequences according to the event of a pressed key, allowing the user to control the amount of visual output generated. Alongside the abstract visuals, the key characters are presented on screen in a linear manner, left-to-right and top-to-bottom, and restarting again upon reaching the end of the screen. Depending on the performer, the abstract visuals might serve as an intentional disruption of the viewer's reading and understanding of the narrative. The formation of individual characters into words, or occasionally into non-words, whether deliberately or by mistake, is also immediate, from the performer's typing. This forms a loop between the performer and viewer. On one level, the performer produces the input for the viewer. However, the viewer is not simply a receiver: they have to actively attend to and create meaning from the performance – from the textual information, in combination with other aural and visual material. If not, the performance becomes a one-way output from the performer without any repository: it is the 'return' of viewer recognition, provoked by the exposure of the content in real time through typing, that completes the piece.

[58] This consists of sites including Open Processing (https://www.openprocessing.org) a code sharing website for Processing, as well as the p5.js web editor (https://editor.p5js.org/).

With the visuals projected on a screen, the combination of abstract images and disrupted text demolishes the conventional, often formal modes of text presentation. This is a piece that is often presented in contexts in which it is usually sound that is performed – performances spaces used by musicians, for example. As such, the project transfers the performative element over to the production of visuals.

8.1 Version 1

To view: Work 5_Typing An Email 1 (video file)

The initial version of *Typing an Email* was conceived for a performance at Wharf Chambers in Leeds, a bar and multi-use venue for an assortment of art events. To suit the venue, a site-specific piece with a structured electronic music composition was created as the accompanying soundtrack. Featuring the laptop as a performance instrument was suitable for a venue in which raves and DJ sets occur regularly, with technological equipment employed as the main performance tool.

Upon hitting the "Enter" key, the typed characters are voiced through the laptop, using the Web Audio API. Web Audio allows the direct processing and synthesising of sound on the web browser, without the use of Flash or other external plugins.[59] The piece implements the extension p5.speech library – a "simple p5 extension to provide Web Speech (Synthesis and Recognition) API functionality"[60] – allowing text playback functions. Initialising the default p5.speech settings, the audio of the spoken text is routed back into Ableton, where digital audio processing is applied. As a result, not only are the texts hardly recognisable on screen due to screen

[59] "Web Audio API," W3C Candidate Recommendation, 2018, accessed Sept 12, 2019, https://www.w3.org/TR/webaudio/
[60] "p5.speech," IDMNYU, accessed Sept 11, 2019, https://idmnyu.github.io/p5.js-speech/

resolution alongside the addition of other visual stimuli, but similarly they can hardly be understood through the audio playback: we might occasionally catch the odd, unprocessed word. Using the computer to produce speech allows for the removal of semantics, syntax, and associated emotion: it returns text to "non-melodic auditory structures,"[61] transmitting information only through sonic vibration. Here, sounds are more important than context.

The fixed electronic music composition of this version, conceived on Ableton, provided a sense of structure, and controlled time for the whole performance: it lasted the given set time of thirty minutes. The text in this set, presented by typing a piece of self-assembled text (see Appendix 3), was used to explore topics including the nature of text-sound art, the concepts underlying the piece, and my personal thoughts on technology and its use. Text-sound art is the creation of sound art through words, with the sounding qualities of language often at the fore, rather than designative meaning.[62] Text-sound art is generally performed in a recitative speaking voice, rather than one with a heightened range of pitch. A key pioneer in this realm was Kurt Schwitters, whose Dadaist focus on abstract qualities of language influenced many subsequent text-sound artists, sound poets, and concrete poets[63].

The exploration of the first topic of the piece drew on writings by Richard Kostelanetz,[64] but also introduced elements from the works of text-sound artists and experimental poets, including Armand Shwerner's *The Tablets* (1971), Schwitters's *Ursonate* (1922-32), Gertrude Stein's *Two: Gertrude Stein and Her Brother* (1920-

[61] Richard Kostelanetz, "Text-Sound Art: A Survey,"1977, 61-70.
[62] Richard Kostelanetz, "Text-Sound Art: A Survey," 1978: 71-84.
[63] Hugo Ball, *Flight Out of Time: A Dada Diary*, ed. John Elderfield (California: University of California Press, 1996): 234.
[64] Richard Kostelanetz, "Text-Sound Art: A Survey," *Performing Arts Journal,* Vol. 2, No. 2 (Autumn, 1977): 61-70.

1912), Norman Henry Pritchard's *The Matrix Poems: 1960-70* (1970) and Bill Bissett's *Awake in the Red Desert*. These works utilise text in unconventional ways, creating poems through combinations of phonemes and vocables, often constructing the text according to the patterns of rhythms and units of sounds, rather than meaning. Pritchard and Bissett also utilised the recording technology of the time to manipulate rhythm, meaning, and syntax in the presentation of the text. With this section of my piece having a type of structured text, rhythmic elements are introduced in the soundtrack, making the composition rather strict and suited to the venue. Amidst the text words, binary numbers are also introduced, as a different form of information language. The binary numbers (numeric 1 and 0) produce fixed images upon entry.

The second topic – the concepts of the piece itself – is manifested in the fragmented early text, which lists attributes of audiovisual correspondences, includes references to the act of performing, comments on technological faults. It also incorporates my own comments on the concepts and associated terms. The soundtrack in this section is rather experimental, varying sonic textures without any form of melody or rhythm.

The last section focuses, textually, on the third topic: my own thoughts on technology and its uses. It regains the dynamic levels and intensity apparent earlier in the piece, and is intended as a "splurging out" moment: it operates as a platform to output personal thoughts, comments, rants on traditional performative regulations, my insecurities as a laptop performer, and thoughts on what the audience might comprehend in contrast to what is intended. It constitutes a manifested confusion of what is performed, heard, seen, and experienced. Audiovisual silence then ends the piece.

Throughout the four distinct sections, processing of the text allows each section to bind by maintaining a constant texture for the speech, through the implementation of delay, distortion, flanger, and digital tape manipulation audio effects. Text was thus the core element in this piece, situated as a base for the expansion of the sounds, audiovisual structure, and compositional direction. A form of word-imagery is also constructed, where the text elements try to induce a scenario, narrative, response and result.

8.2 Version 2.1

To view: Work 5_Typing An Email 2 (video file)

In the second version of the project, the audiovisual system is entirely generated live through typing on the keyboard,: both the visuals and generated sounds are presented through the browser.[65] Version 2.1 of this system forms an abstract and experimental interactive audiovisual interface for advanced users, whereas version 2.2 of this system, described below, is simplified and self-contained, with minimal and approachable design, in the hope of it being taken up for general use.

To start this phase of the project, materials from the first version were reused with added implementation of MIDI communication for a direct output of sounds. As audio synthesis functions are still limited with p5.js Web Audio compatibility, only a restricted bank of sounds could be created. Instead, the use of MIDI allows the browser to communicate with any DAW of choice, or with standalone applications like SimpleSynth[66] for a wider and customisable array of sounds. By creating a virtual

[65] This system can be visited here: http://tiny.cc/interactivetypingIAC
[66] "SimpleSynth," Not a Hat, 2009, accessed Sept 12, 2019, https://notahat.com/simplesynth/

MIDI bus[67], MIDI messages could now be sent from the browser to any MIDI-receiving application. The Web MIDI API[68] supports communications with external or internal MIDI devices through the web browser. However, the Web MIDI API works only on Google Chrome, Opera, and Android WebView[69], only recently expanding to Firefox and Microsoft Edge[70]. The keyboard keys could now be assigned one-to-one to a MIDI note output, or mapped across a range of values according to the ASCII table.[71] A defined MIDI channel can be chosen from the existing sixteen channels, or set to a generated random output to all sixteen channels as well.

Each key-press event now initiates a text character, an abstract visual representation, and a MIDI note-on event. Currently, the note-on value is set to random velocity outputs, with a duration of two seconds to not overload the laptop with on-going sounds.

The spoken text is also altered in this version in terms of voice type, rate of playback, pitch, and volume, all generated at random. With the infinite web choices, the range of possible languages is much more varied, with almost any language utilisable. With the variation in MIDI and speech choices, the system is now semi-predictable. Some factors are easier to gauge, or are learned by using the system – the MIDI note correspondences, for example – whereas other parameters are generated at

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[67] "How to setup a virtual MIDI bus," Ableton, accessed Sept 12, 2019, https://help.ableton.com/hc/en-us/articles/209774225-How-to-setup-a-virtual-MIDI-bus

[68] "Web MIDI API," W3C Editor's Draft, 2019, accessed Sept 12, 2019, https://webaudio.github.io/web-midi-api/

[69] "webmidi," npm, 2019, accessed Sept 12, 2019, https://www.npmjs.com/package/webmidi

[70] "Browser compatibility," MDN Web Docs, accessed Mar 8, 2023. https://developer.mozilla.org/en-US/docs/Web/API/MIDIAccess#browser_compatibility

[71] "ASCII Table and Description," ASCII Table, accessed Sept 12, 2019, http://www.asciitable.com/

random without control: for example, the voice type and MIDI channels assigned. This allows for some unpredictability for the user, creating varying results with every iteration of the system.

To extend the usage of the laptop or computer as an instrumental interface, I decided to implement some parameters for the mouse movements. With the mouse pad on the laptop or external mouse with the computer, the real-time mouse movements on the screen can be detected and assigned to different effects. For this version, the x-axis of the mouse corresponds to pitch alterations and the intensity of the "THRESHOLD" filter, which converts the screen to monochrome pixels.[72] The y-axis of the mouse corresponds to velocity values and the intensity of a Gaussian blur filter, as well as to the "POSTERIZE" filter that limits the image to a number of colours.[73] These visual filters activate upon the mouse-click event that picks up the current location of the cursor (rather than running continuously, since that would easily overload the browser and crash the page).

8.3 Version 2.2

To view: Work 5_Typing An Email 3 (video file)

The next phase in this project was to create a user interface for the general public.[74] This version of *Typing an Email* introduces the laptop as a versatile audiovisual instrument for creative practice. Maintaining the speech and visual parameters, the previous function of MIDI is removed, due to the complexities involved in setting it

[72] "filter()," p5.js, accessed Sept 12, 2019, https://p5js.org/reference/#/p5/filter
[73] Ibid.
[74] This system can be visited here: https://tiny.cc/interactivetyping

up. The aim, here, was a simplified, straightforward implementation and clear understanding of the system.

Built-in waveform oscillators available on the Web Audio API were thus utilised for this system for a direct sound output from the browser, with the ASCII characters mapped to a range of frequency values. The system is thus fully operated through the web. The x and y-axes of the mouse alter the frequency and amplitude values of the oscillator, respectively. The mouse-click event changes the oscillator waveform types across sine, triangle, sawtooth, and square shapes. The numeric keys affect the ADSR (Attack, Decay, Sustain, Release) envelope, altering the attack and sustain of the waveform from low to high intensity – numeric key 1 with low attack and low sustain levels, numeric key 9 with high attack and sustain levels, and numeric key 0 returning the values to default. With the increase in attack and sustain levels, the oscillator waveforms overlap with one another, forming phasing and beating interferences. This makes the sounds produced sonically varied in texture and rhythm. The "Up Arrow" removes the oscillator waveforms, and instead introduces the noise oscillator, taking away any form of melodic creation. To allow for a reset in the case of over-complexity of results, the "Arrow" key returns the oscillator type to the basic sine oscillator waveform, offering a sonic refresh for the system.

For user interface purposes across all versions, the "Left Arrow" key refreshes the screen, while the "Right Arrow" key initiates a pop-up window dialog to allow the user to save the visuals as a JPEG image. The various parameters mentioned could also be modified through the code according to personal user choices.

This system is presented as a public web link, without instructions. This facilitates individual discovery of possibilities, allowing the user to explore this new instrument. Members of the general public can participate in audiovisual creation with

their personal laptop, without being at a specific venue and without needing specialised audio and technological skills. Designing this system with p5.js allows users to access this software through web links, without needing any specific software applications or external plugins. The portable system is adaptable for each individual user, equipment, and location: it promotes the laptop as a portable device for multiple users. The internet also provides a platform for continuous audiovisual engagement, where interactive hypermediality – as defined by Rogers, in terms of the kind of media work that operates such as to "highlight its [own] materiality,"[75] – is apparent, pushing the boundaries of works that combine media, or perhaps even create new forms. This articulates Marshall McLuhan's notion of the medium as the message, where the "content of any medium is always another medium."[76]

Version 2.2 has been tried and tested on Google Chrome with different users and equipment. The next step in this system is to implement the receiving of MIDI data, where sounds through the transmission of MIDI information affect the visuals, almost like a MIDI visualizer. Using the fixed composition in Version 1, a different audiovisual representation could this way be presented.

This project also aims to progress according to web audio developments, implementing new functions and audio effect manipulations. With the instability existent in the development of Web Audio, utilising the web for this system allows for endless resources but with certain restrictions. The speed of advancement in technology allowed this interface system to be created, with quite immediate responses across the different language protocols and applications.

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[75] Rogers, *Sounding the Gallery,* 159.
[76] Marshall McLuhan, *Understanding Media: The Extensions of Man*, (Abingdon: Routledge, 2001): 8.

Overall, *Typing an Email* is a project in which internal loops are created and experienced between text, abstract visuals, sounds, performance, and interface. In doing so, it also creates an extension of the laptop as an embodied instrument.

Chapter 9. Work 6: *-ect –act*

To view: Work 6_-ect -act 1 (video file)
To view: Work 6_-ect -act 2 (video file)
To view: Work 6_-ect -act 3 (video file)

-ect -act is a duet for cello or double bass and a visual projectionist. The piece is based on the concept of utilising obsolete technology to create an audiovisual performance. With an increasing number of audiovisual artists producing performances, installations, and exhibitions, new technologies and new creative processes are continually implemented across the interdisciplinary field. As Holly Rogers notes, "It is clear to see that the development of artistic material has attained an unprecedented velocity, in which formats are developed and discarded in the blink of a historical eye."[77] I wanted to take a step back – to use existing materials and to incorporate various audio and visual elements, together within a live instrumental performance. I wanted to revisit existing tools and to explore their inexhaustible potential: the initial urge to create *-ect -act* was to examine audiovisual interactions by transforming the old into the new, asking what might still be possible in this context. The work develops aspects of Study 4, *Silent Film*, as well as Study 5, *A Giraffe Race*, where visuals are used to prompt performative and sounding gestures.

[77] Rogers, *Sounding the Gallery,* 3.

The word 'technology' encompasses tools of all sorts. Media theorist Marshall McLuhan states that the alphabet is a form of technology for a very young child,[78] just as a needle and thread is technology for the tailor, and the pen for writers. Technology in this piece thus consists of light as a source for projection, analogue materials for creation, and acoustic instruments for sonority. We refer to technology as 'obsolete' when its service or practices that have been replaced with new technology:[79] the tailor's needle by sewing machines, pens by typewriters (though in neither of these cases are the original technologies truly obsolete; instead, they continue to be used alongside the new). In the cases relevant to this piece, visual projections have already reached the stage of digital 4K Ultra High Definition, four times sharper than previous forms. Photoshop has replaced art materials, and digital audio workstations in laptops replace analogue creation of sounds.

The question arises as to whether conventional acoustic instruments might be considered obsolete technology, given the developments in electronic and digital instruments in recent decades. Of course, instruments continue to evolve through modification, with more significant and experimental changes sometimes applied to extant instruments since the 1940s. John Cage's prepared piano (see figure 8) was developed in response to the restrictions of a performance venue: the space was too small to fit a percussion ensemble to accompany a commissioned dance piece, so Cage decided to "place in the hands of a single pianist the equivalent of an entire percussion

[78] Marshall McLuhan, *The Medium is the Massage* (London: Penguin Books, 1967): 8.
[79] *Oxford English Dictionary,* 2nd Ed, 20 vols (Oxford: Oxford University Press, 1989), s.v. "obsolete".

orchestra."[80] He introduced various objects and materials inside the piano, so as to extend the instruments timbral range and change its harmonic affordances.

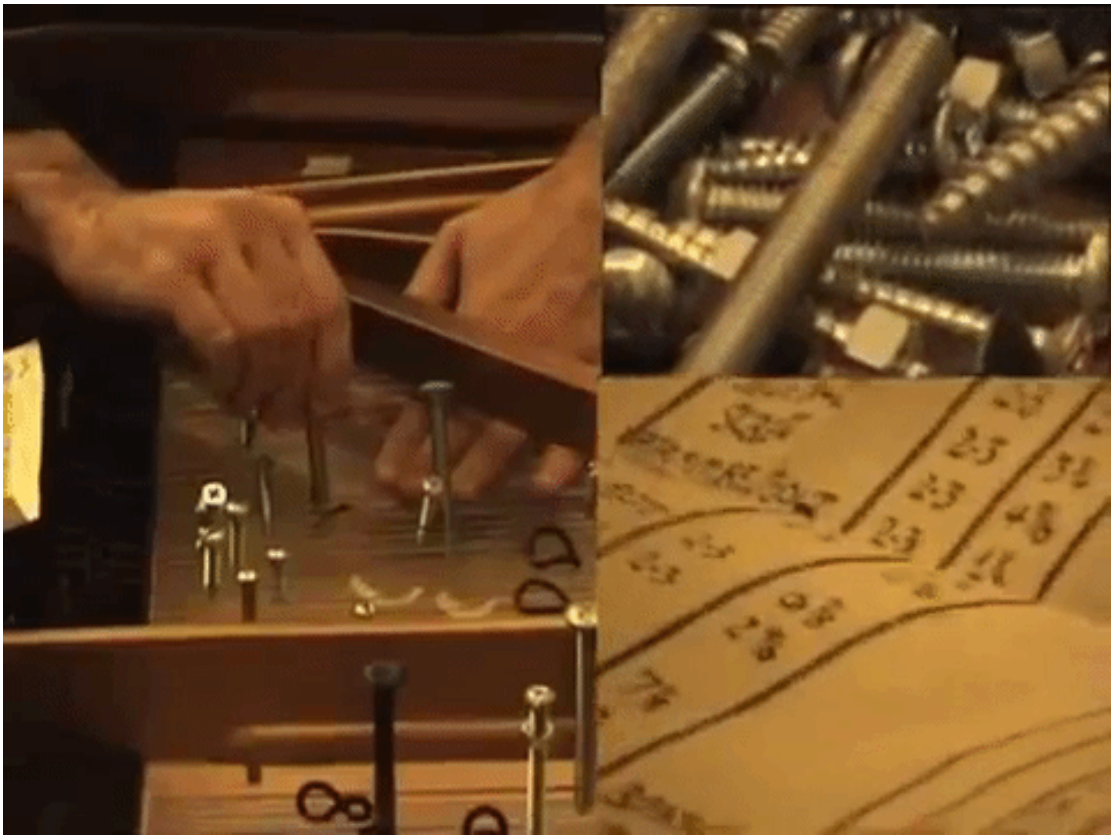

Figure 8: John Cage's prepared piano[81]

Nam June Paik's incorporation of new technology – TVs, video, and radios – into instruments for performance was used to engage different forms of expression and "humanize or naturalize advances in technology".[82] Using common and familiar items, Paik wanted to situate technology within the everyday life, finding balances and oppositions between these differing elements. *TV Cello* arranges three television

[80] John Cage. *For The Birds: in conversation with Daniel Charles* (London: Marion Boyars, 1976): 38.
[81] David Greilsammer, "John Cage – "prepared piano," Michael Greilsammer, accessed Jan 15, 2018, https://www.youtube.com/watch?v=kc3-C7Lnzh0
[82] Alexander Wolf, "Life and Technology: The Binary of Nam June Paik," *Gagosian Quarterly*, Summer 2018, 88-96.

screens so as to mimic the shape of a cello, which is then performed by Charlotte Moorman (see figure 9). Exploring the idea of the performative sculpture, the video images in the TV screens are manipulated by Moorman according to the action of her bow and her application of extended techniques to the attached strings.

Figure 9: Charlotte Moorman performing Nam June Paik's *TV Cello*[83]

Some artists explore ways of adapting past work to suit current technological advances. Cellist Seth Parker Woods re-created *Ice Music for London,* a piece Jim McWilliams created for Charlotte Moorman, in which she performed with a cello-shaped ice sculpture.[84] (Figure 10) Woods' adaptation includes multi-channel diffusion of sound by integrating transducers within the instrument body, turning the performance art piece into an installation where the interior nature of the instrument is projected across the performance space. The re-creation and re-adaptation of past

[83] Charlotte Moorman, "Charlotte Moorman performs with Paik's 'TV cello'," Art Gallery of NSW, accessed Jan 15, 2018, https://youtu.be/-9lnbIGHzUM
[84] Seth Parker Woods and Spencer Topel, "Iced Bodies (Documentary)," Topel | Woods, Jan 15, 2018, https://vimeo.com/251219756, accessed Jan 20, 2020.

works creates a different form of expression, dependent on context, space, collaboration, and era.

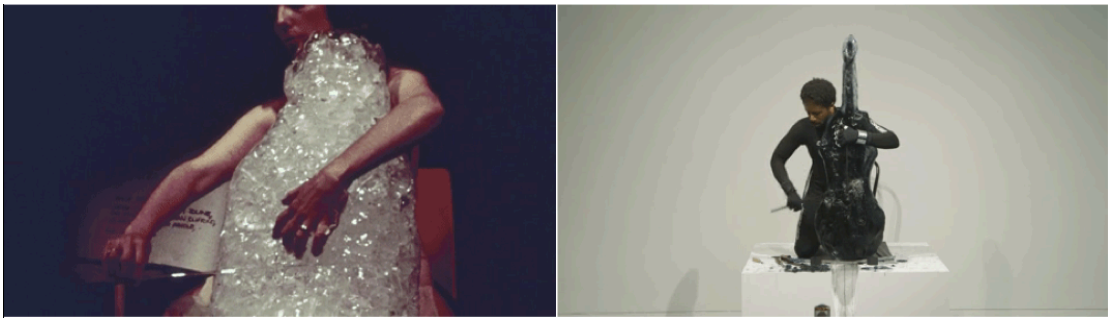

Figure 10: Seth Parker Wood's adaptation of *Ice Music for London*[85]

9.1. Visuals provoking sound

Artists are constantly exploring ways of using visuals to represent music. In his symphony, *Prometheus*, composed in 1910, Scriabin imagined "a symphony of sound counterpointed by a symphony of light."[86] However, this could not be realised with the technology of his time. Scriabin "believed that the joining of sound plus light could work together and create sympathetic resonance in material objects and the human body".[87] He also wanted to "question the established relationships between seeing and hearing".[88] His vision was realised a hundred years later by Scriabin scholar Anna Gawboy in a performance by the Yale Symphony Orchestra in 2010 (see figure 11).[89]

[85] Seth Parker Woods and Spencer Topel, "Iced Bodies (Documentary)," Topel | Woods, Jan 15, 2018, https://vimeo.com/251219756, accessed Jan 20, 2020.
[86] Anna Gawboy, "Scriabin's Prometheus: Poem of Fire," YaleCampus, Sept 14, 2010, accessed Oct 19, 2018, https://www.youtube.com/watch?v=V3B7uQ5K0IU
[87] Ibid.
[88] Ibid.
[89] Ibid.

Figure 11: Yale Symphony Orchestra performing Scriabin's *Prometheus*[90]

On the other hand, artists have also explored the ways in which visual art might provoke or evoke music. For example, Wassily Kandinsky's series of Impression, Improvisation, and Composition paintings are all related to his conception of the relationship between what we see and what we hear.[91] His painting *Impression III – Concert* (1911) was explicitly inspired by a concert of Arnold Schoenberg's works: as Maureen Buia says, the painting reproduces "a direct expression of an internal nature,"[92] formed from Kandinsky's impression of the concert (see figure 12).

[90] Anna Gawboy, "Scriabin's Prometheus: Poem of Fire," YaleCampus, Sept 14, 2010, accessed Oct 19, 2018, https://www.youtube.com/watch?v=V3B7uQ5K0IU
[91] Wassily Kandinsky, *Concerning The Spiritual In Art* (New York: Dover Publications, Inc., 1977).
[92] Maureen Buja, "Music and Art: Schoenberg and Kandinsky," *Interlude*, Feb 21, 2016.

Figure 12: *Impression III – Concert* (1911) by Kandinsky

Piet Mondrian's paintings were inspired by the "syncopated beat, irreverent approach to melody, and improvisational aesthetic"[93] of jazz. In his paintings, Mondrian also examined how the inanimate canvas might appear animated[94] by representing rhythmic movement through the disposition of patterns and grids (see figure 13).

[93] "Piet Mondrian: Broadway Boogie Woogie 1942-43," Art and Artists, *MoMA*.
[94] Ann Temkin, "Piet Mondrian. Broadway Boogie Woogie. 1942-43: 513," MoMA: *If You Only Have An Hour*, audio playlist, accessed Oct 19, 2018, https://www.moma.org/audio/playlist/4/196

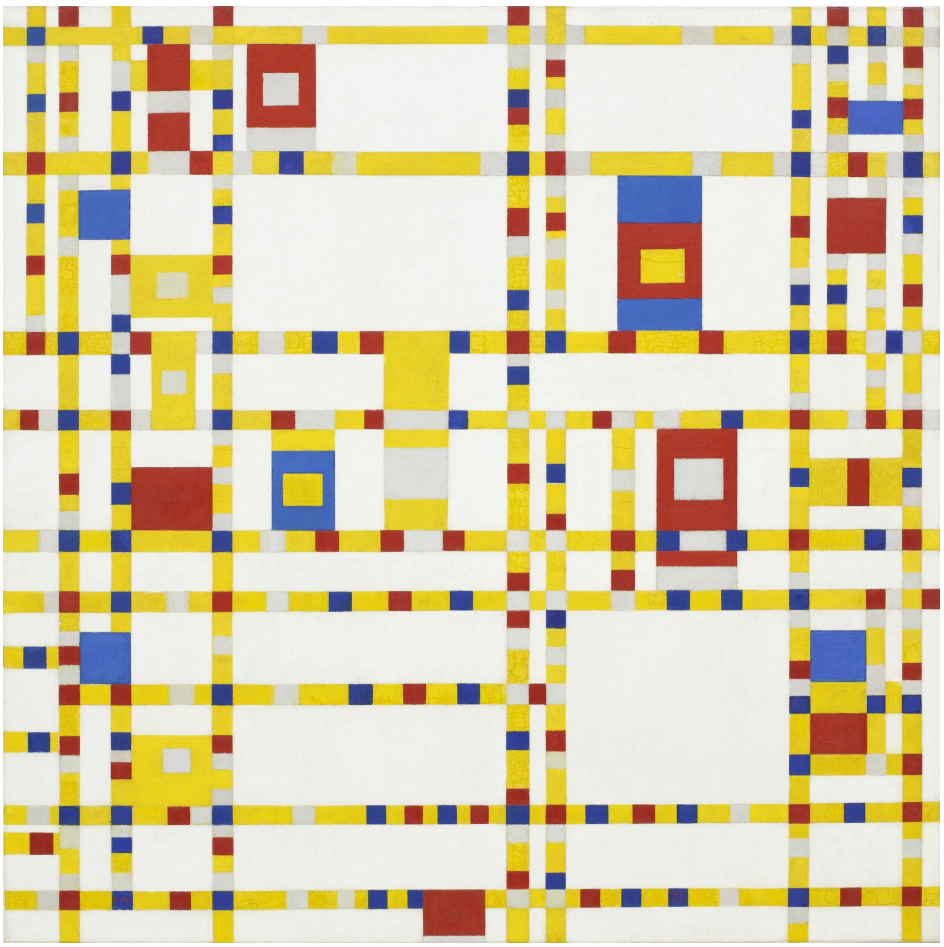

Figure 13: *Broadway Boogie Woogie* (1942-43) by Mondrian

This close-knit relationship between visuals and music is apparent in the development of graphic scores from the 1950s onwards. Pioneers of graphic scores included John Cage (see figure 14), Earle Brown, Cornelius Cardew, Cathy Berberian and others, with many modern-day practitioners continuing to experiment in this field: examples include Brian Eno, Helmut Lachenmann, John Zorn, and Jennifer Walshe. Here, notation moves beyond its conventional constraints, facilitating the production of sound combinations beyond those that could be represented with traditional scoring. Moreover, the performers are active in the exploration of the audiovisual relationships, acting as interpreters in the translation of visuals to sounds.

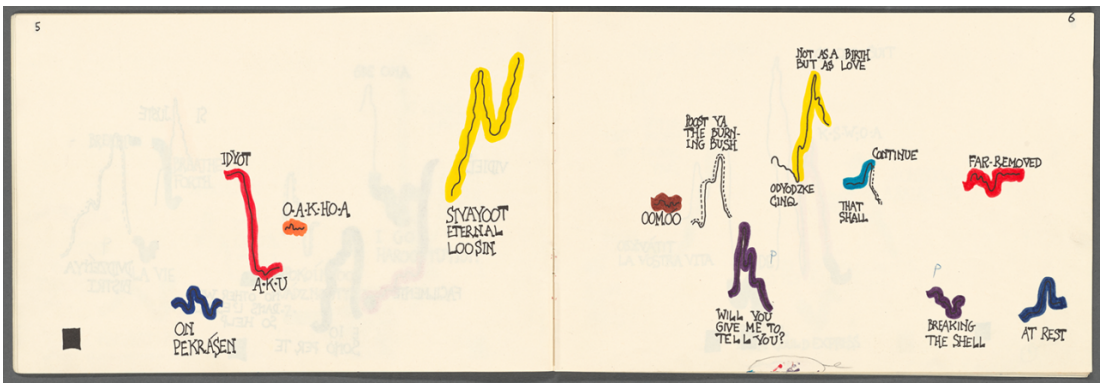

Figure 14: *Aria* (1958) graphic score by John Cage[95]

With developments in computational techniques and software, animated scoring became possible. Graphic scores can now be created live through algorithmic and computer programming (see figure 15). Musicians can follow these live-generated scores and perform in response.

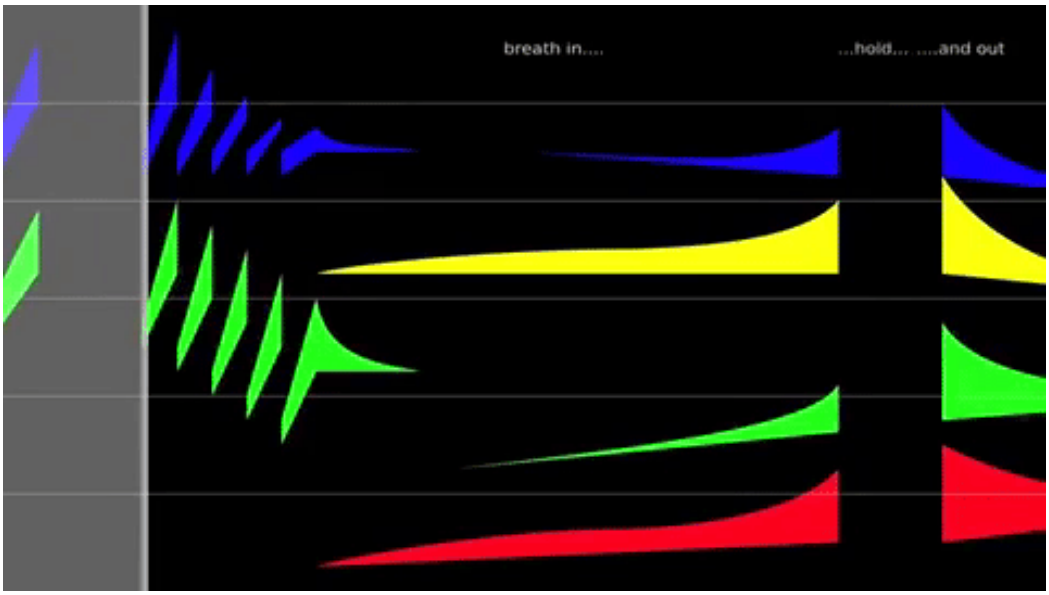

Figure 15: *Animated Graphic Score 1* by Leafcutter John (John Burton)[96]

[95] John Cage, *Aria*, 1958, printed copy, Music Division, The New York Public Library for the Performing Arts, Dorothy and Lewis B. Cullman Center, New York. https://www.nypl.org/events/exhibitions/galleries/performance/item/5452

[96] Leafcutter John, "Leafcutter John Animated Graphic Score 1 played by Kammer Klang Quartet," Jan 28, 2009, accessed Sept 24, 2019, https://www.youtube.com/watch?v=TrF4S6yfY74.

Some artists use visual gesture, rather than the space of the canvas or the screen, as the basis for creative exploration of audiovisual relationships. *Soundpainting*, developed by Walter Thompson in 1974, uses gestural directions to ensemble performers to compose in real time (see figure 16). Somewhat similarly, Butch Morris developed the idea of 'conduction' – short for conducting improvisation – to provoke improvised responses to hand and baton gestures (see figure 17).

Figure 16: *Soundpainting* by Walter Thompson[97]

[97] Walter Thompson, "Soundpainting Workbook 1 – The Art of Live Composition by Walter Thompson," Walter Thompson, accessed Sept 20, 2018, https://www.youtube.com/watch?v=hp_AxCgtD1M

Figure 17: *Conduction* by Butch Morris[98]

These kind of approaches have also been used in more participatory contexts, sometimes with new technologies. Peter Vogel's *Soundwalls* (1979) involves sculptures constructed with electronic components and light sensors to form what Vogel describes as "materialised scores, waiting to be activated by the user or viewer"[99] (see figure 18). The shadows of anyone interacting with the sculpture trigger sounds made by the electronic components[100]: the position of the viewer affects the amount of light sensed, which in turn determines the electrical voltage being sent across the circuitry, triggering sounds accordingly. *Soundwalls* involves a heightened interactive relationship the visual and the aural, and between creator, instrument, and audience-as-performer.

[98] Butch Morris, "Butch Morris," Butch Morris Conduction, accessed Sept 20, 2018, https://vimeo.com/91050770
[99] Jean Martin, "Peter Vogel: The Sound of Shadows," accessed Sept 20, 2018, http://vogelexhibition.weebly.com/
[100] Peter Vogel, "Peter Vogel: Interactive objects," accessed Sept 20, 2018, http://www.petervogel-objekte.de/

Figure 18: *Soundwalls* by Peter Vogel[101]

Another notable piece is *Manual Input Sessions* created by Golan Levin and Zachary Lieberman in 2004 (see figure 19). This explores a "variety of interactions developed from hand gestures," [102] and how these gestures can be interpreted melodically, based on a sequential analysis of the shadows on screen. It uses analogue overhead projectors and digital video projectors, combining the two into a hybrid, cross-era audiovisual system. The analogue tools are used to create and represent, the digital tools to analyse and reproduce.

[101] Peter Vogel, "Peter Vogel Soundwall performance," Jean Martin, accessed Sept 20, 2018, https://youtu.be/NIixUuoDrHw

[102] Golan Levin and Zachary Lieberman, "Sounds from Shapes: Audiovisual Performance with Hand Silhouette Contours in 'The Manual Input Sessions'," *Proceedings of NIME'05*, Vancouver, BC, Canada, May 26-28, 2005.

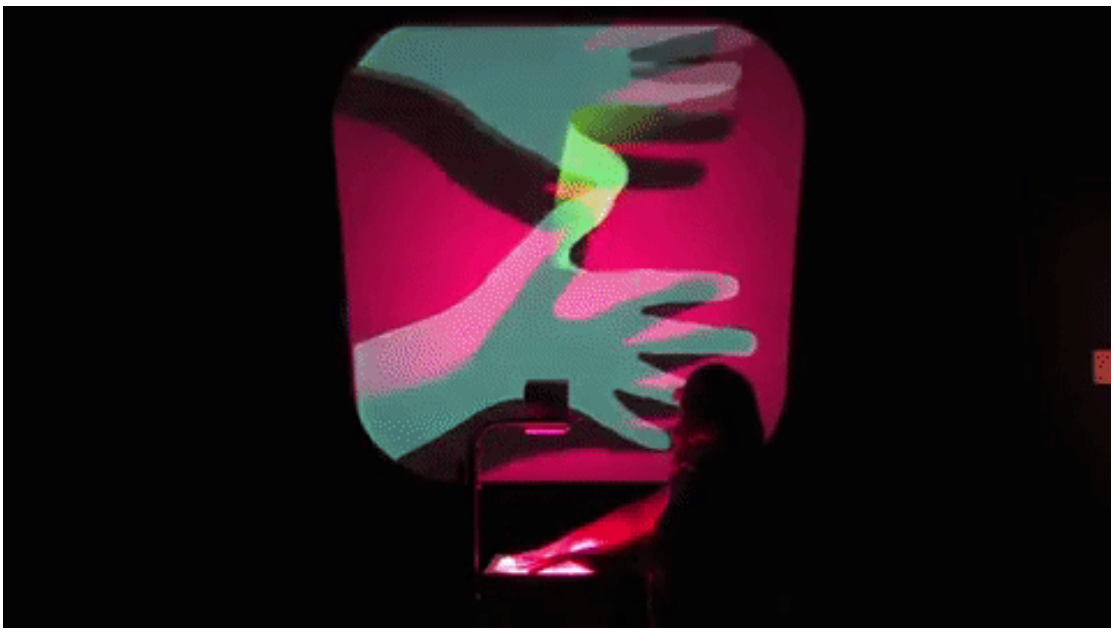

Figure 19: *Manual Input Sessions* by Golan Levin and Zachary Lieberman[103]

9.2. *-ect -act*: rationale

-ect -act arose from the desire to use gestural techniques to create unique signs for a solo performer, exploring the interaction of the ideas and concepts outlined above. The idea of the hand being a "very expressive gestural system" [104] of the body, as manifested in the established improvisational practices of improvisational Soundpainting and Conduction, were prominent in my thinking. I also wanted to create a piece of work in which everything audio and visual was audible and visible to the audience. In musical performances, scores are usually hidden from the audience; this allows us to focus on the music and the individual interpretation of the performer, it also divorces the sound from the visual source that provokes it. For this piece, I aimed to examine how the musical score, gestures, performance, and methods of producing

[103] Golan Levin, "The Manual Input Sessions," May, 2004, accessed Sept 20, 2018, http://www.flong.com/archive/projects/mis/index.html
[104] Ibid.

sound might be seen and heard by performers and audience alike, making the piece as immersive and cohesive as possible.

The title *-ect -act* is formed by suffixes of the objectives of the piece: to effect, to expect, to explore the status of an object and to project to abstract, to form contact with and interact with performers, to react and create impact within and from performers to audience. It is also a different kind of play on the word 'act': the performance is an act, the performers act in response to what is implemented, and so on. The notion of using a cello or double bass draws on Mondrian's ideas of the inanimate canvas: the large surface area of these instruments allow me to transform it into an instrumental canvas that I could draw and project on, even while it is played by a performer, creating sounds at the same time. These instruments also have a long history and are used in diverse musical contexts: performances of the piece have been given by cellists and double bassists from conventional western classical backgrounds, but also those more specialist in jazz and/or contemporary practices, always with myself as the visual projectionist.

The visual projectionist performs in real time using an overhead projector with cut-out shapes, coloured mosaic tiles, markers, and their hands. These objects form the visual material of the piece, with their shadows cast onto the instrumentalist on stage, through the use of the projector. The instrumentalist reacts to these shadows. The visual projectionist is situated at the foot of the stage area; they are somewhat peripheral, visually, relative to the instrument performer, but can still be seen by the audience once the piece begins. The size and space of projections alters across different performance venues.

I wanted to create an immersive environment for performers and audience through the use of large-scale projections that are always adapting to the sounds, and

in which both elements are produced live. The visual projectionist is therefore an active and interactive performer, even though not on centre stage. I wanted an adaptable piece, with some aspects of the performance defined but much left open to improvisation, so decided on an instructional score, defining structurally significant activities within each section. With the foregrounding of individual interpretations of the visual activity, the piece could move in different directions with different performers. However, the shadows cast onto the performer and stage by the projectionist's hands are deployed as a form of conducting, used to control the structure of the piece. Projecting the visuals across the stage means that the performers and audience all see the same visual cue that induces various translations into sound; this is intended to develop a heightened experience of interpretation for the projectionist, performer, and audience. Towards the end of the piece, the graphic score is made apparent: the projectionist draws it onto a slide on the overhead projector, resulting in the score appearing to be drawn on the instrument itself: a new visual artwork is created at the end of each performance. Overall, the aim here is to create an experience of visual music; in Roger Fry's words from 1912, "the translation of music to painting,"[105] but also vice versa.

9.4. Structure of piece

To view: Work 6_-ect -act 1 (video file)

There are three sections to the piece: *Shapes, Hands, and Drawings*. *Shapes* explores the relationship between the performer and instrument (see figure 20). This introduces

[105] Margaret Schedel, "Colour is the Keyboard: Case Studies in Transcoding Visual to Sonic," in *The Oxford Handbook of Algorithmic Music*, edited by Alex McLean and Roger T. Dean (Oxford: Oxford University Press, 2018): 387.

the performers to the external tools they will be working with – instrumentalist with projections, and visual projectionist with sounds – and they are to approach this as if the 'tool' is new. The section also introduces the audience to the piece, addressing the use of the different visual materials cast through shadows. It foregrounds the hand as an important creative tool. In this section, the instrumentalist explores the areas of their instrument which are cast in shadow: they are dependent on the visual projectionist. This not only confines the instrumentalist's performance, but it also pushes their comfort boundaries: they cannot rely on a typical approach to performing on their instrument, but have to focus on the aspect of it that is cast in shadow.

Figure 20: Opening section *Shapes*

The second section, *Hands* (07:46), introduces hand gestures as a form of direction, using shadows to provide cues (see figure 21). The instrumentalist reacts to the shadows and an interactive improvisation section occurs. In contrast to *Soundpainting* and *Conduction*, the signs I used, as projectionist, were overtly sound-provoking, often mimicking an action to be executed by the performer.

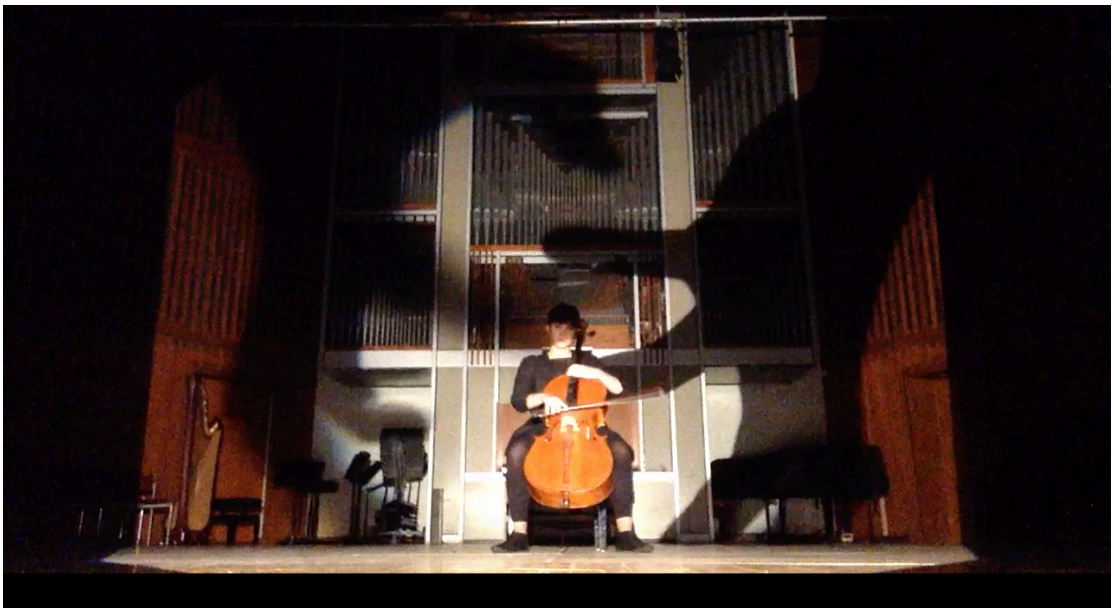

Figure 21: Second section *Hands*

The last section, *Drawings* (09:41), introduces the concept of the instrument as a canvas (see figure 22). Turning the instrument around, so that the large, uninterrupted surface of its back is presented to the audience, live-drawings are cast onto the instrument's body. The instrumentalist reacts to these drawings on their instrument, interpreting them as a graphic score. The sonorous qualities of the extended instrument are thus explored. Eventually the instrument is turned the right way round and played more normally, but with the graphic score still cast on their instrument. Now, the instrumentalist can choose whether to react to the graphics, or improvise freely. If the latter, the visual projectionist must develop the graphics according to the sounds created by the instrumentalist. There is therefore a push and pull of expressive tension between the two performers; a play of control. This is also a point where the performance reaches full coherence between the sound and image: everything that is seen and heard is interfered with, interrupted, or affected by the activities of the other performer. The instrumentalist ends when they wish to by hiding behind their

instrument. The visual projectionist continues alone. With no sounds to initiate the drawings, the piece eventually ends in darkness, with the visual projectionist turning off the overhead projector. This forms a cycle within the piece: it starts with the visual projectionist providing the score for the musical performance, and by the end of the piece the visual performer has created an artwork: what is heard during the performance is translated into a unique drawing, a by-product of each performance (see figure 23).

The piece aims to make the visual and auditory components coherent, forming an integrated dialogue between the two.

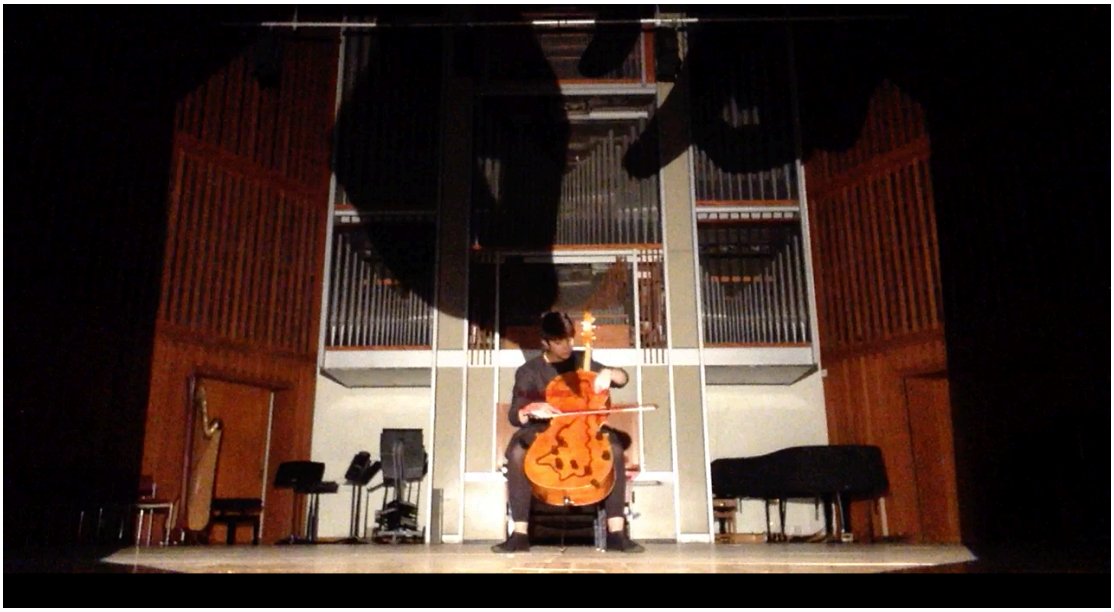

Figure 22: Last section *Drawings*

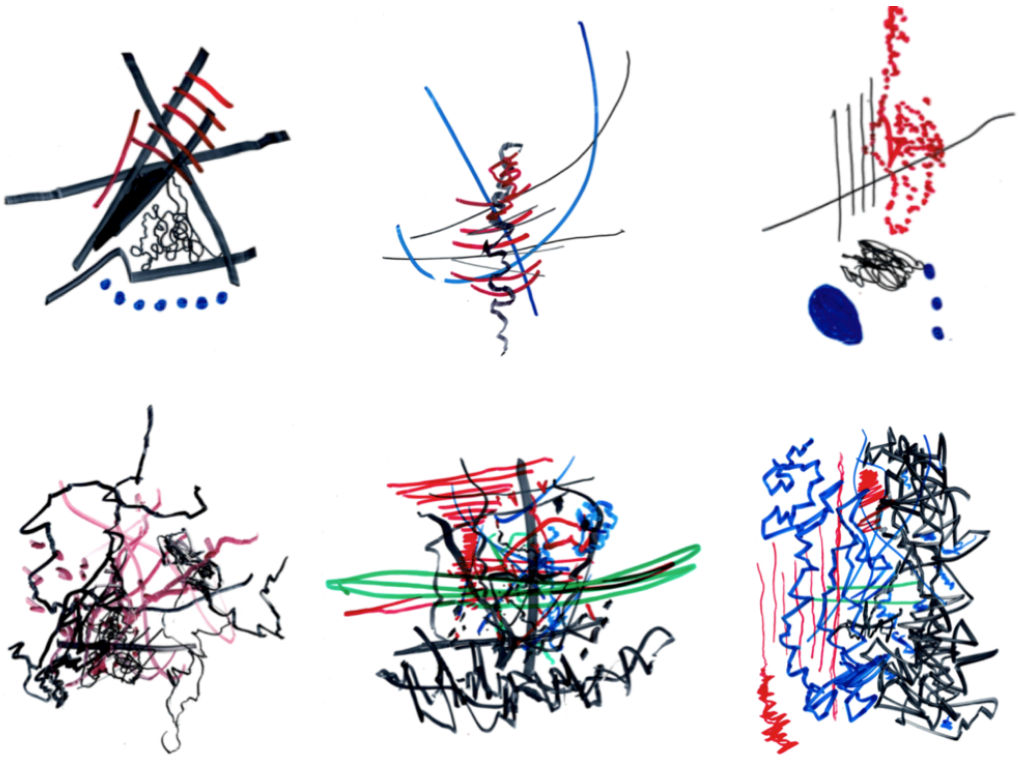

Figure 23: Drawings from performance of *-ect -act*

The text instruction score for the performance of *-ect -act* is provided in Appendix 4. It includes guidelines for performers to customise the approach to include their own audiovisual signs and languages. The score, however, is only a guide to the activities and events of each section; what actually happens is improvisational and responsive.

A digital version of this piece was created using visual coding software Processing: this is *-ect -act v2*, which has a similar instructional score (see Appendix 5). The analogue and digital versions of the piece inevitably contrast, somewhat, aesthetically: the different creative applications lead to different kinds of interactions between performers, and to different qualities in the musical and visual results (see figure 24).

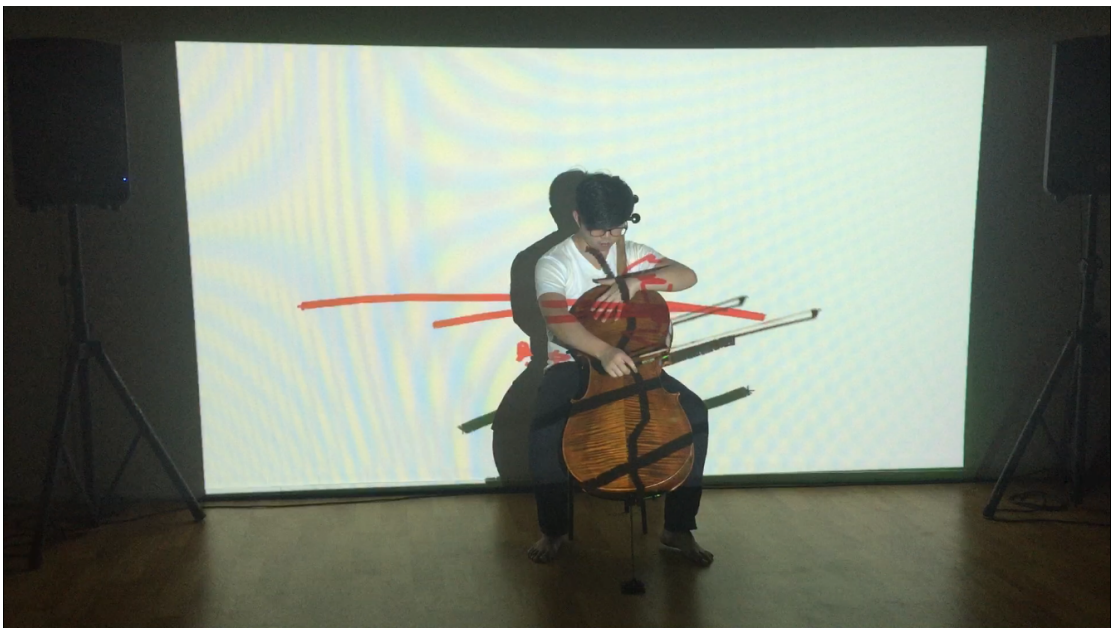

Figure 24: Performance of *-ect -act v2*

In the digital version, there is a lack of performance participation from the projections operator. Here, the digital projections were created in advance of the performance and discussed by the performers. They were operated by pre-set buttons on the computer keyboard. With pre-made visual projections in the *Hands* section, the tension and relaxation of the projectionist's hands that is apparent in the analogue projection performance was lost. Again, this led to a lack of spontaneity. Finally, the drawings created during the final section of the piece also differ in texture, flexibility, and tangibility. With the analogue version, the visual projectionist draws directly onto transparency sheets with pens and other ink materials of their choice. For the digital version, the visual projectionist operates using the computer track pad, which is more limited in physical space and creative expression. The analogue version results in a textured drawing, while the digital version produces a digital print of the drawing (see figure 25).

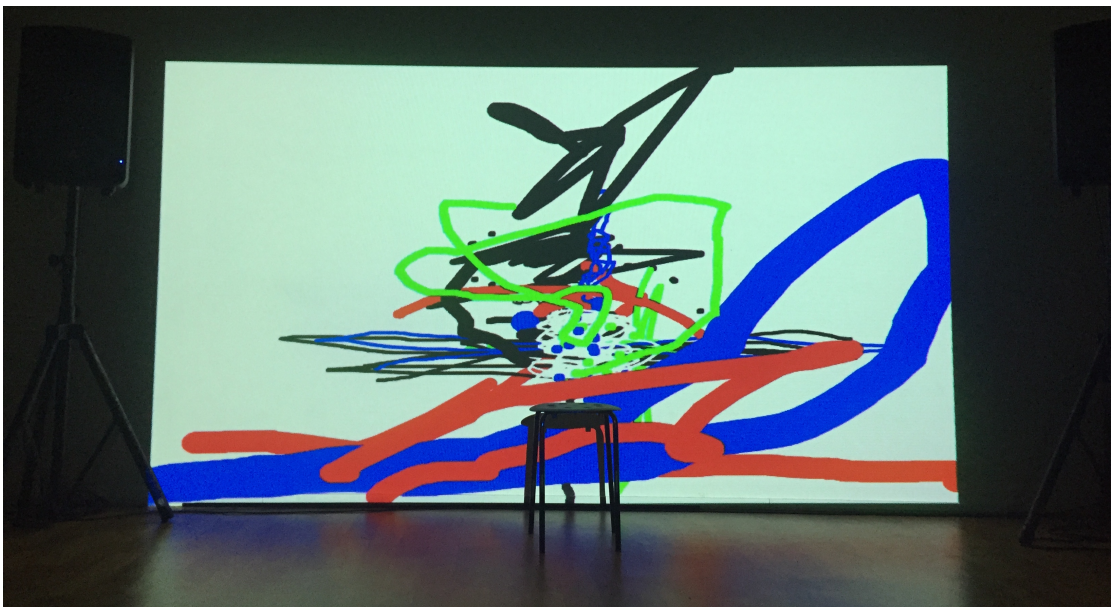

Figure 25: Digital print from *-ect -act v2*

Chapter 10. Work 7: *(frenetic silence)*

To view: Work 7_(frenetic silence) (video file)

To hear: Work 7_(frenetic silence)_Chase Scuite (audio file)

The portfolio works presented so far deal with different methods and processes of 'translation' between audio and visual components. The projects in different ways explore the questions of how such translation takes place, of the starting points and hierarchies involved, and of the forms of interlooping that can be developed by working creatively with these processes in different live and recorded contexts. The following, final two works of the portfolio examine various translation strategies, particularly between film and music, these being the most prominent audio and visual art forms. Both pieces encompass theatrical elements, developing the role of live performance introduced in some of the earlier studies and main works, but taking this into a more extended performance context.

(frenetic silence) is a live, musical-theatrical performance piece that explores concepts of audio description, Foley making, and the translation of sounds and actions across the disciplines of film and music. The piece aims to narrate and illustrate the ways in which sound is used in film, adapting this into the context of live musical performance and thereby combining the multiple roles of sound: sound composed for film, Foley sound, and sound as live performance. The piece involved research into methods of film sound production, but also constitutes a form of creative research into how these forms of sound can be explored and integrated. It is a work for piano player, two voices, and speech recognition-to-text application. The designation 'piano player' is intended to signify a multiple role as not just pianist but also an actor and Foley artist: the term is used instead of 'pianist' or 'performer', indicating a wider scope of performance.

(frenetic silence) takes its title from Christine Sun Kim's work *Close Readings*. Kim is a sound artist who examines the affordances and authority of sound through works that combine sound with painting, performance, and sculpture. Kim is interested in the boundaries, restrictions, or extensions of sound across different media. *Close Readings* is an installation piece in which Kim asked participants from the deaf community to assign sound captions to verbal scenes from existing films. *(frenetic silence)* comes from the depiction of a scene from *2001: A Space Odyssey* within the installation. The phrase is ironic: the term 'frenetic' is employed to describe the perception of 'silence', despite the apparent disjunction, even opposition, of the two words. Despite its paradoxical character, the active description of a non-existent sound constructs a particular mood and induces a sense of movement into the scene. Sound captions therefore either enhance or pull viewers away from their initial understanding of an on-screen image.

Discussing captions for film sound, Kim states that the "multidimensionality of sound, or many layered sounds, are often reduced to brief captions."[106] This is also apparent in the captioning of concert music performances in live-streaming, and when captions are used as an accessibility aid in theatre. Captioning is rare in the field of contemporary music, perhaps partly because the sonic timbres and textures are challenging to define. Unconventional sounds are often open to varied interpretation. This notion is incorporated into *(frenetic silence)*: the two vocal performers are required constantly to describe the performance in terms of the visual and auditory elements. The voices provide parallel and quite different perceptions and interpretations of the visual and sonic events: the audience experiences the events directly, themselves, but also twice more in the two vocal accounts; the three impressions unfold simultaneously but are significantly different. The work emphasises the fact that description of sounds are not simply achieved by common consensus.

For this piece, elements of film, film sound, and music were identified and compiled into two categories, defined as "crossovers in film and music" and "translation across mediums". These materials were then incorporated into the work.

10.1. An overview of the piece

To view: Work 7_(frenetic silence) (video file)

(frenetic silence) begins with a film collage of extracts from existing film scenes. These scenes contain either audio description or closed captioning. Audio description (AD) is "additional commentary that explains what is happening on screen. AD

[106] Christine Sun Kim, "close readings," Christine Sun Kim, 2016, accessed Sept 24, 2019, http://christinesunkim.com/work/close-readings/

describes body language, expressions and movements, making the programme clear through sound,"[107] for the blind and hard-of-seeing viewers. Closed captioning (CC) "provides access to audiovisual content for deaf and hard-of-hearing viewers"[108] in the form of on-screen text that transcribes the auditory elements, including speech and non-speech. AD is the use of audio to describe visual events happening on screen for non-seeing viewers. CC is visual on-screen text used to describe and characterise ongoing dialogue, music, and sound effects for non-hearing viewers.

The opening film collage, *_Title Seq_,* sets the context of *(frenetic silence)*, which examines the relationships, congruencies, and disputes between different media translations of the same stimuli.

In the second section, *Close Captioned Subs – not really, because they always go so wrong!!* (04:00), the two voices narrate opening introductory paragraphs from existing films and shows. These paragraphs are transcribed from the AD presentation of the shows. Sound effects and quickly flashed images are used to interrupt the flow and provide transitions between the segments.

Intertitles, reminiscent of the use of text in silent film, provide a brief, transitioning third section (06:48). The art of Foley as a performative act is examined next, in this fourth section, *Scene 1* (07:00), with behind-the-scenes creation of sounds brought onto the stage. The piano player acts out a narrative, while also providing the sound effects for the scene.

In the fifth section, *Is That Right?* (13:00), the piano player, now at the instrument, reacts and responds to CC, playing in direct response to on-screen text,

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[107] "Audio description (AD)," RNIB, accessed Feb 16, 2020, https://www.rnib.org.uk/information-everyday-living-home-and-leisure-television-radio-and-film/audio-description

[108] Sean Zdenek, *Reading Sounds: Closed-Captioned Media and Popular Culture* (Chicago: The University of Chicago Press, 2015), 34.

translating it into performance. The final section, *Chase Scuite* (15:30), involves a musical performance in response to a graphic storyboard score, before the credits are run (and simultaneously recited) at the very end (27:45).

Throughout, the two amplified vocal performers constantly describe the performance, narrating the actions of the piano player as well as what they can see on screen and hear through the speakers, providing alternate, parallel commentaries for the audio, visual, and musical events.

10.2. Crossovers in film and music

The process towards creating *(frenetic silence)* involved detailed consideration of the characteristics of film and music, identifying equivalencies across media. Table 1 shows some of this. Corresponding elements of film are listed in reference to the characteristics of music:

Music	**Film**
Tempo	Pacing
Dynamics	Zoom-in, zoom-out
Timbre	Texture and layers
Melody	Sequence of happenings
Harmony	Environment, mood, hue, and colour gradient
Score	Storyboard, screen-write, cinematography, film score
Conductor	Director
Motif	Protagonist

Table 1: Overlapping characteristics of film and music

10.2.1. Creation processes: film storyboard and music score

The creation processes in developing a film and a piece of music are comparable in certain ways. In each, an initial blueprint often develops into a series of events, eventually constituting the final product. Films start off with a screenplay followed by a storyboard. Screenplays, or scripts, are planning documents that organise the shooting, acting, dialogue, settings, props, and scene shots required for a film.[109] Storyboards arrange the narrative in a logical sequence of events through drawings. These drawings act as the rough sketch of how the filmed footage would appear.[110] The screenplay and storyboard therefore act as a score for the film director. Musical notation serves a similar purpose for a conductor or musical director. The screenplay and storyboard, or the musical score, also convey information directly to actors and musicians, respectively. Rehearsals then take place with the directors and conductors.

10.2.2. Creation processes in *(frenetic silence)*

The main score of *(frenetic silence),* used by the three performers, is text-based, but also incorporates a musical score for the piano player for the last section of the piece, *Chase Scuite,* in the form of both graphic and standard notation. The instructional text score directs the whole show: it includes stage directions, the events of each section, and the transitions across sections (see Appendix 6). The icons at the bottom right of each page indicate the elements that are emphasised during the sections: visual, sonic, or descriptive. The musical score of *Chase Scuite* exists in the form of a storyboard, in which images from film scenes replace standard notation (see Appendix 7). The

[109] Charlie Moritz, *Scriptwriting for the Screen*, 2nd ed. (New York: Routledge, 2008): 29-47.
[110] John Patrick Hart, *The Art of the Storyboard: A Filmmaker's Introduction* (Oxford: Focal Press, 2008): 3.

narrative of *Chase Scuite* was also initially composed in the form of a storyboard: see figure 26.

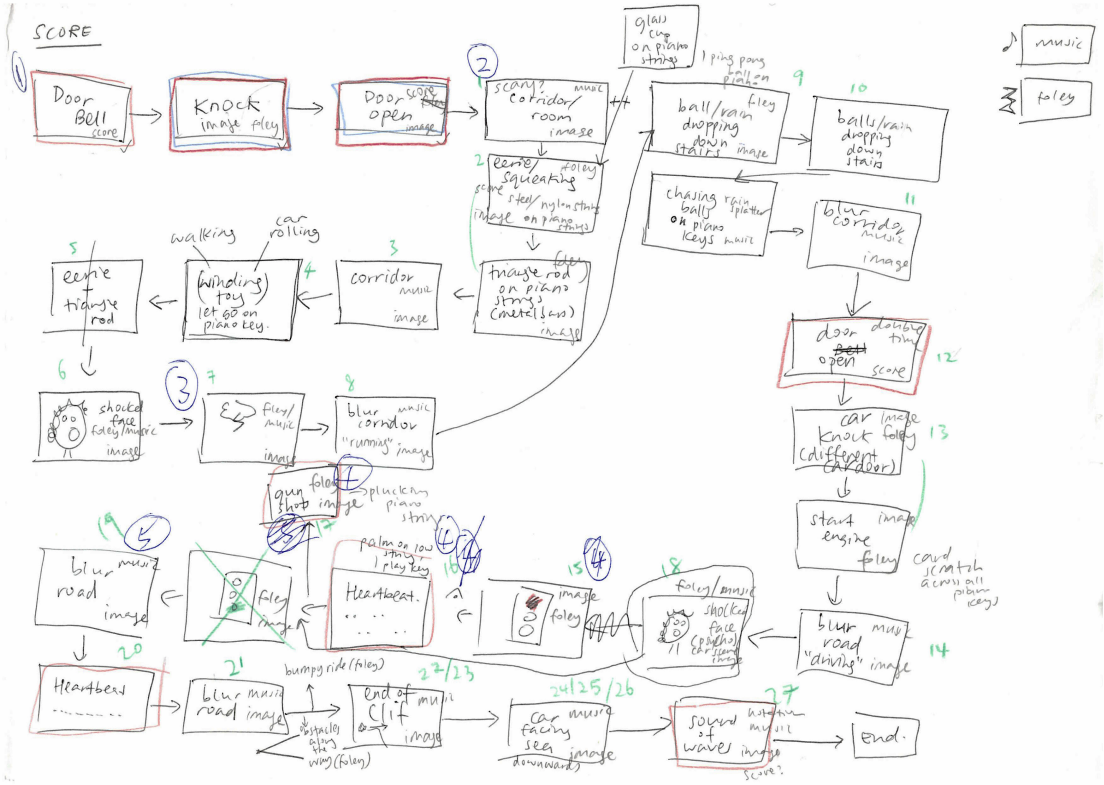

Figure 26: Storyboard of *CHASE SCUITE* narrative

Conventional musical notation is mixed into the score, with musical material derived from spectral and pitch analysis of concrete sound sources – for example, various types of doorbells and door creaking (see figure 27). Tempo and dynamic markings are listed on the score as well, directing the flow, pace, and intensity of the performance. Despite there being plenty of creative freedom for the piano player, with improvisational aspects to the sections, the piano player has to prepare before the performance – to get used to the in-the-moment processes of interpretation, translation, and to decide on actions and sounds to be performed that correspond to the scored text and images.

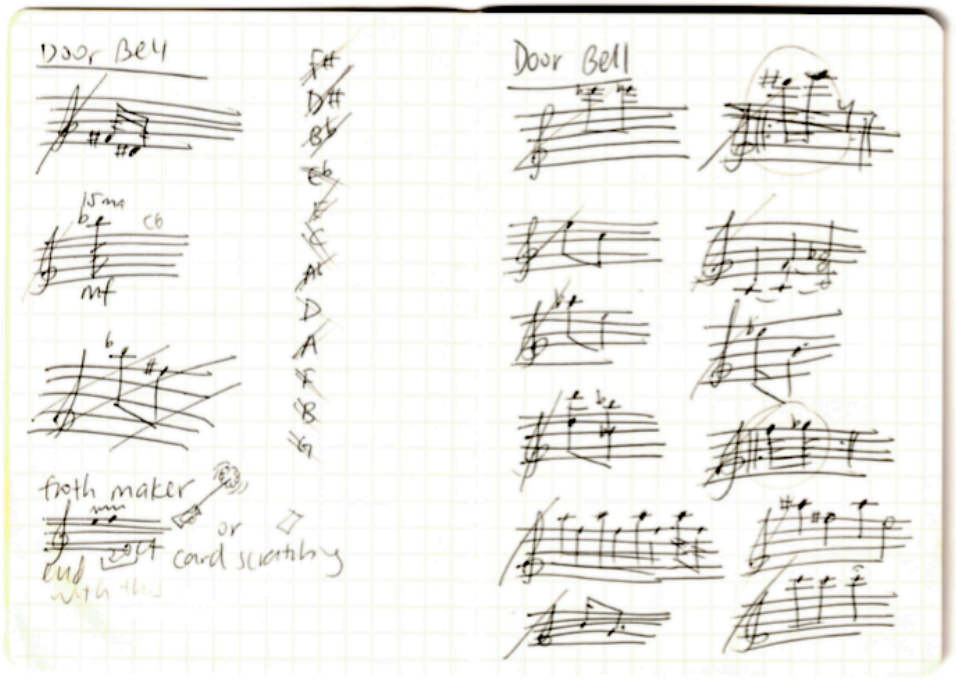

Figure 27: Doorbell transcriptions

10.2.3. Performative acts

Film and music both include performative processes, whether on stage or behind the scenes, live and pre-recorded. Performing music on stage and on-screen acting are apparent to the viewer. However, the creation of sound effects, during the post-production process in film-making, is also performative. Foley is "the recreation of ambient sound effects in post-production for foreign language versions of films where dialogue is replaced, or in situations when no natural sound has been recorded."[111] Foley artists recreate sounds that were first produced by the onscreen actors, synchronising the Foley sounds effects to the film. Often, this involves re-enacting

[111] Daniel Chandler and Rod Munday, *A Dictionary of Media and Communication*, 2nd ed., (Oxford: Oxford University Press, 2016): 154.
It is also interesting to note that "Foley" is not specified in the Oxford Dictionary of Film Studies, illustrating the fact that the creation and performance practice of sound is often not of importance in film studies.

activities seen in the film, or otherwise moving, interacting with objects, and performing actions that will produce the required sound: it is a performative role. Foley artists might create the sound of footsteps, or the movement of the fabric of clothes, as well as recreating the sounds of everyday diegetic sounds in film.

The act of Foley is echoed in musical performance to animated graphic (video) scores, with sounds being performed live according to moving images; examples include *Animated Graphic Score I* by Leafcutter John[112], *SYN-Phon* by Candas Sisman[113], and *Screen Play* by Christian Marclay[114]. *Screen Play* situates the musician as interpreter: the musicians respond to any visual stimulus that could potentially function as notation for their instrument, whether through traditional or extended techniques. Video scores differ from traditional musical notion in several respects. With video scores, musicians are unable to read ahead and anticipate the oncoming performative actions and sounds. Dynamics are often determined by object sizes, pitch contours by the positioning of objects, and texture and timbre are usually varied in response to image tone, colour, and hue: this relates to the correspondences listed in Table 1, above.

Some live performances – whether live-only events, such as theatre, or live broadcast performance for radio or television – include live Foley. In these shows, Foley artists are either situated at the side of the stage, secondary to the onstage action,

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[112] Leafcutter John, "Leafcutter John Animated Graphic Score 1 played by Kammer Klang Quartet," Jan 28, 2009, accessed Sept 24, 2019, https://www.youtube.com/watch?v=TrF4S6yfY74.
[113] Candaş Şişman, "SYN-Phon," Candaş Şişman, 2013, accessed Sept 24, 2019, https://csismn.com/SYN-Phon
[114] Sarah Meller, "Musician as interpreter: Marina Rosenfeld speaks about performing Christian Marclay's Screenplay," Whitney Museum of American Art, 2010, accessed Sept 24, 2019, https://whitney.org/Education/EducationBlog/MarinaRosenfeldSpeaksAboutPerformingScreenplay

or Foley is incorporated into the actual performance, created by the on-stage actors. The performative act of Foley is therefore incorporated into the script from the beginning.

Unlike in musical performance to video or film, rather than a personal interpretation of the moving images, Foley requires a direct, accurate, and synchronised response to the onscreen action. In this respect, Foley creation is similar to the performance of classical music scores of the common practice period, where the score tightly defines the performance actions, sound qualities, and timing of the executed sounds. This loop between film, music score, and performance is explored creatively in *(frenetic silence)*. Elements from one medium are situated in another, to initiate correspondences and expose differences.

The piano player in *(frenetic silence)* takes on the roles of the Foley artist and actor as well as musician. Acting, combined with Foley making, is seen when the piano player enters. Foley artists usually source materials different to the original sound source, sometimes because they can be re-used and last longer, and sometimes because they actually produce a sound that is more realistic to audiences when recorded and played back. For example, cornstarch takes the place of actual snow; the sound of crumpling VHS tapes replaces that of grass and leaves; empty coconut husks replace horse hooves. This use of disparate sounds in place of the original sound source is a form of synchresis: "the spontaneous and irresistible weld produced between a particular auditory phenomenon and visual phenomenon when they occur at the same time."[115] We very often assume an onscreen action to be producing a sound that is actually produced with a different sound source.

[115] Michel Chion, *Audio-Vision,* 63.

Enacting the narrative (see 07:00-12:55), the piano player produces sound effects that include the flapping of birds' wings (the flapping of rubber gloves), the chirps of crickets (marbles in a glass), fire crackling (the crumpling of baking parchment), all the while walking through the tape from VHS cassettes (to give the sound of walking through grass). The narrative moves into a fight scene where there are gunshots (a staple gun), punches (newspaper rolls hit together), and a body is thrown off a cliff (a heavy book drops onto plastic cups): see figures 28-29.

Figure 28: Foley sound examples 1

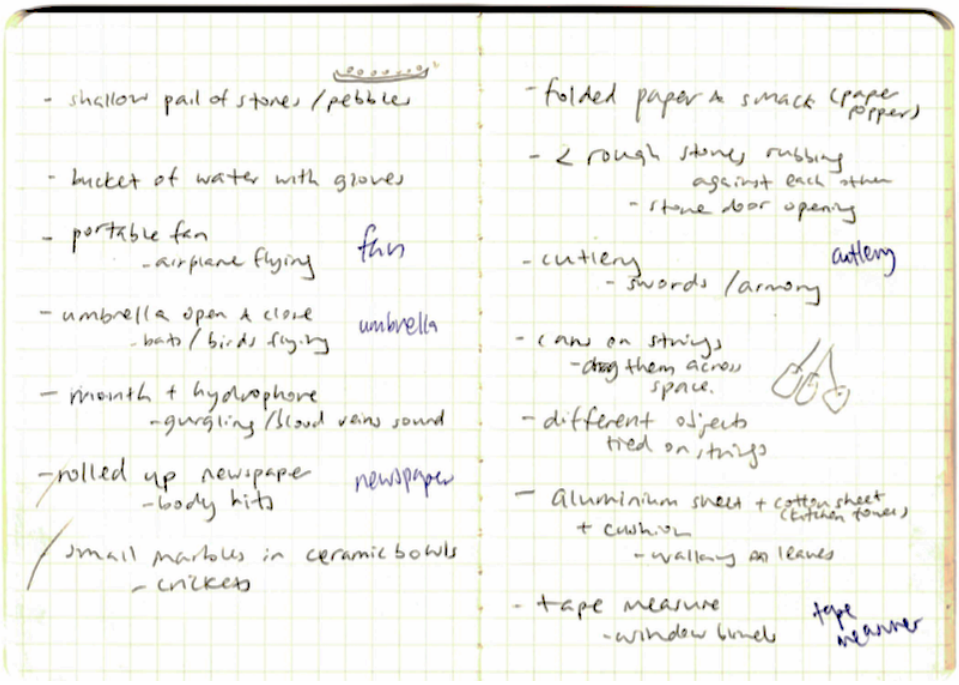

Figure 29: Foley sound examples 2

Situating the piano player onstage as an actor and Foley artist emphasises the notion of Foley artists as performers, and performers as sound makers. It reveals Foley as a performative art form, with its creation processes and the objects-as-instruments visible on stage. Although additional filmic visual prompts like the environment and surroundings are not available, the viewers would be able to imagine the scenes through the Foley and actions created by the piano player independently.

Towards the end of *(frenetic silence)*, the piano becomes a Foley stage. The instrument is used to produce sounds but also to host objects to create complex sonorities. Foley stages usually contain different flooring materials and additional props: the 'stage' serves as a platform for the various Foley objects. Here, objects are gradually placed inside the body of the piano: the objects accumulate at a growing pace, eventually resulting in chaos by the end of the performance (see figures 30-31). The grand piano becomes a huge instrumental stage for the act of Foley. Reminiscent of Cage's prepared piano (see pages 87-88) the range of sounds is greatly extended

through the introduction of the Foley objects. This also situates Foley as a performative sound and musical act.

Figure 30: Objects around the piano body

Figure 31: Objects inside the piano body

10.2.4. Soundtracks and sound effects

Film scores often incorporate sequential motifs related to characters and cue points from the film image, and they aim to capture and represent the mood and intensity of individual scenes and the overall tone desired by the film and director. Likewise in music, motifs, tonality, attacks, dynamics and rhythmic intensities, and so on are decided by the composer and subsequently executed by the performers, sometimes with a conductor.

In *(frenetic silence)*, alongside the live sound effects created by the piano player, original music as well as existing soundtracks appear in the background, supporting the dynamics and intensity of each scene as it progresses (11:12-12:49). Here, soundtracks were extracted from existing films and collaged into a single, new soundtrack, highlighting the similarities in mood, tension and rhythmic activity with the image of the scene shown on screen.

Sound effects – another important element of film sound, differentiated from Foley and soundtracks – are also incorporated into *(frenetic silence)*. Notably, the 'Wilhelm scream' makes an appearance at the end of the fourth section (12:49); this is a classic sound effect, first recorded for the Warner Bros. stock sound directory and popularised in *The Charge at Feather River*, in a scene where a soldier, Private Wilhelm, is shot in the leg by an arrow.[116]

10.2.5. Narrative

Forming narratives is also essential in both filmic and musical progression within a piece of work. Films operate through storylines, whether linear or non-linear. In music,

[116] Mary Plummer, *Apple Pro Training Series: Soundtrack Pro – Professional Sound Deisgn* (Berkeley: Peachpit Press, 2006), 218.

the development of structure, melodic contours and harmony often occurs through a kind of narrative as well. Melodic riffs or motifs are often used to represent characters, especially in operas and music theatre.

Two narratives appear in *(frenetic silence)*, situated somewhat discretely within the overarching narrative of the whole work. The first narrative begins when the piano player appears in the fourth section (07:00), and the second with the scored composition *Chase Scuite* (15:30).

In the fourth section, the vocal performers explicitly suggest a narrative that combines with the pianist's acting and Foley creation to create an impression of the environment, objects therein, and sequence of events: this involves a cold open field, with insects and crows heard, a fire is spotted, footsteps are heard. The protagonist is found and chased, and there is a fight for survival before someone is thrown from a cliff.

In *Chase Scuite*, the storyboarded narrative depicts entry into a mysterious house, before there is an explosion, followed by a car chase in which a car is driven off a cliff into the sea. Certain similar elements recur across the two narratives, both of which involve somewhat clichéd scenes, and the pacing of intensity are identical.

Utilising different tools to create the imagery for each scene demonstrates different methods of portraying narrative through sounds and actions: first we have acting and Foley, later the use of extended piano techniques and sounds from objects placed in the instrument. The narrative in *(frenetic silence)* therefore moves from the filmic towards the musical, trying to achieve a crossover between both art forms.

10.2.6. Speech, text, and narration

The use of text and voices in the form of dialogue is crucial in films, especially since they have "a dramatic, psychological, informative, and affective function."[117] In music, text appears in scores in the form of lyrics, but also provides additional information, supplementary to the notation. With instructional scores, texts articulate the basis of the composition.

Across these artforms, text, whether in dialogue or sung text, maintains its prominence, both in terms of volume – it needs to be heard – and its significance: it very often guides the direction and flow of the sequence of events. As Chion comments, "one element that remains constrained to perpetual clarity and stability … is dialogue."[118] Chion notes that this 'vococentric' attitude accords "privilege … to the voice over all other sonic elements."[119] The importance of text and speech are evident in music theatre, song cycles, vocal and choral music, as well as operatic arias. In these forms, too, music, in the form of melody and harmony, often serves as an accompaniment to text.

Chion identifies three modes of speech in film – textual speech, theatrical speech, and emanation speech. Textual speech has authority over image, while theatrical speech emerges directly from the onscreen dialogues, and emanation speech is that which is irrelevant to the narrative action.[120] Textual speech has "the power to make visible the images that it evokes through sound – that is, to change the setting, to call up a thing, moment, place, or characters at will."[121] This is the objective of the

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[117] Chion, *Audio-Vision,* 171.
[118] Ibid, 170.
[119] Michel Chion, *The voice in cinema,* ed. and trans. Claudia Gorbman (New York: Columbia University Press, 1999): 6.
[120] Chion, *Audio-Vision,* 171-172.
[121] Ibid, 172.

two voices in *(frenetic silence)*, which provide alternative interpretations of the audio and visual events. Similarly to intertitles, the voices act upon the performance, interrupting its continuity with improvisatory flexibility. Influenced by the descriptions provided by the voices, viewers are guided towards a different understanding of the performance, resulting in a fusion of observations and confusion that might lead them away from their own initial interpretations. Textual speech therefore not only induces "things to appear in the mind but also before our eyes and ears."[122] The power of voices, text, and narration is therefore powerful, pushing away or dispersing the initial idea of an audiovisual performance.

In the second section, after the opening film, the two voices display their power over the viewers in this manner (04:00). With no visual stimuli other than real-time transcribed text displayed on two separate screens, the voices narrate AD paragraphs from the opening sequence of existing shows (see figure 32). A range of opening sequences are used from television series including *Stranger Things*, *The Good Place* and *Black Mirror*, as well as documentaries including *Cooked* and *Chef's Table*. The shows vary in mood, tension, dynamic, and genre, and this is portrayed in the tone, speed, and dynamic of the AD speaker.

[122] Chion (1994): 175.

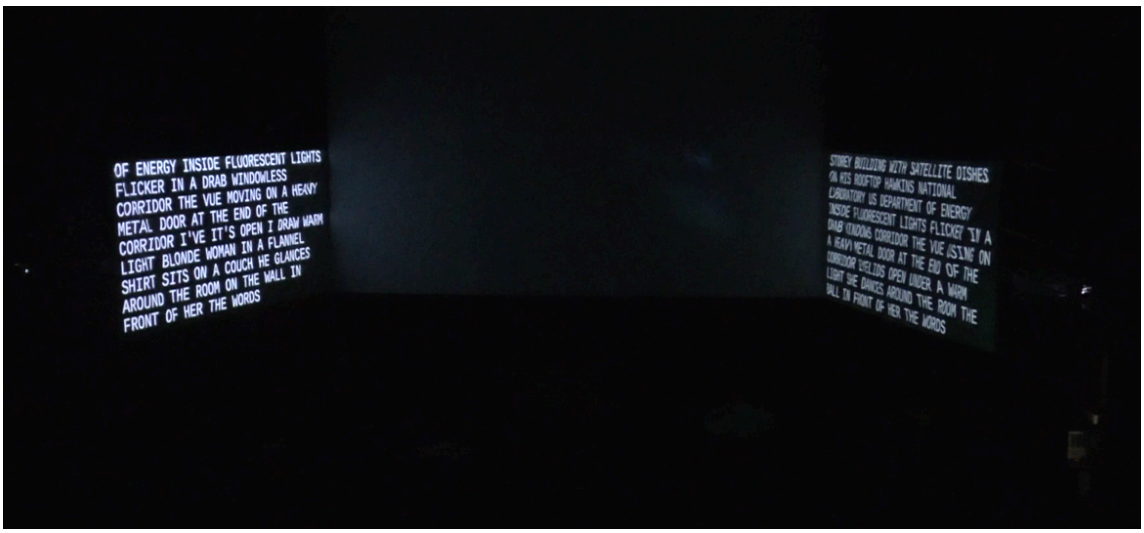

Figure 32: Real-time text-to-speech transcriptions on separate screens

During section five (13:00), the piano player improvises in reaction to CC of existing films, with the captioning appearing on the screen together with its related image. The piano player cannot see the big screen from her playing position, but uses an iPad to view the images. The two voices are positioned by the sides of the screen, and are unable to see the closed-captioned images appearing on-screen. Their narrative is therefore in reaction only to the performance of the piano player, not to the piano player's filmic stimulus. The audience, however, has a full view of the piano player, the transcribed text, and the on-screen images. The voices produce a narrative from what they think the piano player is doing, which differs from the narrative description on screen. This plays creatively with the faults and discrepancies in the descriptive consensus of CC, exploring them and foregrounding the ambiguities and contradictions

As the two vocal performers have a background in classical and contemporary music, their descriptions inevitably employ descriptive terms and phrases from these fields: "leitmotif" (16:11), "call and response" (16:14-16:17), "minor third" (16:18), "fermata" (17:10), "the original leitmotif is developed into a longer phrase" (17:18),

"atonal contrapuntal piano music" (17:43-17:46). This also produces a particular interplay between the piano player and the voices. The piano player is instructed to ignore the voices if possible, but the voices are amplified and therefore hard to ignore.

> As easy as it is to eliminate something from our field of vision, by turning our head or closing our eyes, it is quite difficult for the ear – especially in such a selective way. What we do not actively listen to our ears listen to nonetheless.[123]

Impelled by the voices, the piano player inevitably responds in part to their commentary (18:11-18:25). The interplay between the voices and piano player therefore forms a loop, one affecting the other, and this eventually affects the audience. This push and pull of tension and powerplay in the roles is therefore highlighted, similar to the performative negotiations of authority between the instrumental performer and visual projectionist in *-ect –act*. The balance of the audiovisual language is therefore challenged.

Intertitles are used for transitions to break up the sequence of events: they are first introduced in section three (06:48). Intertitles are "a frame of filmed, printed text inserted between two shots in an action sequence to convey dialogue or narrative description."[124] Intertitles were the predecessors of Benshi – live commentators for early Japanese silent film – who "not only supplied a voice for all the characters but provided a running commentary on every detail of the image and action."[125] Benshi, in turn, were the predecessors of AD. The use of the two voices in this work is influenced by the historical development of the role of the Benshi: Benshi commentators

[123] Chion, *Audio-Vision*, 182.
[124] Martha P. Nochimson, *World on Film: An Introduction* (Chichester: Wiley-Blackwell, 2010), 416.
[125] Noël Burch, *To the Distant Observer: Form and Meaning in the Japanese Cinema* (California: University of California Press, 1979), 77.

gradually took more creative liberties in their narration, such that it "could be seen as an intervention that distanced, or even contradicted, the producer-imposed logic of the film."[126] The voices are also speaking in acousmetre, in which the "relationship to the screen (performance) involves a specific kind of ambiguity and oscillation… (having) the power of seeing all; the power of omniscience; and third, the omnipotence to act on the situation."[127] The lines between narrators, captioners, and interpreters are therefore blurred, overlapping in the performance.

10.3. Translation across media

Chion notes that "Textual speech has the power to make visible the images that it evokes through sound."[128] Mostly in the form of intertitles, voiceover commentaries, and AD, the film image in *(frenetic silence)* is made explicit, guiding the viewers. However, through translation across media, the text presented as part of the dialogue differs from what happens in action, creating competing narratives that defy us to decide which is 'original' and correct. *(frenetic silence)* examines the translation from performance and sound to description and interpretation. There are various methods of translations: audio description of visuals and closed captioning of sounds by the voices, which eventually leads to a general description of sound, image, and performance through speech and text. Adjacent to these strategies, additional digital transcription and presentation methods supplement these translated formats.

[126] Donald Kirihara, *Patterns of Time: Mizoguchi and the 1930s* (Wisconsin: The University of Wisconsin Press, 1992), 60.
[127] Chion, *Audio-Vision,*130.
[128] Chion, *Audio-Vision,* 172.

10.3.1 Textual imagery

The two voices undertake the role of both audio describer and closed captioner. The perception of sound and image is altered when filtered by text. This is apparent in the use of AD, but is explored in the artistic work of Hollis Frampton. In the third section of *Surface Tension* (1968), three different film scenes are described in words, which are superimposed over the moving imagery. In *Hapax Legomena II: Poetic Justice* (1972), a 240-page screenplay is presented through individual video edits that display the literary narrative. Solely from the screenplay text, camera positions, onscreen action and objects, emotions, speed, and movement of film shots are deduced, providing information similar to watching a film. However without any visual context, ambiguities are formed through such textual descriptions.

In *(frenetic silence)*, displaying the spoken words of the vocal performers on separate screens, one on each side of the performance space, serves as a form of distraction to the viewers. Frampton states that, "once we can read, and a word is put before us, we cannot not read it."[129] This is similar to Chion's notion of constant listening[130], with the inability to turn off. On the other hand, this form of presentation might induce a contrary response, in which the audience becomes more open to different perspectives, embracing the possibility of shifting one's point of focus: "the simple fact of having to seek in language what you already have before your ears incites you to be more finely attuned to sounds."[131] This is similar to the 'cocktail-party effect' where "one screens out the sounds of conversation other than one's own. Still, if one's name is mentioned in a conversation one had screened out, one's attention

[129] Scott MacDonald, *A Critical Cinema* (Berkeley: University of California Press, 1988): 49.
[130] Chion, *Audio-Vision,* 25.
[131] Chion, *Audio-Vision,* 187.

immediately shifts to that conversation, showing that one must have had an auditory consciousness of what was being said."[132] In the piece, this auditory zooming in and out, focusing and unfocusing, therefore causes particular attention to be paid either to the speech of the voices or the sounds of the performance. Inducing imagery through text can therefore either hinder or enhance auditory or visual elements.

Utilising narrated commentary also serves this purpose in a varied manner. Frampton's work *Nostalgia* (1971) includes spoken commentaries heard before the described images are shown. This form of asynchronicity plays with temporality and forms moments of tension and release between narrator and viewer. This also occurs in the second section of *(frenetic silence)*, where the vocalised description is followed by an image flashed onscreen; this will either confirm or confound the viewer's imagined image, provoked by the spoken text. Frampton states that to have the ear in full parity with the eye is for sound to have a purpose, and involves a de-synchronisation of sound with the image,[133] playing with time and temporality.

10.3.2. Speech-to-text

Respeaking is a form of live transcription in which a subtitler repeats dialogue into a speech-to-text application. [134] Using real-time applications for speech-to-text transcription, all of the words spoken by the voices in *(frenetic silence)* are translated immediately into text that appears on separate screens on each side of the performance area. These applications, often used in live captioning broadcasted programmes

[132] David M. Rosenthal, "A Theory of Consciousness," in *The Nature of Consciousness: Philosophical Debates*, ed. Ned Block, Owen Flanagan, Güven Güzeldere (Massachusetts: The MIT Press, 1997), 743.
[133] MaternalHopi, "Hollis Frampton Documentary," MaternalHopi, Oct 1, 2016, accessed Feb 26, 2020, https://www.youtube.com/watch?v=u2K9-JPIPjg
[134] BBC, "How Subtitles Are Made – See Hear – BBC Two," BBC, Feb 9, 2011, https://www.youtube.com/watch?v=u2K9-JPIPjg

include Kaldi[135] (utilised by the BBC[136]), Dragon[137], Braina[138], and the web-based application used *in (frenetic silence)*, Web Captioner[139] Web Captioner works with Web Speech API, which is a segment of Web Audio, also utilised in *Typing An Email*. The transcribed texts thus form another configuration of visual content for the audience.

10.3.3. Storyboard to score: *Chase Scuite*

Chase Scuite is a scored piece for piano and two voices which forms the sixth section of *(frenetic silence)* (15:30, see Appendix 7). It depicts a film chase scene within the context of a musical suite, hence the name, which is still pronounced as 'suite' but plays on words by combining the first two letters of 'scene' with the last three of 'suite'. The piece follows a dramatic structure according to Freytag's pyramid (an analytical model of drama sequences):

1. Exposition: The polite way to ask to enter
2. Rising Action: The Wander
3. Climax: The Chase
4. Falling Action: The Anticipation
5. Resolution: The Drop[140]

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[135] "Kaldi," Kaldi, accessed Feb 17, 2020, http://kaldi-asr.org/doc/index.html
[136] "Research & Development: Speech-to-Text," BBC Projects, accessed Feb 17, 2020, https://www.bbc.co.uk/rd/projects/speech-to-text
[137] "Dragon Speech Recognition Software," Nuance, accessed Feb 17, 2020, https://www.nuance.com/en-gb/dragon.html
[138] "Artificial Intelligence (AI) Virtual Assistant Software," Braina, accessed Feb 17, 2020, https://www.brainasoft.com/braina/
[139] "Web Captioner," Web Captioner, accessed Feb 17, 2020, https://webcaptioner.com/
[140] Gustav Freytag, *Freytag's Technique of Drama: An Exposition of Dramatic Composition and Art* (London: Forgotten Books, 2017), 114-115.

The score is in the form of a storyboard, which can be read as a graphic score: it depicts events within the scene which the performer must interpret, musically. This combines practices of film and music into a new, score-based form of direction.

10.3.4. Errors

The speech-to-text application operates without context: it works directly through speech recognition technologies and Natural Language Processing to identify words and phrases. Inevitably, it makes mistakes. At 10:25-10:26, the piano player stokes the 'fire', the sound of which is created with baking parchment. The left voice says, "she fondles it" (the fire), but the text-to-speech transcription replicates this as "chiffon does it," before changing it to the correct transcription. Another example at 16:57 - 17:05 where the words 'inactivity' and 'whatsoever', spoken by the right voice, are transcribed as 'in activity' and 'what's the weather'. Context is therefore important in the transcription, narrative, direction, and correspondences of audiovisual works.

In *(frenetic silence)*, the credits are presented through a combination of subtitling methods: speech-to-text recognition and live typing. Live typing is another form of transcription that takes place during live broadcast: it is also known as live subtitling. Live subtitling occurs by a stenographer typing text live according to what is said, with the text immediately projected onscreen[141]. Such manual methods are prone to mistakes and typographical errors, which cannot be erased once broadcasted. With live typing, autocorrection causes unconventional words, or words that do not exist in that language, to be altered to the closest alternative. For example, in the credits, the last name of "lynette quek" is modified to "lynette quake" (28:32-28:35).

[141] Josie Ensor, "BBC's mangled subtitles anger viewers," *The Telegraph*, Oct 10, 2011. https://www.telegraph.co.uk/news/newstopics/howaboutthat/8816635/BBCs-mangled-subtitles-anger-viewers.html

The systems of *(frenetic silence)* are chosen such that mistakes will, at times occur, producing moments of ambiguity that can be comic or confusing, and exposing the overlaps and discrepancies in meaning and effect across the media.

10.3.5. Interpretation, re-creation, and communication

(frenetic silence) therefore involved devising a theatrical performance from the use of AD, CC, speech-to-text transcription, text and graphic scoring, narration, and performance. Simultaneous translation strategies were implemented and applied across the performance, acting on auditory, visual, and musical attributes, forming multiple overlapping interloops within the piece. *(frenetic silence)* includes: description of sounds, visuals, and music which are then transcribed into on-screen text; performance translated into sound, speech, and text; instruments and objects utilised as part of Foley creation; Foley implemented into performance; language, speech, and text translated into imagery, sounds and gestures; sounds translated into imagery; and image translated into sound. All of these relationships activate the multivalent perceptions and interpretative capacities of the viewers and performers.

Chapter 11. Work 8: *on-screen / off-screen*

To view: Work 8_on-screen_off-screen (video file)
To view: Work 8_on-screen_off-screen_Steppers (video file)
To view: Work 8_on-screen_off-screen_a slab of folly (video file)
To hear: Work 8_on-screen_off-screen (audio file)

on-screen / off-screen is a performance piece that examines concepts of sound in film. In particular, it explores the shared characteristics of musical performance and the post-production addition of sound to film, also known as Foley. *on-screen / off-screen*

is an ensemble piece in which the performers work with both instruments and objects. It expands the focus on Foley as a performative act, introduced in *(frenetic silence)*, and makes this the central concept and practice of the piece. In *on-screen / off-screen*, the act of performance inherent within the art of Foley is enhanced. Foley moves into the foreground through live staged performance. *on-screen / off-screen* is presented in this portfolio as part of a triptych, accompanied by the film *Steppers* – which is played at the start of the performance of *on-screen / off-screen*, but is also conceived as a stand-alone film in its own right – and the sound sculpture, *a slab of folly*. The film and sculpture further showcase Foley as a performative artform and as sound art, in different contexts. The commonalities and contrasts between on-screen and off-screen sound and performance are examined.

Foley is a specific instance of Chion's notion of synchresis where there is a "spontaneous and irresistible weld produced between a particular auditory phenomenon and visual phenomenon when they occur at the same time,"[142] forming an audiovisual correspondence.[143] However, synchresis is contingent upon the sound and image sharing certain characteristics: the process of Foley creation explores and exploits these relationships, and this is the focus of *on-screen / off-screen*.

As explained in the previous chapter, Foley is the art of performing sound effects to synchronise with movement on screen. It comprises three main categories: feet, moves, and specifics[144]. *on-screen / off-screen* is structured according to these categories. In "Feet", Foley artists examine and recreate sounds that are heard or induced from footsteps. The sounds are produced according to the speed of the foot

[142] Chion, *Audio-Vision,* 63.
[143] Chion, *Audio-Vision,* 224.
[144] David Lewis Yewdall, "The Art of Footsteps, Props, and Cloth Movement," in *Practical Art of Motion Picture Sound*, 4th ed. (Waltham, MA: Focal Press, 2012), 425-463.

movement and the materiality of the footwear on the surfaces seen onscreen. "Moves" focuses on subtle sounds that bind actions together and that make the film scene seem more natural. This includes the swishing of fabric, rubbing of hair, scratching of skin – sounds that are mostly exaggerated when zoomed in on camera. "Specifics" consists of other sound effects, diegetic or non-diegetic. On-screen sounds are sounds that accompany objects that are evident to the viewer. Off-screen sounds are background sounds produced by objects not visible in the on-screen image, or that continue when the linked action moves off-screen.

The performance of *on-screen / off-screen* is developed from an instructional score (see Appendix 8), as well as through conversations, workshops, and rehearsals with the performers.

11.1. *on-screen / off-screen*: Foley as performance

11.1.1 Feet

The first section of *on-screen / off-screen,* "Feet", begins with the film *Steppers*, made entirely from footage of footsteps, shot in close-up. This precedes the main body of performance work. Collaging various film clips together, a narrative is formed from the feet footage, from the start to the end of the film. The clips were carefully edited and organised according to the speed, direction, sound and shot position of the films of the feet movements. The films of filmmaker Quentin Tarantino, known to possess a foot fetish[145], formed the starting point for the film selection process. *Steppers* presents a narrative dialogue between pairs of feet walking towards the left and right

[145] Adam White, "Quentin is a toe man: the bizarre history of Tarantino's foot fetish," *The Telegraph*, Aug 7, 2019, https://www.telegraph.co.uk/films/0/quentin-toe-man-bizarre-history-tarantinos-foot-fetish/

of the screen, with various interventions. Accelerating throughout before slowing down at the end, the film narrative also follows the position of the camera in relation to the feet movements.

This is reminiscent of video works by Christian Marclay. In *The Clock* (2010), *Crossfire* (2007), and *Telephones* (1995), scenes from extant films are collaged to form a linear narrative that expresses a main theme – time, violence and communication, respectively. Although the main medium is visual, rhythm, form, and composition are explored in these works in such a way as to engage the auditory imagination. Exploring sound through video exposes the hybridity of experience and practice processes across film and music, again highlighting the common attributes set out in the previous chapter (see Table 1, page 110). In contrast to Marclay's works, *Steppers* generates multiple conversations between the pairs of feet, rather than continuous action from a single perspective. The conversations occur not only in the counterpointing of movement, but also in the sonic and visual textures. The effect of the original soundtrack is accentuated during the transitions between takes, where lyrics, melodic motifs or harmony are linked in. The texture of the footwear, tint of the film image, appearance of surrounding objects, and background sounds were therefore all taken into consideration during the collaging and compiling of *Steppers*. The sequence in *Steppers* also follows the structural progression of Freytag's pyramid (see pages 128). The end of the film forms a loop back to the start, making it suitable for continuous presentation in its own right.

In the performance, the first section, "Feet", comprises *Steppers*, followed by the first part of the performance action: after the film, the performers enter, each inhabiting a character (05:09). They move across the performance space, carrying their musical instruments and using them to put sound to their own footsteps. The

choice and articulation of sounds takes note of the character's attributes – type of footwear, weight, awareness of space, speed of movement – and the type of activity they are engaged in. The foot movements and sounds of the performers therefore differ in timbre, speed, and intensity. Once the full group is in the performance space, the audience's focus therefore becomes more scattered, either focusing on individual performers or across the whole performance; the image-sound association can be directed or diluted, depending on each audience's perceptual focus. Likewise, the performers soon start to build interactions in duets or in groups, altering their initial foot sounds according to the effects of the interactions. This forms multiple dialogues within a contained space, while also manifesting the coherent audiovisual language across the space.

11.1.2. Moves

After a brief transition, the second section, "Moves" starts with very small physical gestures made by the performers, standing in line, away from their musical instruments: any performer can initiate an action, then copied by the performers alongside them and eventually by the whole group, as a collective action (13:23). The actions are derived from everyday activities; reaching for a cup, bending down, looking at a watch, sneezing, and so on. Unable to look at each other directly, the performers take cues for their mimicry from their peripheral vision, as well as whatever sounds they hear from the movements. Due to the distances between some performers, the sounds and actions formed inevitably differ in speed (due to response lag time), emotion, intensity, and direction.

Everyday, unnoticed sounds are accentuated in this section: the sounds of arms rubbing against cloth fabric when reaching for a cup; the slight stretching of jeans or

knees cracking when bending down; a different form of fabric swish when raising the arm to look at the time; the sounds of fingers rubbing the nose when sneezing – these are all examples of zoomed-in sounds exaggerated in film. However, without such background noises, film scenes would seem unnatural, unrealistic, and intermittent.

11.1.3. Moves-Specifics transition

"Moves" builds in intensity and the use of space expands, until the performers break off from these activities, having attained maximum velocity and dynamics in their actions (17:45). In contrast, the performers now move in slow motion across the space in their original characters from the "Feet" section. Details of their movements are either omitted or exaggerated due to the slow motion, and unintentional sounds are produced due to the resulting instability of balance. The rate of change in viewer focus therefore decelerates, and it is possible to zoom in on an individual performer, remembering their earlier movement and comparing its current characteristics with those at the very beginning. Without instruments, only the movement sounds are heard; this continues from the "Moves" section, and so ordinarily hidden slow-walking noises are intensified. This produces a different outcome from the "Feet" section, where every footstep sound was intentional and purposeful; the slow motion reveals the presence and necessity of overlooked sounds.

The performers move outwards towards the borders of the performance space to collect their boxes of objects for the next section.

11.1.4. Specifics

The third section, "Specifics", involves sonic representation of aspects of a film scene, utilising objects different to those in the film. When we listen without having a

concrete image of the sound source, different associations are produced in the imagination. To prepare for this part of the performance, each performer chose a film scene that is particularly memorable to them, then identifying elements within the scene for which they would create Foley, each assembling a box of objects to use for the sounds

The Foley might be prompted by the visual image, by sounds heard in the original scene, or by dialogue occurring within the scene. However, any dialogue was to be replaced by "Wallas": walla is ambient crowd noise that imitates "background murmuring of actors in scenes… restaurant scenes, outdoor scenes, and any scenes where a lot of actors are located."[146] Walla is recorded by several actors murmuring "walla walla" continuously, forming a drone of voices in which words are not recognisable. Other than "walla", actors sometimes use other words, including "rhubarb", "peas and carrots", "watermelon cantaloupe", and also "natter natter" – the latter always provoking the response "grommish grommish".

Foregrounding the performance characteristics of Foley, the performers simultaneously act out their scenes and create Foley sound effects for it, using the objects in their boxes. Visual and performance artist Joan Jonas notes that performance art facilitated a shift beyond the boundaries of established performance disciplines, with "the possibility of mixing sound, movement, image, all the different elements to make a complex statement".[147] This happens in *on-screen / off-screen*: this piece is perhaps the closest to performance art of any in the portfolio, combining practices of film, experimental sound making, live art and physical theatre.

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[146] Woody Woodhall, *Audio Production and Postproduction* (Ontario: Jones & Bartlett Learning, 2011), 186.
[147] Michael Rush, *New Media in Late 20th Century Art* (New York: Thames & Hudson, 1999), 42.

The performers spread out across the stage, place their boxes on the floor, remove the objects, position them around their box, step inside the box, and perform while standing, restricted, in the box (19:05). This is a version of the Foley stage (see page 117), but in this case a confined area situated within a public stage. Where *(frenetic silence)* focused on the creative exploration of methods of describing and portraying sound, situating acts of Foley as performance art forms the core of *on-screen / off-screen*. In the fourth section of *(frenetic silence),* the piano player doubles up as a pianist and Foley artist to create sounds for objects, but in *on-screen / off-screen*, all performers are Foley artists; even when musical instruments are used, their function is to create Foley. Likewise, all the gestures of the piece are generated with the intention of sound creation: sounds are the priority in this form of performance art.

11.1.5. Ending

The first performer to complete their scene heads to the back of the performance venue, behind the audience. (22:39) The second performer to complete then moves to the front of the stage, picks up a prepared shotgun spot microphone, and puts on a pair of headphones, acting as a boom operator (22:47). This performer then acts as if recording the remaining performers, who are still finishing their scenes. One by one, the remaining performers complete their scenes, head to the back of the stage and stand still, back to the audience. Once the last Foley performer is in position, the boom operator shouts towards the first performer, who now takes up the role of a recording engineer.

Boom: “How’s that?”

Engineer: “Well done, good take!”

The performance ends in an ambiguous manner: has a performance just occurred within the constrained recording studio in which Foley was once situated, or was this an actual performance event? The resituating of spaces in this section highlights the post-production process of Foley, shifting Foley from a behind-the-scenes art into a performance act. The audience are potential recording engineers, imaginatively producing the visual scenes for the Foley, in their heads, rather than simply watching a performance of sounds. Moreover, due to the focus on the everyday sounds, often unacknowledged and often the result of small, everyday gestures, any accidental sounds made by the audience – coughs, laughs, movements in their seats and claps – all contribute to the Foley action during the actual performance. The audience are Foley artists, too, and the performance venue is now incrementally transformed into an expanded and extended Foley stage.

11.2 Sound sculpture: *a slab of folly*

Situated outside the performance space is the sound sculpture *a slab of folly*, which encapsulates the three categories of Foley into a singular kinetic object (figure 35). The sound sculpture, comprising sound-making objects driven by motors, is arranged in three rows, corresponding to the three categories of Foley: the top row represents "Feet", the middle "Moves", and the bottom "Specifics". The motors move at random, constantly forming different combinations of sounds from the three categories. For "Feet", there are replications of wooden flooring, grass, and carpet. For "Moves", different fabrics are rubbed against each other, including ripstop fabric, woven material and leather. For "Specifics", impulses are triggered which cause the striking of a plastic cup, the spinning of a fan and the ringing of a bell.

At first glance, the sculpture might seem like a nonsensical combination of objects and motors – hence its name. Utilising sound as a visual trigger, the sound sculpture provokes viewers to conjure visual imagery based on the combination of sounds produced. Various forms of audiovisual synchrony might thus arise in the minds of the viewer, depending on the instances experienced. They might imagine different events or situations as the causes of the sound combinations. Demonstrating Foley as a tangible art form, this draws us back to the physicality and materiality of Foley in film. *a slab of folly* condenses the notion of Foley making into an object of display.

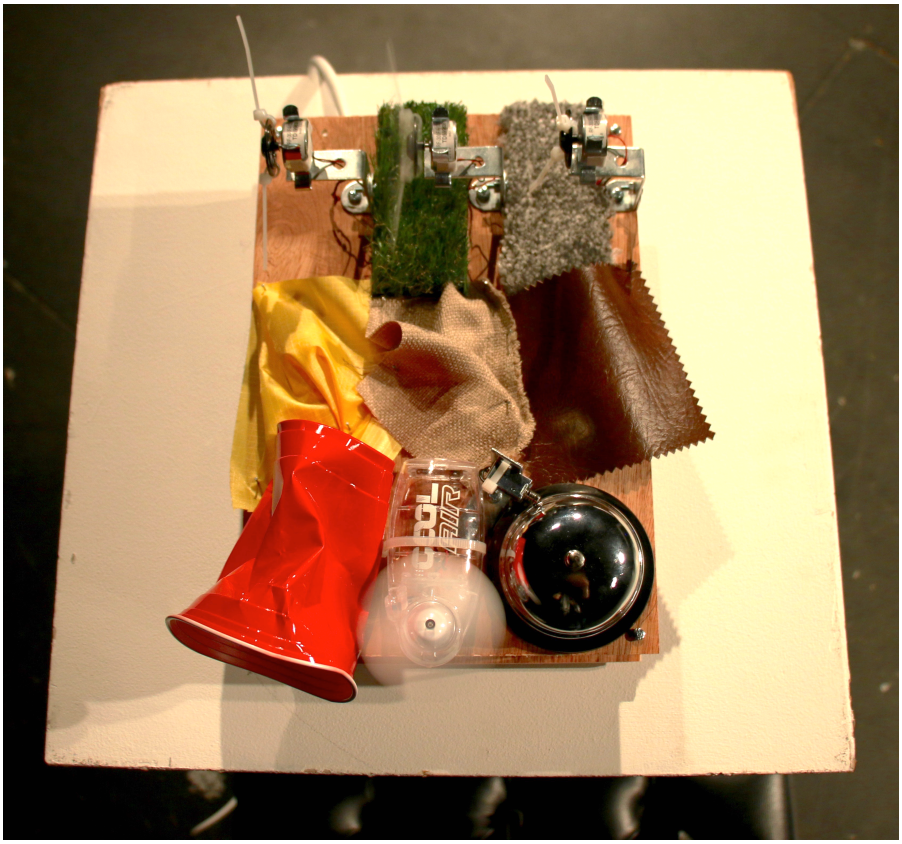


Figure 33: *a slab of folly* sound sculpture

11.3. Foley as acousmatic music

Above, and in *on-screen / off-screen*, I situate Foley in relation to the characteristics of performance art: that formed the core of the creative conceptualisations of this project. However, Foley could also be seen as a form of acousmatic composition, as defined by Pierre Schaeffer: composition in which the sound is "heard without the causes from which it comes being seen."[148] Acousmatic composers emphasise the sonic qualities and characteristics of sounds.[149] Chion notes that "off-screen sound in film is sound that is acousmatic."[150] Acousmatic compositions, similarly to Foley, often utilise sound recording technologies to facilitate in the creation and production of the work. At the end of *on-screen / off-screen*, the post-production recording process is demonstrated, physically realised. After Foley sounds are recorded, they are often processed and synchronised to the on-screen image, providing an auditory layer to accompany the on-screen image. However, presented alone, Foley soundtracks could also be heard as a form of acousmatic composition.

Listening to Foley in a film context, the auditory experience is based on the combination of textures and the intensity of performance, but we follow a sequence of events without knowing the original sources of the sounds. The on-screen image acts as a kind of visual score for the Foley artist and viewers to follow. Taking away the on-screen image presents the sounds without concrete context, provides a different experience. In this portfolio, in addition to the performance film, the audio of *on-screen / off-screen* is extracted and presented as a form of acousmatic composition,

[148] Pierre Schaeffer, *Treatise on Musical Objects: An Essay Across Disciplines,* trans. Christine North and John Dack (California: University of California Press, 2017), 64.
[149] Marc Battier, "What the GRM Brought to Music: from Musique Concrète to Acousmatic Music," *Organised Sound* Volume 12 Issue 3 (2007), 189-202.
[150] Michel Chion, *Audio-Vision,* 73.

combining elements of pre-recorded materials (from the film Steppers) and the live performance [151] . *on-screen / off-screen* now exists (also) as a five-movement acousmatic composition that includes the film audio at the beginning and the audience claps to finish. The additional sounds of the film and audience are retained in the recording to incorporate the notion of the expanded Foley stage and medium. Without any visual associations, we might hear the recording of the audience clapping as the slap of sea waves, or the pattering of rain. Volume adjustments are applied to the recording of the section "Moves" to accentuate the replication of fabric sounds in film. Zooming into these intricate sounds with precise use of camera angle and focus, unnoticed sounds resurface and are made evident to the viewer. Likewise in recording practices, we exploit the same kinds of control, homing in on features of a sound for particular effect.

The audio of the performance of *Chase Scuite* from *(frenetic silence)* was also extracted and is likewise presented in this portfolio as an audio piece[152]. Both audio recordings demonstrate the non-physical aspect of Foley.

11.4. Foley as sound art

From this survey of sound art practices, Alan Licht reaches a definition of this term as "site- or object-specific works that are not intended as music per se but is often a catchall for any kind of piece, be it music or an artwork, that experiments with sound."[153] Of course, artists define sound art somewhat variously, but fundamentally the medium that combines both sound and art can encompass a wide variety of creative work.

---

[151] *To hear: Work 8_on-screen_off-screen (audio file)*
[152] *To hear: Work 7_(frenetic silence)_Chase Scuite (audio file)*
[153] Alan Licht, *Sound Art: Revisited* (New York: Bloomsbury Academic, 2019), 1.

Within this broad scope, *on-screen / off-screen* demonstrates the integration of sounds, noises, and image – actual and imagined – across the triptych. Foley, a practice originally situated outside of the realm of music and sound art, in the context of film, television, and radio, has now expanded outwards into a different context and presentation space: Foley is thus established as an audiovisual art form.

on-screen / off-screen demonstrates the convergence of sound and image practices, presented as a combined entity. The piece allows sound and image to latch on to each other in different ways – in the space of performance, in terms of what we see and hear, but also in the minds of the audience, when the relationships are not always explicit – each responsive to changes in the other, and creating a continual, interlooping audiovisual dialogue.

Chapter 12. Conclusion

This portfolio presents a series of creative works that in different ways – through different artistic processes and different media – explore the nature of audiovisual interaction. It represents a process of practice research, examining possible forms of audiovisual coherence and disruption, leading to outputs in a range of forms: fixed medium video, live performance and its documentation in film, web and software applications, sound sculpture and scores. While the resulting creative work is therefore diverse, the practice research process as a whole was iterative; concepts, questions, themes, and processes often reappear across the portfolio, examined in different ways, expanded upon, or developed in new contexts in later projects.

Some of the work was developed by initially, carefully and explicitly, working with the audio separately from the visual, taking one of these as the starting point. For

example, *Silent Film* and *The Giraffe Race* both involved the initial creation of visual material that was then used as the basis for the production of sound. In contrast, *RESONANCES* and *Recordeur I-II* are examples of works that started with audio composition, with the visual elements developed later, in response. Despite the parallels between works in each of these two approaches – the visuals provoking the audio and vice versa – the pieces of each kind employ very different processes of induction or translation between media.

Some of the projects – especially the later works – explore more integrated processes of creation, in which neither the audio nor the visual was fully established before the other was in process. This is the case with the final three substantial works (*-ect -act*, *(frenetic silence)*, and *on-screen / off-screen*), but was also sometimes inherent to digital (and sometimes generative) processes of making: in **& interlooping* for example, the audiovisual correspondences are built into the process of interlooping data, which incorporates interferences between the sonic and visual elements out of which new material is constantly created.

Beyond the question of starting points, many of the works in this portfolio draw out the audiovisual relationships as a form of dialogue; a continual interaction in which audiovisual interlooping occurs. This comprises a continual process of exchange and transformation within and between the media, one in which the creators, performers, audiences, and spaces all play a role. The interloop is where experiences and interactions of the audio and visual elements are shared and fed into each other, where practices and processes converge. Sometimes this leads to forms of melding and coherence, but sometimes to productive clashes and contrasts, even to contradiction and disunity – as in *(frenetic silence)*, for example, when the filmic, performative and textual layers of narrative produce interfering audio and visual experiences, drawing

the audience into an active interpretative role. Overall, then, the interlooping dialogues of the portfolio exist in the materiality of the works and between those agents involved.

Hierarchies are examined throughout the portfolio: this is evident in the chapters examining the artistic outcomes, but was an important part of the creative process. It manifested in the individual working processes, at the level of material but also in the collaboration and performances: this is particularly apparent, for example, in the critical discussion of *-ect -act*.

The portfolio works include different modes of presentation, across different platforms and spaces. For example, with the first set of studies (*Flicker, Screen Noise, Moving Fences*), the application of fixed media presents audiovisual works within a self-contained environment. However and wherever these pieces are presented, the focus is fixed within the projection area, but with different approaches to how the sound is produced and received. In contrast, works such as **& interlooping* open up the context: this work operates as a versatile installation that can be variously presented – as a software application on a laptop or projected on a screen, with any chosen method of audio distribution.

The second set of studies (*Silent Film*, *The Giraffe Race*, *On the Sensations of Tone II*) introduce live performative elements into the creative process, building the perceptions of participants, manifested as their response in performance, into the making of the pieces. Subsequent pieces often include similar creative processes but also increasingly use performance as the mode of presentation, situating makers as performers in different ways. *On the Sensations of Tone II* gives the visual creator a performative role, using a personal customised interface to facilitate live visual performance at the laptop.

Typing An Email situates the audiovisual creator fully as a live audiovisual performer, typing at the laptop keyboard, while in *-ect -act* the role of visual creator is performed within a setting otherwise more like a music performance. The final works, *(frenetic silence)* and *on-screen / off-screen* draw film into a fully performative context: scrutinising, creating, and re-creating the various elements of film sound and their translation and interpretation into text, whether spoken or projected on screen.

With sound performers and/or visual performers present onstage in various ways in these pieces, the collaborative processes begun in devising workshops and rehearsals make their way into the performance. Moreover, having this intention in mind from the start of a process towards a piece always affected the ways in which it developed. Chion's notion of added value is, in this way, explored and manifested in the various works. The outputs not only represent a form of added value in both elements of audio and visuals, their correspondences and projections onto each other reflects on the audiovisual relationship and the outcomes of the works, creating an audiovisual interloop that binds elements together.

This exploratory, creative research, across different artistic processes, forms and technologies, shows different manifestations of audiovisual interlooping, in which the audio and visual elements continually affect and feed back into one another, spinning out into the space of reception, to the audience.

Appendices

Appendix 1 – *Recordeur I-II* Score

Recordeur I-II

for Electroacoustic Alto Recorder in E & Electronics

Lynette Quek

In collaboration with
Carmen Troncoso

2016 - 2017

Originally created as a fixed audio electroacoustic piece.

ABOUT

Created in close collaboration with Recorder performer Carmen Troncoso during 2016-2017.

DURATION: c. 09 Minutes 09 Seconds

Available formats:
Electroacoustic (Audio) performance piece ; Stereo / .wav
Electroacoustic (Audio) full piece ; Stereo / .wav
Audiovisual (Video & Audio) performance piece ; Stereo / .mov
Audiovisual (Video & Audio) full piece ; Stereo / .mov

PERFORMANCE INSTRUCTIONS

Recorder performer to react to audio playback, and/or to the visuals, presented in the audiovisual format, as forms of different graphic scores.

EQUIPMENT

Electroacoustic: Laptop for audio playback, Stereo Speakers with Subwoofer (2.1 audio system)
Audiovisual: Laptop for audio and video playback, Stereo Speakers with Subwoofer (2.1 audio system), Projector & Projection Screen ; with miscellaneous cables and adaptors for audio and video output.

CONTACT

Lynette Quek: lynettequek@hotmail.com / Singapore
Carmen Troncoso: troncosocarmen72@gmail.com / Chile

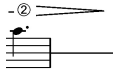
GLOSSARY FOR ELECTROACOUSTIC RECORDER

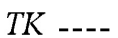
 = sound mixed with air (airy timbre)

 = add humming, sing into the recorder

= alternative fingering

 = lip tremolo (using index finger, partially covering over edge of lip)

 = fingering changes to decrescendo (leaking fingers technique)

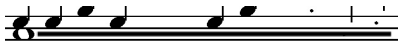


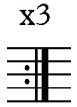
= produce and articulate saying "TK"

 = could be chosen to play or not to be played

 = glide to unpitched note

= produce and articulate rhythmically saying "LU"

 = maintain held note, while playing melodic notes

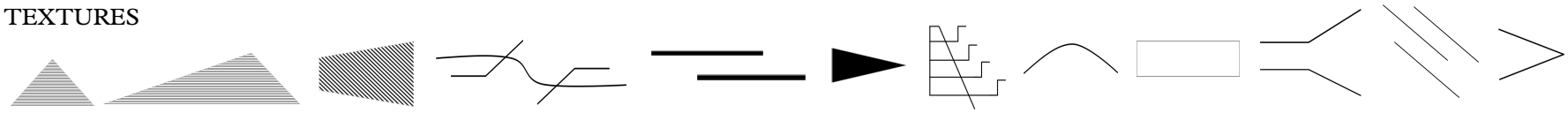


= repeat thrice

TIMINGS

00:00 = Indicating timing during piece

TEXTURES



EFFECTS

Delay

Swell

MOTIFS

Melodic

Rhythmic

SOUNDS

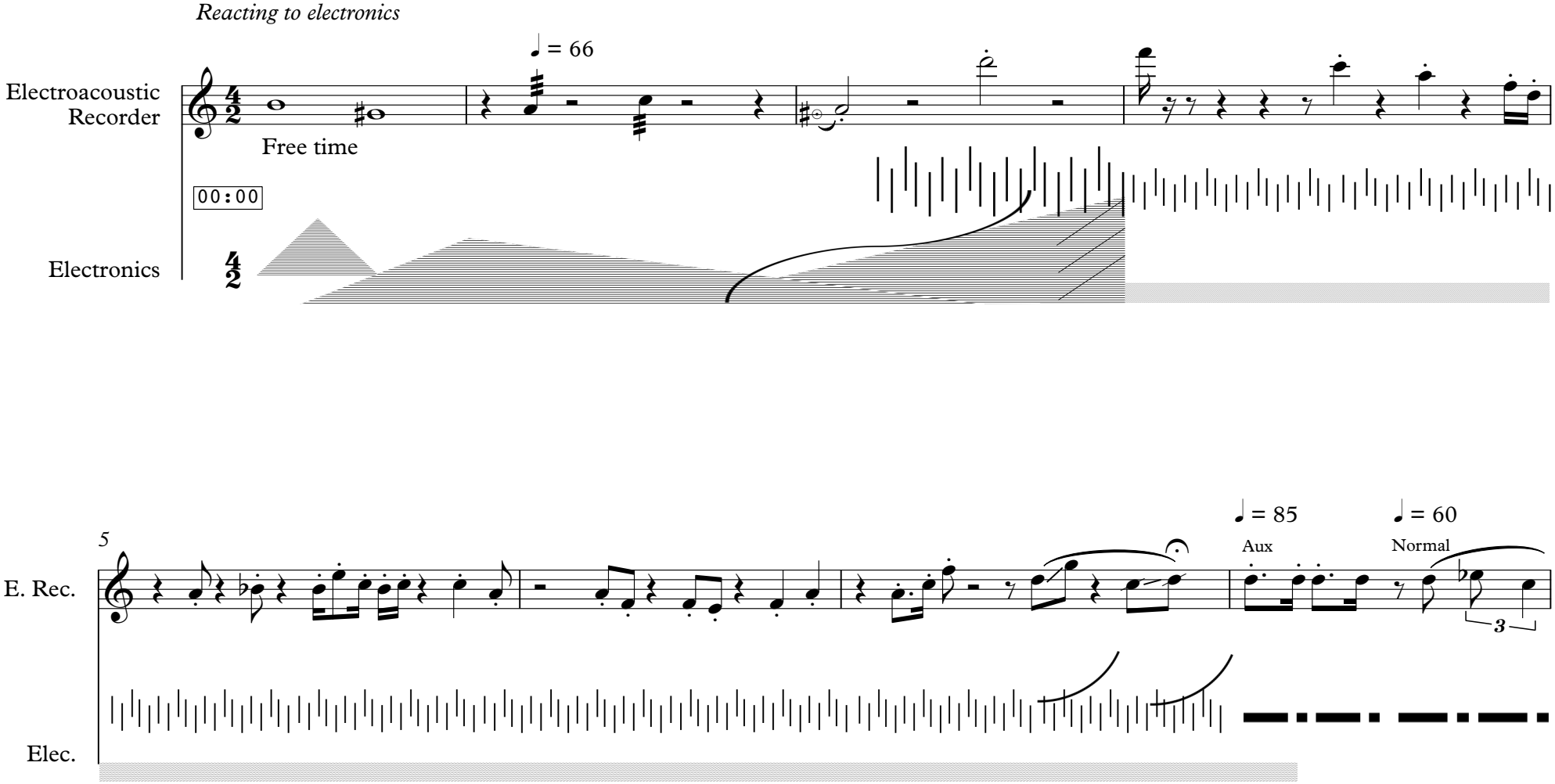
Beats

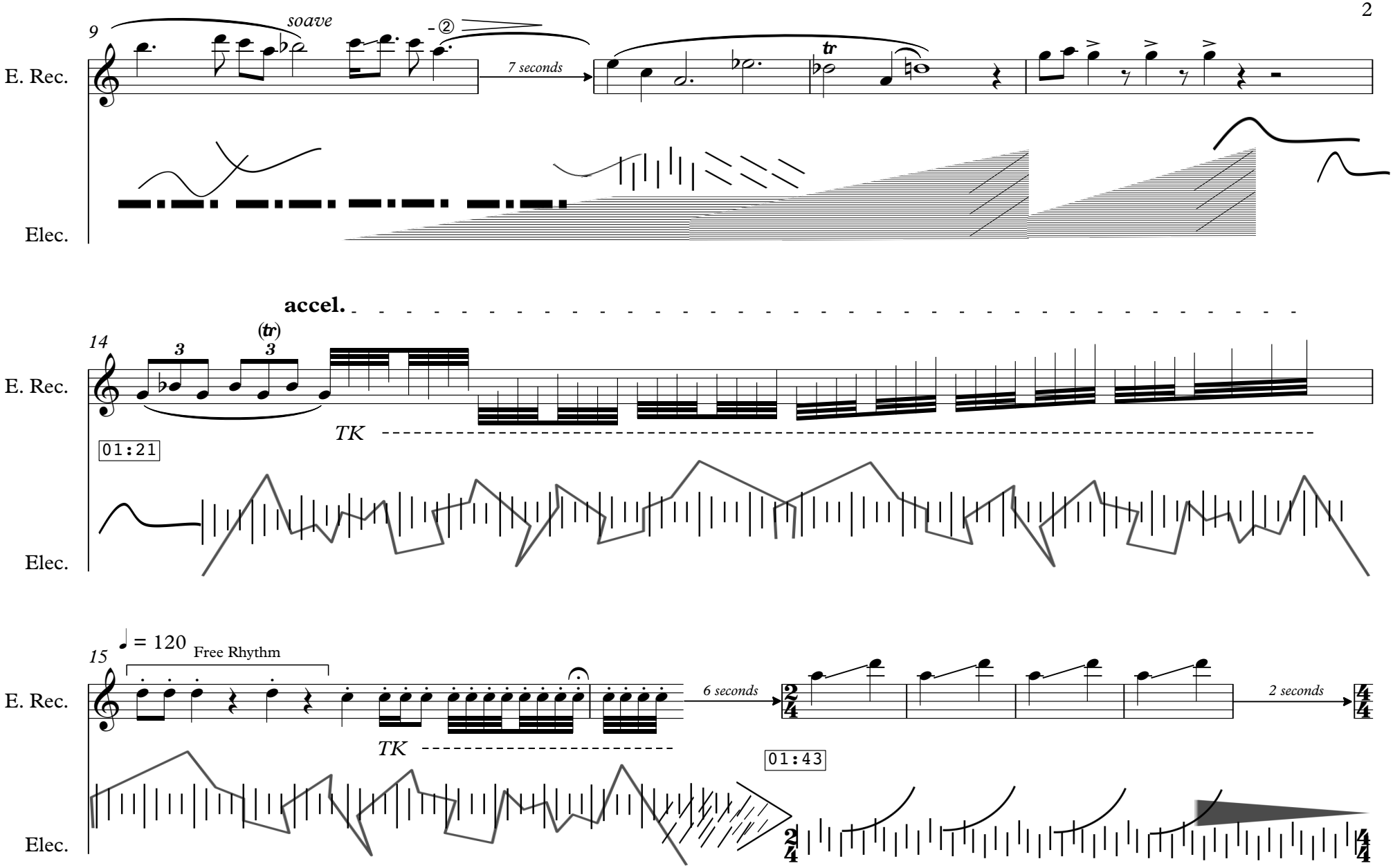
Glitch

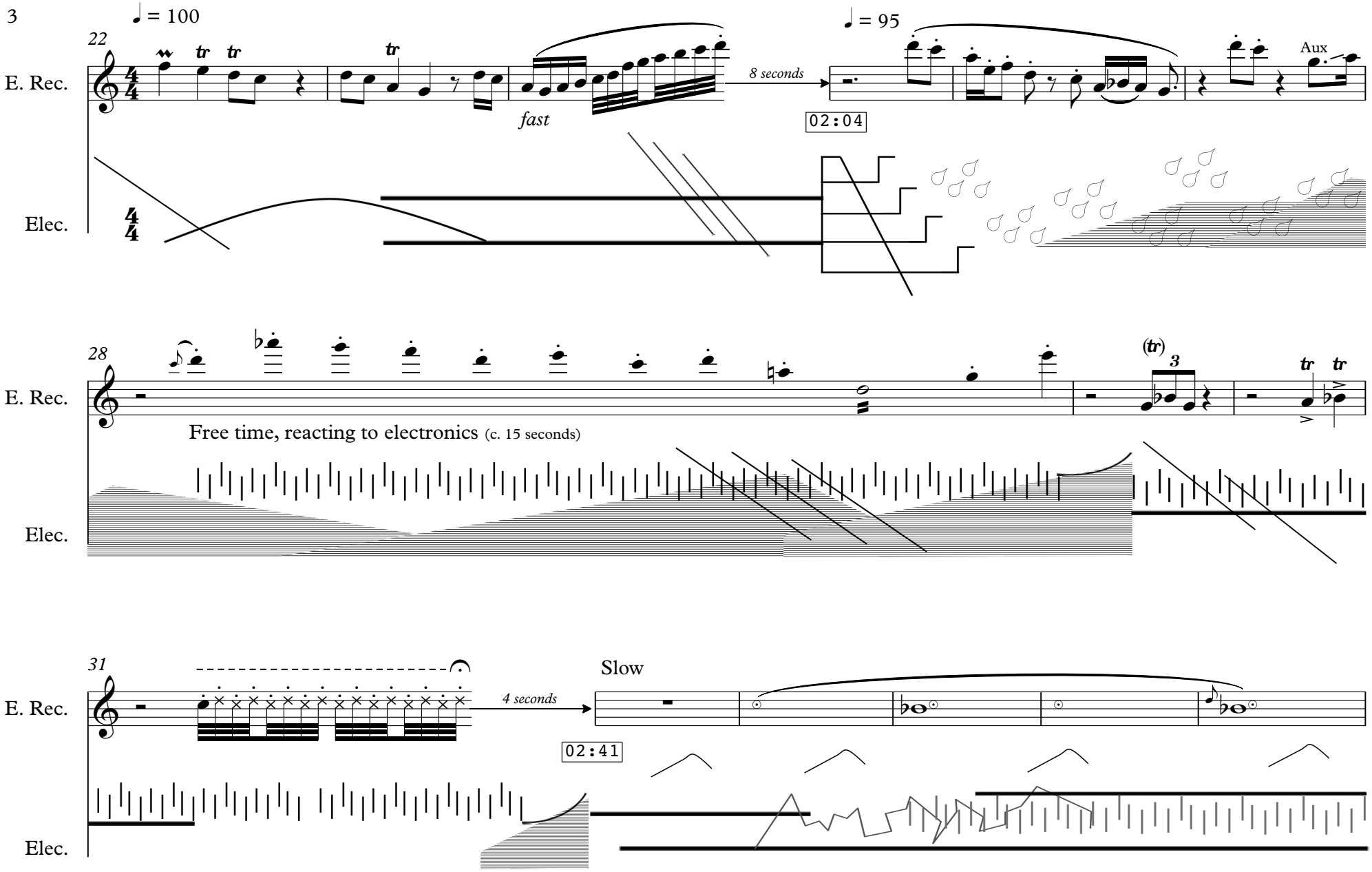
Noise

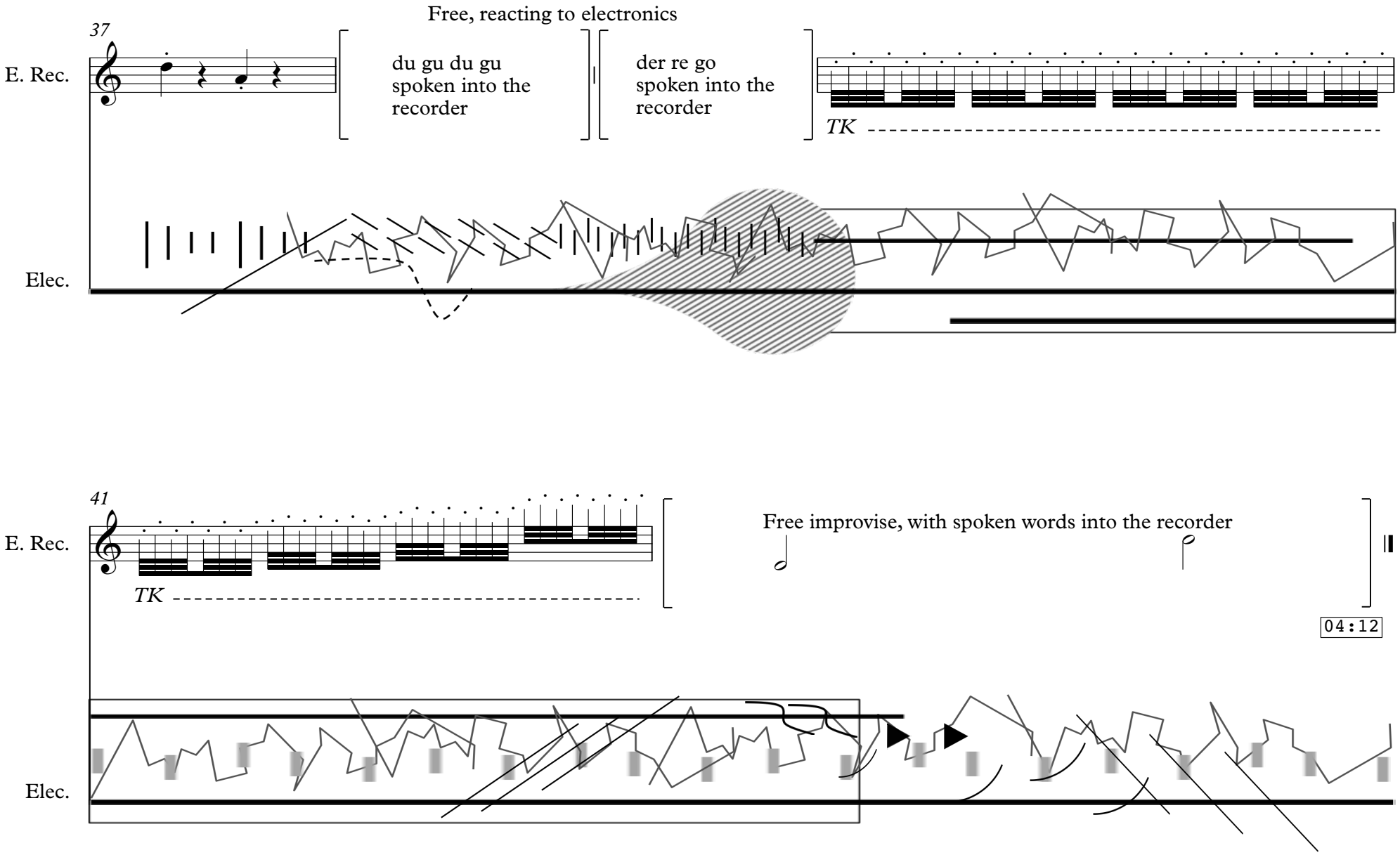
Recordeur I

Lynette Quek
2017




9
soave
- ②
7 seconds
tr
E. Rec.
Elec.
accel.
14
3
(tr)
3
TK
01:21
E. Rec.
Elec.
15
= 120
Free Rhythm
6 seconds
2 seconds
TK
01:43
E. Rec.
Elec.

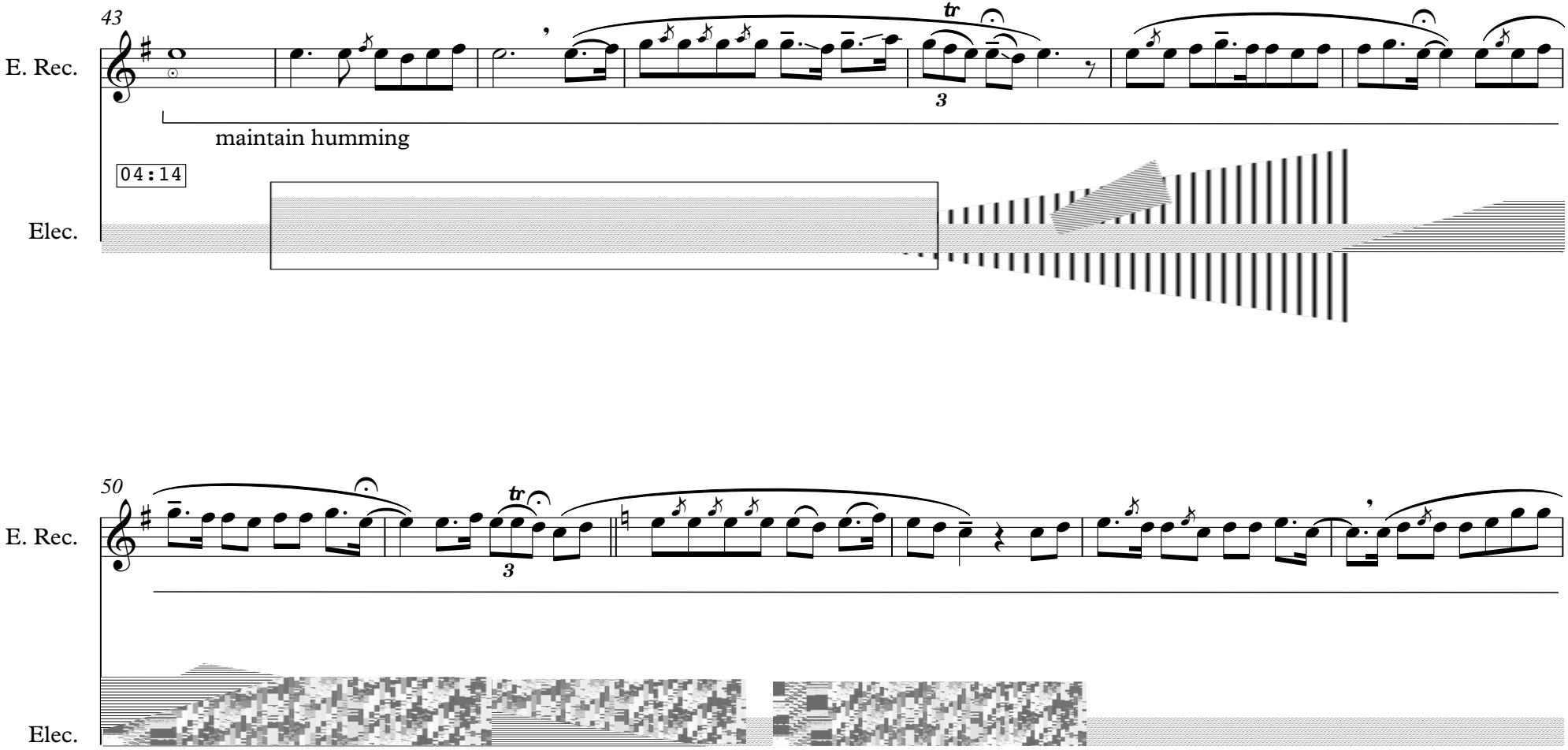

3
22
♩ = 100
E. Rec.
Elec.
fast
8 seconds
02:04
♩ = 95
Aux
28
Free time, reacting to electronics (c. 15 seconds)
31
4 seconds
Slow
02:41

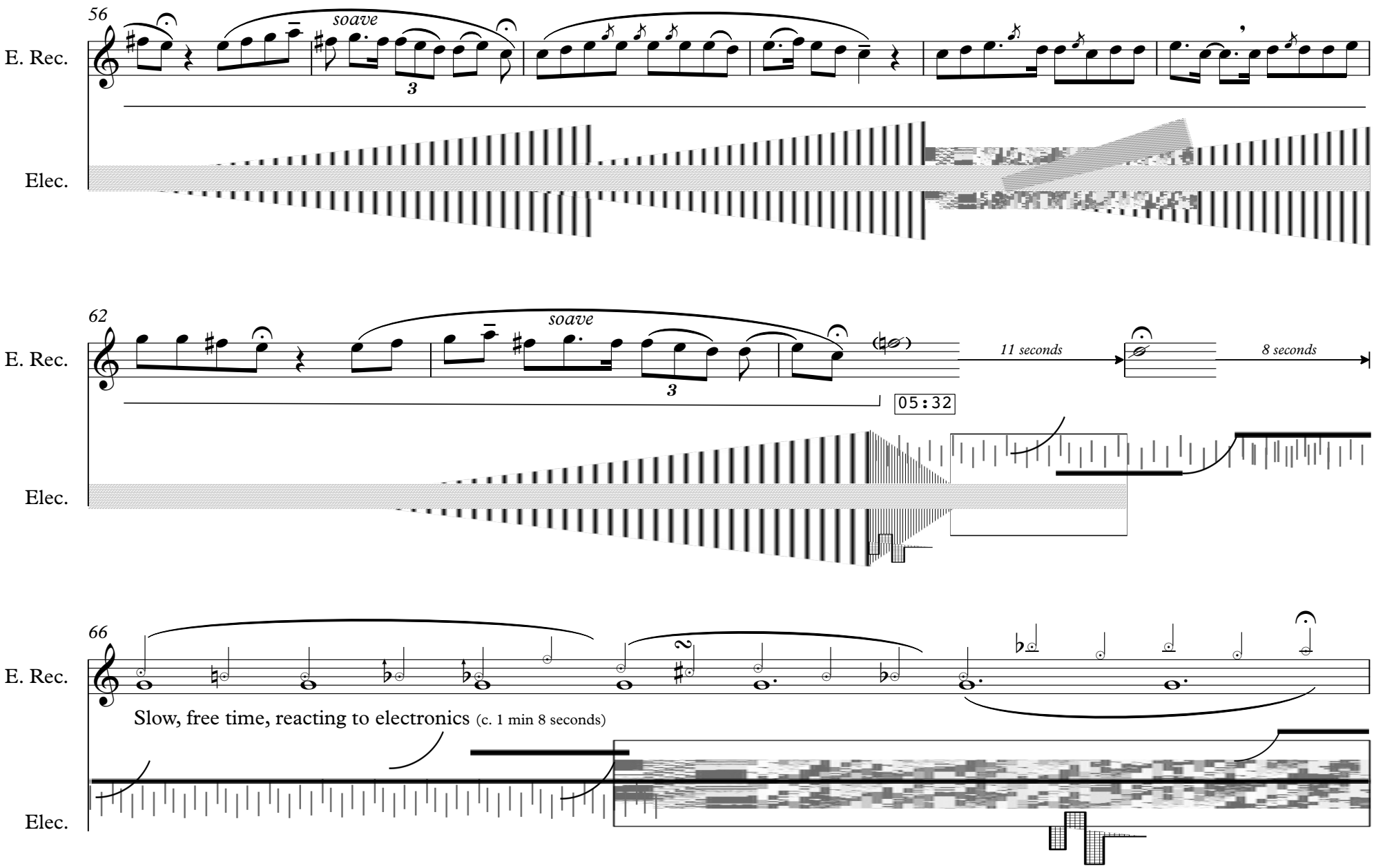

Free, reacting to electronics
37
E. Rec.
du gu du gu
spoken into the
recorder
der re go
spoken into the
recorder
TK
Elec.
41
E. Rec.
TK
Free improvise, with spoken words into the recorder
04:12
Elec.

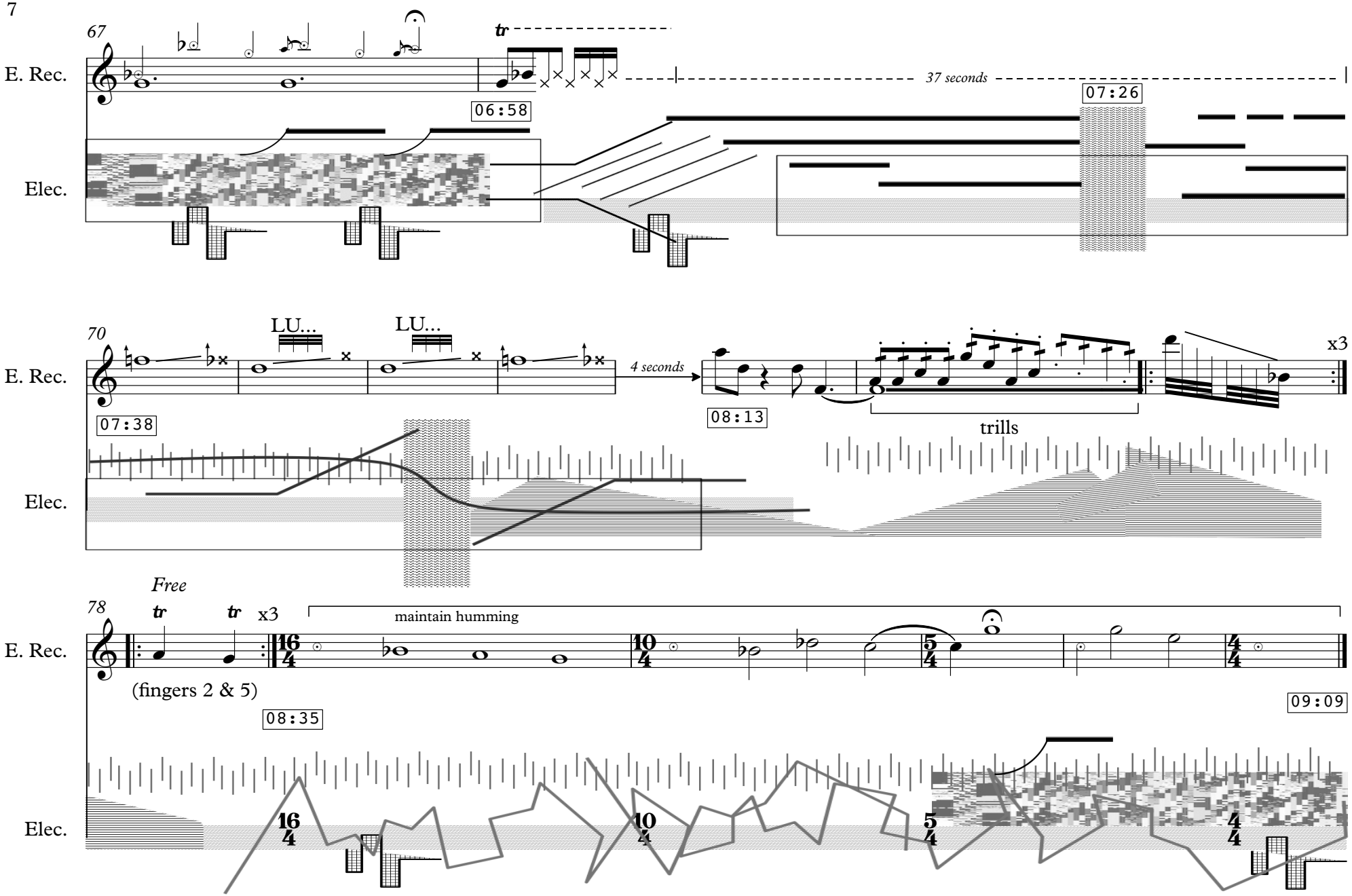
Recordeur II

Lynette Quek
2017

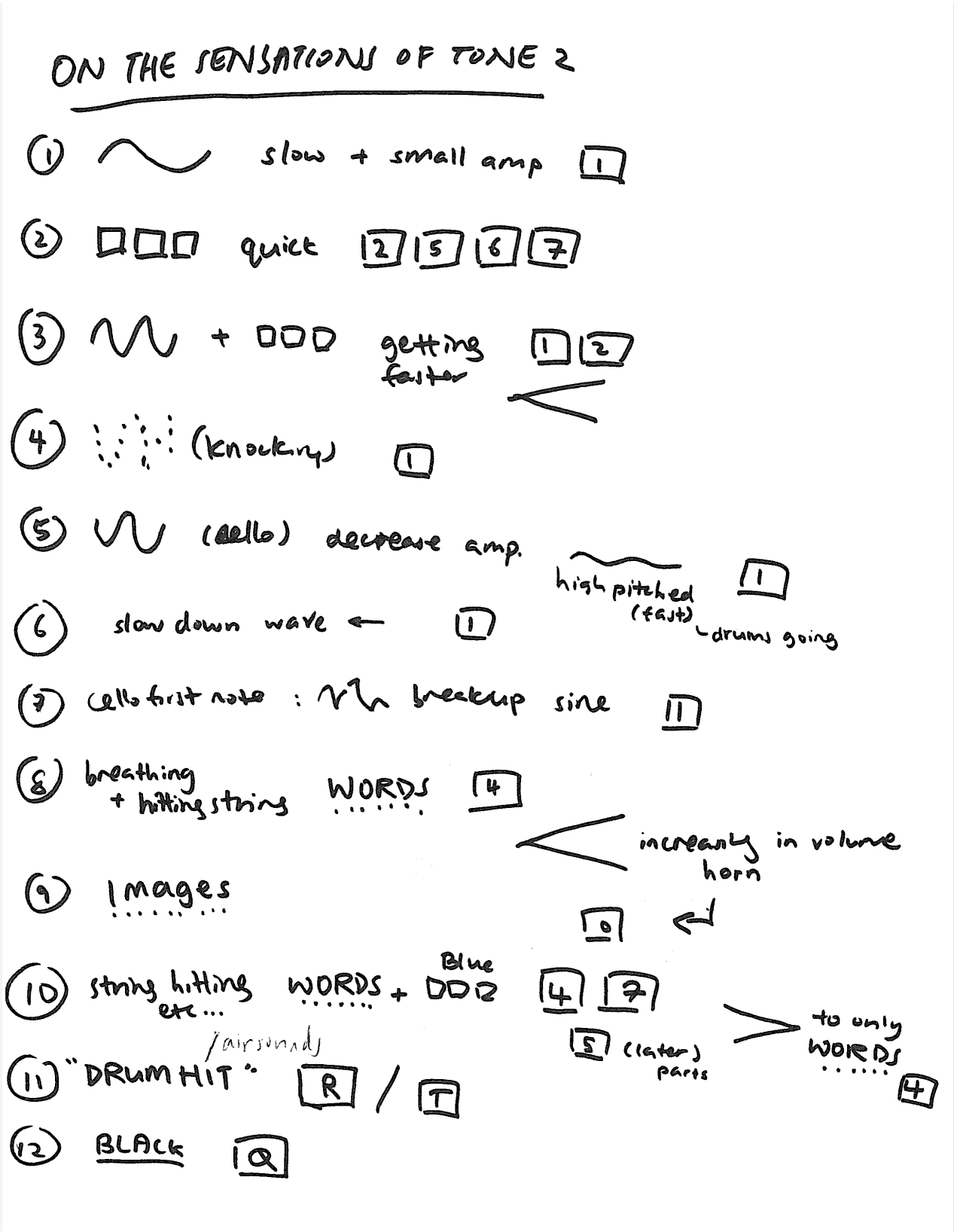
Free, reacting to electronics




56
soave
E. Rec.
Elec.
62
soave
11 seconds
8 seconds
05:32
E. Rec.
Elec.
66
E. Rec.
Slow, free time, reacting to electronics (c. 1 min 8 seconds)
Elec.


67
tr
E. Rec.
37 seconds
06:58
07:26
Elec.
70
LU...
LU...
E. Rec.
4 seconds
x3
07:38
08:13
trills
Elec.
Free
78
tr
tr
x3
maintain humming
E. Rec.
(fingers 2 & 5)
08:35
09:09
Elec.

Appendix 2 – *Sensations of Tone II* Score



Appendix 3 – *Typing An Email* Text

Text for performance at Wharf Chambers, Leeds. 27th November 2018.

crossover	sync	type	induce	vocabulary	read
multiple	async	literal	unsure	converse	hear
coherency	purpose	error	possible	code	speak
triple	points	continuity	emphasis	trigger	contain
self	produce	tangible	make	doing	plex

Shwerner's *The Tablets* (1971):
min-na-ne-ne Dingir Eri-lil-ra mun-na-nib-gi-gi
uzu-mu-a-ki dur-an-ki-ge

Schwitters *Ursonate* (1932)
Fumms bo wo taa zaa Uu,
pogiff,
kwii Ee.
Ooooooooooooooooooooooooo
Dll rrrr beeeee bo
Dll rrrr beeeee bo
rrrr beeeee bo fumms bo,
rrrr beeeee bo fumms bo wo

Stein *Two: Gertrude Stein and Her Brother* (1912)
In saying what she said she said all she said and she said that she did say what she said when she was saying what she said, and she said that she said what she said in saying that she said and she was saying what she said when she said what she said.

Pritchard *The Matrix Poems* (1970)
Dewinged wings
Dewinged wings
wings dewinged
Dewinged wings
wings dewinged
wings dewinged
dewinged wings

Bissett *Awake in th Red Desert* (1968)
it be it so be so
it so be so it so
be so it so be so

The art is text-sound, as distinct from text-print and text-seen, which is to say that texts must be sounded and thus heard to be "read," in contrast to those that must be printed and thus be seen. The art is text-sound, rather than sound-text, to acknowledge the initial presence of a text, which is subject to aural enhancements more typical of music. To be precise, it is by non-melodic auditory structures that language or verbal sounds are poetically charged with meanings or resonances they would not otherwise have. The most appropriate generic term for the initial materials would be "vocables," which my dictionary defines as "a word regarded as a unit of sounds or letters rather than as a unit of meaning." As text-sound is an intermedium located between language arts and musical arts, its creators include artists who initially established themselves as "writers," "poets," "composers," and "painters" in their text-sound works, they are, of course, functioning as text-sound artists. Many do word-image art (or "visual poetry") as well, out of a commitment to exploring possibilities in literary intermedia.

"Text-sound" is preferable to "sound poetry," another term for this art, because I can think of work whose form and texture is closer to fiction or even essays, as traditionally defined, than poetry.
One issue separating work within the art would be whether the sounds are primarily recognizable words or phonetic units. Pieces with audible words usually have something to do with those words, which are meant to be perceived as certain words, rather than as other words. Poems without recognizable words are really closer to our experience of an unfamiliar language.

Of course, text-sound is an open art.

Text-sound art, it is clear, is interesting and consequential-it is a distinct artistic category, with a small army of practitioners; but the greatest threat to its survival not to speak of its developments, simply, its unavailability.

text-sound art: a survey
Richard Kostelanetz

Appendix 4 – *-ect -act* Score

-ect
-act

for Cello or Double Bass,

with overhead projector, materials and projectionist

Lynette Quek
2017

aff
archit
coll
conn
eff
exp
interj
obj
proj
refl
retrosp
subj

–ect

abstr
artef
attr
co
cont
distr
en
ex
extr
imp
inter
overre
re

–act

live projection, shadow play, visual music, graphic score, sound painting
conduction, gestures, improvisation, devised, instructions
movement, sounds, noises

MATERIALS

1. Overhead projector (OHP)
2. Transparency sheets
3. Markers (various)
4. Fixed shapes
5. Black paper
6. Other materials

STARTING

1. Stage: darkness
2. Performer enters
3. Projectionist turns on OHP ;
   Projection light covering performer and instrument
4. Piece starts

ACTIONS

1. Projectionist places object / starts drawing / creates gestures, utilising the musical instrument and projection as a canvas
2. Performer reacts to the visual information on the instrumental canvas
3. Piece can be of any duration, any interpretation, any sounds

Projectionist and performer to workshop and devise individualistic actions and reactions – of all possibilities. Pushing the limits of the performer and instrument to form a relationship with the visual materials. Projectionist should let accidental or intentional noise happen when *conducting*. Structured but improvisatory piece.

Projectionist:

1. Drawings
   a. Lines / squiggles
   b. Shapes
   c. Dynamic markings
   d. Performance markings
2. Fixed shapes
   a. Triangle
   b. Square
   c. Rectangular strips
3. Hands and fingers (shadows)
   a. Tools
   b. Instruments
4. Other actions
   a. Moving transparency sheets around
   b. Removing previous drawings and objects

Performer:

1. Sound gestures
2. Unsounded gestures
3. Movement
4. Texture and timbre
5. Pitch
6. Intensity
7. Interact
8. Avoid

ENDING

1. Performer slows down movement, eventually stopping ;
   Hides behind Cello, together with bow, head, hands, legs, body
2. Projectionist realises, but continues for a while ;
3. Pause ··· Projectionist turns off OHP
4. Piece ends in darkness

Appendix 5 – *-ect -act v2* Score

-ect
-act

(digitised)

for Cello or Double Bass,

with overhead projector, materials and projectionist
(Digitised version: for laptop and projectionist)

with Vick Low

Lynette Quek
2017

aff
archit
coll
conn
eff
exp
interj
obj
proj
refl
retrosp
subj

–ect

abstr
artef
attr
co
cont
distr
en
ex
extr
imp
inter
overre
re

–act

live projection, shadow play, visual music, graphic score, sound painting
conduction, gestures, improvisation, devised, instructions
movement, sounds, noises

MATERIALS

1. Laptop
2. Projector
3. Code

STARTING

1. Stage: darkness
2. Performer enters
3. Black screen covers performer
4. Piece starts

ACTIONS

1. Projectionist creates objects, utilising the musical instrument and projection as a canvas
2. Performer reacts to the visual information on the instrumental canvas
3. Piece can be of any duration, any interpretation, any sounds

Projectionist and performer to workshop and devise individualistic actions and reactions – of all possibilities. Pushing the limits of the performer and instrument to form a relationship with the visual materials. Projectionist should let accidental or intentional noise happen when *conducting*. Structured but improvisatory piece.

Sound Projectionist:

1. Drawings
    a. Lines / squiggles
    b. Shapes
    c. Dynamic markings
    d. Performance markings
2. Fixed shapes
    a. Triangle
    b. Square
    c. Rectangular strips
3. Hands and fingers (shadows)
    a. Tools
    b. Instruments
4. Other actions
    a. Moving transparency sheets around
    b. Removing previous drawings and objects

Performer:

1. Sound gestures
    2. Unsounded gestures
    3. Movement
4. Texture and timbre
    5. Pitch
6. Intensity
    7. Interact
8. Avoid

ENDING

1. Performer slows down movement, eventually stopping ;
   Hides behind Cello, together with bow, head, hands, legs, body
2. Projectionist realises, but continues for a while ;
3. Pause ··· Projectionist turns on black screen
4. Piece ends in darkness

Appendix 6 – *(frenetic silence)* Score

BY
LYNETTE QUEK

WITH
CATHERINE LAWS
NEIL LUCK
ANNA SNOW

TO EXPLORE & EXAMINE

- Similarities between screenplay (direction for film) & notation (score for music)
- Methods of expressing music performance to a general audience
- Failures of Artificial Intelligence translations
- Synchrony in film, music, live performance, and description of performance, how they relate to each other
- To explore the art of performance in Foley
- Increased accessibility for (contemporary) music
- An inclusive performance

CONCEPT

To reimagine a Foley performance as a musical performance.
To situate post-production within live production, as a performative act.
To highlight issues regarding accessibility tools for music.

PERFORMERS

Pianist: performer/actor/foley artist
Voice 1 & 2: narration, conversation, interpreter, translator
Computer: translation

EQUIPMENT / SETUP

PIANO:
Centre of stage, facing away from audience, lid off, with objects inside

COMPUTER:
With live-captioning software (speech-to-text)
3 screen outputs

3 PROJECTOR SCREENS + 3 PROJECTORS:
screens behind piano

STEREO AUDIO SPEAKERS:
At side of stage

STAGE:
Filled with various objects as required

OTHER EQUIPMENT:
- Audio Interface: 6 inputs & 2 outputs
- 2 wireless microphones (handheld/lapel)
- 1 pair stereo microphone for piano (and additional microphones for close miking – excessive amounts)

PERFORMERS

PIANO PLAYER
Not only a pianist, but also an actor, foley artist, and creator.

VOICES
To be commentators, improvisers, translators, and creators.
To describe sonic and visual happenings within the performance.

NOTES

Stage directions and instructions at bottom of page

 Follow and read text

 Visual descriptions

 Sound descriptions

 Musical descriptions

STRUCTURE

OPENING
FILM
"_TITLE SEQ_"

SECTION 2
VOICES
"CLOSE CAPTIONED SUBS -
not really, because they always go so wrong!!"

SECTION 3
INTER-LUDE/TITLES

SECTION 4
PERFORMANCE 1
"SCENE 1"

SECTION 5
PERFORMANCE 2
"IS THAT RIGHT?"

SECTION 6
PERFORMANCE 3
"CHASE SCUITE" for solo piano & 2 voices

SECTION 7
CREDITS & ENDING

OPENING
FILM
“_TITLE SEQ_”

03:45

(watch film)

stage empty

SECTION 2

VOICES

"CLOSE CAPTIONED SUBS - not really, because they always go so wrong!!"

November 6th, 1983, Hawkins, Indiana. The view moves down to a multi-story building with satellite dishes on its rooftop. Hawkins National Laboratory U.S. Department of Energy. Inside, florescent lights flicker in a drab, windowless corridor. The view moves in on a heavy metal door at the end of the corridor.

sound effects with a stagnant image from original scene

CLANK?! ←

Eyelids open under a warm light. A blonde woman in a flannel shirt sits on a couch. She glances around the room. On the wall in front of her, the words "**Welcome!** Everything is fine" between two flower displays on pedestals. She smiles. A man with stark white hair steps in. He wears a bow tie and a sharp jacket.

DING?!

A woman in an orange skirt lights high grass on fire with a lighter. The fire burns in a bright half circle down the Australian desert plain, turning the scarred sand a deep orange. The woman uses a bundle of burning grass to spread the flames, while an older man in a hat and a younger man behind him follow her. The flames dance up high behind the woman as she kneels every few steps with a handful of grass. From above, the bushes burn to a char along the red sand.

HEY?!

A couple lie asleep in a darken bedroom. A mobile on the bed lights up. It drops to the floor. The man stirs and sits up to answer the phone.

HELLO?!

Grey skies hover over a dense tree-covered mountain range. In a forest, creek water babbles over stepped rocks. A tree's branches sway gently in the breeze. A tiny bird alights atop a stone pagoda.

COOKING PANS TOPPLE?!

voices facing stage

voices to recite
taking note of what is being captioned
interpret, react, improvise to what went wrong

SECTION 3
INTER-LUDE/TITLES

(pause)

(on screen)

Piano player enters

voices facing stage *voices to recite and react with emotion*

SECTION 4
PERFORMANCE 1
"SCENE 1"

It's a cold day. An eerie day perhaps, being all alone. Lost, unknown and unaware, the feeling of lost and despair is strong.

Walking in an empty field filled with crickets, crows and everything cliché you find in an empty field. It fields like the journey has never ended.

Some burning logs and a small-lit fire is in the distance. Some warmth is needed for this lost, cold soul. Safe at last, you think?

Sounds appear. The sounds of walking, not alone after all it seems! The sounds start getting louder; there is a rising sense of panic. Better get ready to defend, or attack.

GUNSHOTS!
THEY ARE HERE!
WHAT ARE THEY?

Defend, block, hit, strike; punches are trusted across the darkness. Flickering light from the distant fire makes things worse.

MANAGED TO STRIKE A HUGE BLOW!

A scream is heard.

Standing by a cliff.
It takes courage to look down towards the dark nothingness.

THUD.
CRACKLE.

voices facing stage
piano player enters

live improvisation
piano player to act out and create foley for this scene
voices to describe happenings (narrative)

SECTION 5
PERFORMANCE 2
"IS THAT RIGHT?"

(on screen)

voices proceed to look at stage (facing audience, not looking at screens)

piano player to create foley and music
voices to describe happenings (direct, straightforward, one/two words, react hurriedly)

SECTION 6
PERFORMANCE 3
"CHASE SCUITE" for solo piano & 2 voices

(see *Chase Scuite* score)

all performers at stage area

piano player to perform
voices to describe happenings
(musical descriptions – technical, specific, general)
(visual descriptions – actions, movements)

SECTION 7
CREDITS & ENDING

(black out)

“
Performers
Piano Player and Actor – Catherine Laws
Voice 1 – Neil Luck
Voice 2 – Anna Snow
Concept – Lynette Quek

Video, audio and image sources courtesy of various film and sound production houses, media-services providers Netflix, Inc., YouTube LLC, Amazon.com, Inc. Prime Video, and the rest of the World Wide Web information space.

With thanks to the University of York.

2017 – 2019
“

all performers at stage area

ends in darkness

voices to recite
taking note of what went wrong
and do say so

Appendix 7 – *Chase Scuite* Score

Chase Scuite

for solo piano
(& optional 2 voices)

Lynette Quek
2019

1. Exposition: The polite way to ask to enter
2. Rising Action: The Wander
3. Climax: The Chase
4. Falling Action: The Anticipation
5. Resolution: The Drop

Remember, this is a musical performance.

Chase Scuite [suite/scene] is a piece for solo piano (& optional 2 voices).

Preparatory work for the piece would require the pianist to musically decipher the score -
half-notated, half-graphical - presented in the form of a storyboard.

The 2 voices are to be commentators for the performance, describing both sonic and visual happenings.

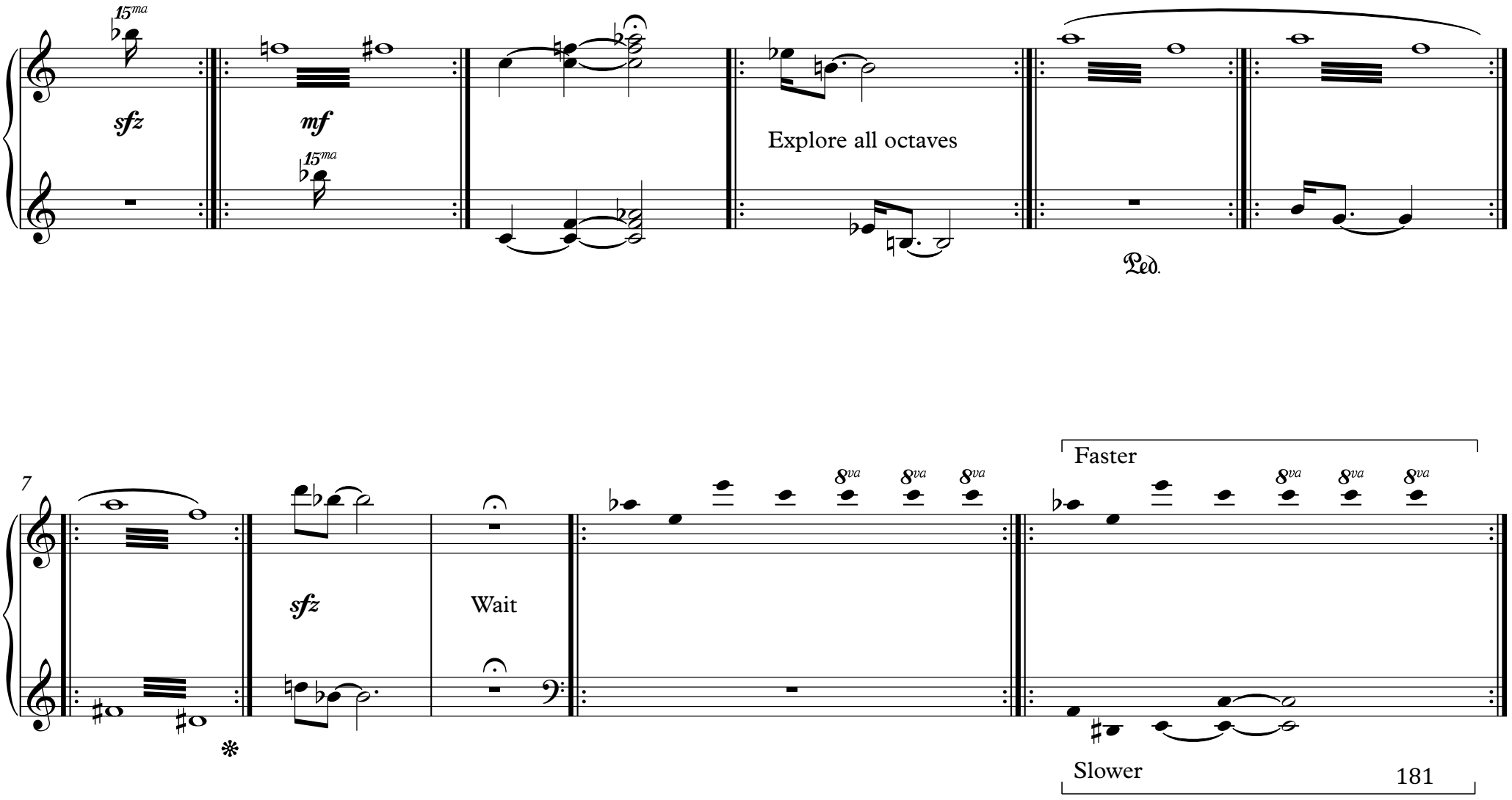
The piece can either be miked up (both piano and 2 voices), or presented acoustic.

Fixed objects needed:
- Glass jar
- Wind-up toys (as many as possible)
- Ping pong balls (as many as possible)
- Cap of a Snapple bottle (or similar)
& Your own materials

Up to interpretation.

1. The polite way to ask to enter

Free, repeat till you decide to move on



12

Allow for out of phase

ff

Explore different octaves
on each repeat

sfz

Move glass across
E and F strings

Ped.

Ped.

17

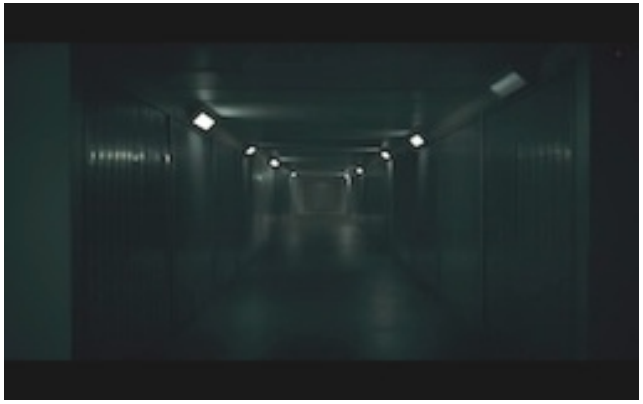
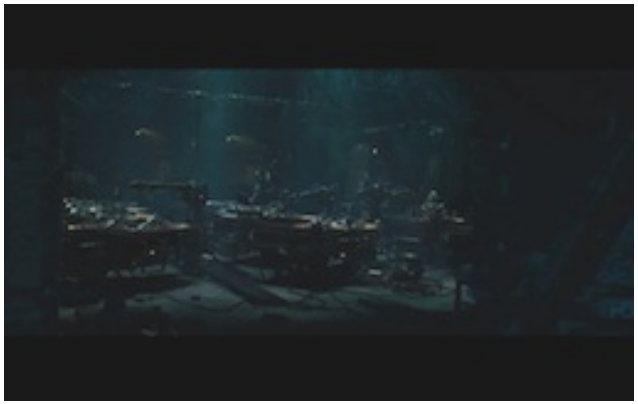
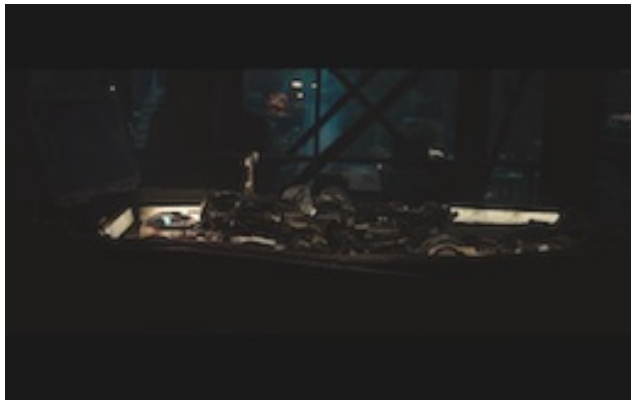
182

♩ = 80

mp

2. The Wander

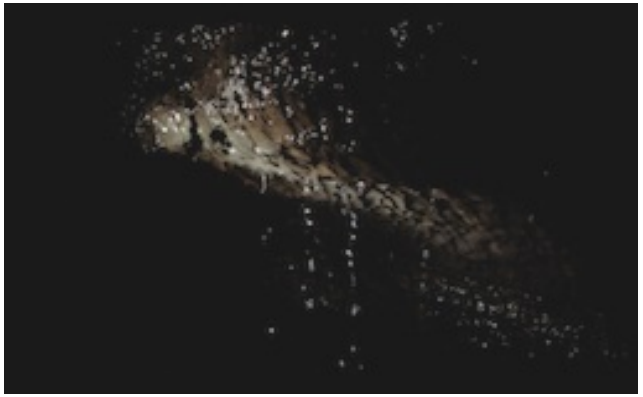
Free

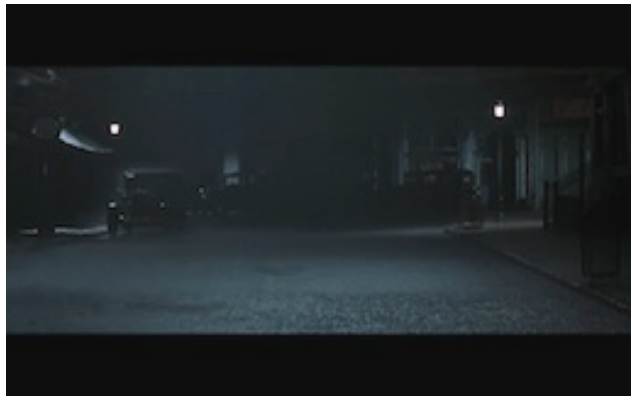






Wind toys up, let them loose inside piano

3. The Chase

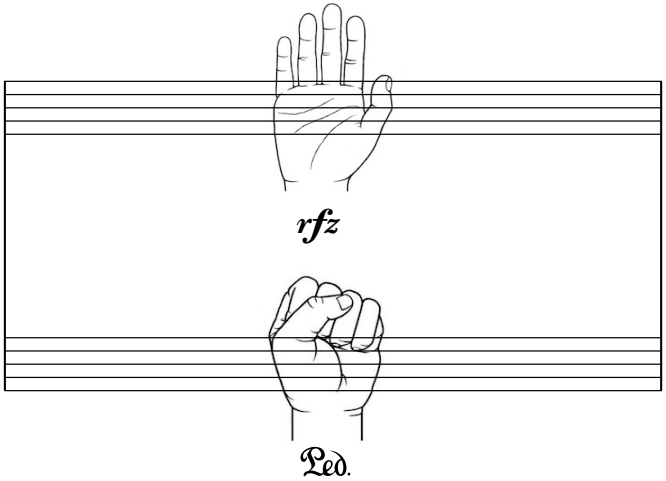




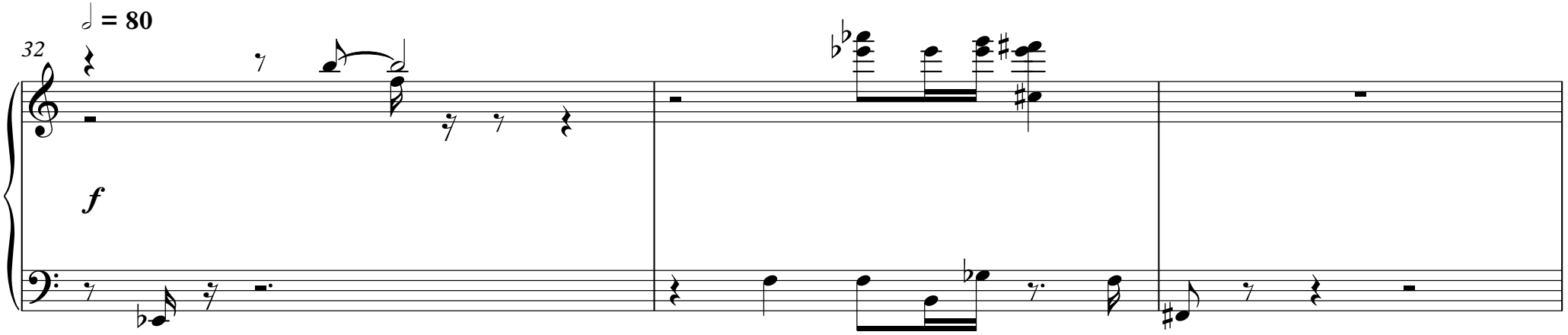
accel. - - -

Bounce 1 ping pong ball on piano strings

Strike piano keys as indicated, once



184



Free

4. The Anticipation

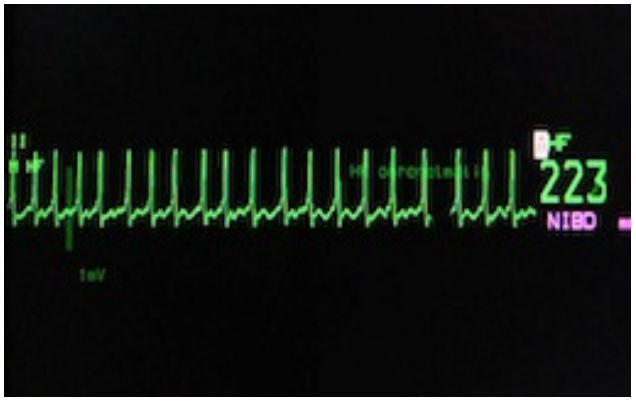
With Snapple cap on lowest Bb string, push in and out

pp *mf*

rfz

5. The Drop

Use Snapple cap again



Appendix 8 – *on-screen* / *off-screen* Score

on-screen
off-screen

Lynette Quek

for ensemble
+ instruments & objects

(for The Assembled, 2019)

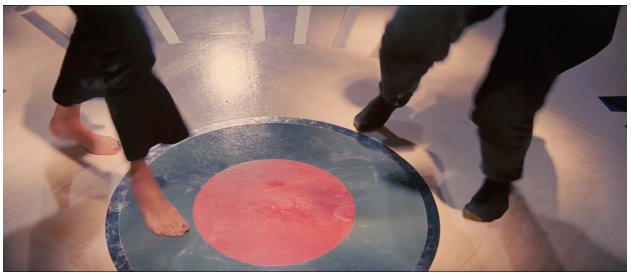
on-screen / off-screen explores concepts of sound in film within live performance.
It explores the similarities and intriguing characteristics between live musical performance and post-production addition of sound for film, also known as Foley.
The piece aims to merge sound, performance, behavioural patterns, and movements, to explore the relationship between sight and sound – seen or unseen, heard or unheard.
The concepts of parallelism and unity, as well as diegetic and non-diegetic actions and sounds are emphasised within the piece.

on-screen / off-screen is scored as instructions, with discussions and preparation of film and materials to be done.

Instruments: any instrumentation, depending on performers.

Preparatory actions:

1. Performers to individually choose a scene within a film they enjoy/like/inspired by/remember.
2. Prepare materials to create sound effects of the scenes.
3. Discussion of sections to be held; organisation of structure and stage movements up to ensemble.



1.

FEET

Be a character and sound your footsteps

With instruments, add sound effects for how your character moves around the space.

2.

MOVES

Start with small gestures and elevate with your attire

Explore the sonic qualities of the fabric on you. Try to reach a group consensus in action, and sound.

3.

SPECIFICS

Recall and sound out your chosen scene

Prepare objects and materials needed for flooring, highlighting the key elements of the scene you enjoy.

1. FEET

Performers to start outside of performance stage area.

Emphasising on their footsteps, each performer is to create a distinct way of moving, as if a character, and put sounds to it.

Repeat till all performers arrive at stage area.

To take note of surrounding environments – respond to them. Explore stage space.

2. MOVES

After exploring stage space, put down instruments by the side of stage, form a horizontal line and stare intently in front.

Starting with small gestures, create sounds using their personal attire. To reach a group consensus without looking at each other.

Slowly increase gestural actions.

Break away during the largest actions.

3. SPECIFICS

Bring in sound effect materials in boxes, spread out on stage. Step inside box to begin.

To act out chosen scene, creating sounds for footsteps, actions, while also highlighting key elements.

Replace dialogue with *wallas*.

First to finish scene: Head to the opposite side of performance space, preferably behind audience.

Second to finish scene: Put on boom operator equipment (boom mic, boom mic stand, mic cable, headphones). To *follow* and *record* rest of ensemble individually, till the last performer finishes.

Ensemble: Finish scenes, step out of box, form a line at stage back, back-facing audience.

Last to finish scene: Shout: “How’s that?”

First to finish scene: Respond: “Well done, good take!” and clap to finish.

Premiere:
15th November 2019
Rymer Auditorium, with The Assembled

Sound makers:
Gaia Blandina
Rebecca Burden
Mathew Crisp
Rosa Juritz
Catherine Laws
John McAreavey
Federico Pendenza
Joe Waters
Katherine Williams
Imogen Wood

Presented together with film *Steppers*, and sound sculpture *a slab of folly.*

on-screen / off-screen

1. FEET

With instruments.

Potentially start outside stage area (foyer, audience coming in) – putting sound to audience foot movements.

Once you lose an audience (seated down eg.), *be* a character with a distinct way of moving and put sound to your foot movements.

Proceed to stage, and explore stage area.

Solo for a while, before interacting in duos, trios, and bigger groups.

Transition: SNAP out of character, move across space (preferably to the opposite side from where you snap out), put instrument down and form a line in centre stage (committed and determined).

Stare straight into audience. Wait for last performer to step in line.

Significant p a u s e.

2. MOVES

With gestures.

Starting with small gestures, try and reach a group consensus in actions (not necessarily timing) without looking at each other. Small gestures could hold on for longer. Escalate small gestures into huge gestures (visually and sonically).

Can get out of line during huge gestures – try to spread out if possible.

Do everyday gestures (fist clenching, making hair, scratching, reaching, stretching (arms and legs), wiggle of ankle eg.).

Same speed as normal day activities.

Still stare straight at audience, deadpan.

Transition: During huge gestures, slowly break away and *morph* into your character from 1. FEET. In slow motion, move across the stage to grab your boxes, materials, and instruments needed for next section, can be multiple trips. Situate yourselves anywhere around the stage, facing any direction (preferably not back-facing).

Step into box and begin next section.

3. SPECIFICS

With objects.

To act out chosen scene, creating sounds for footsteps, actions, while also highlighting key elements.

Replace ALL forms of dialogue with *walla / rhubarb / peas and carrots / watermelon cantaloupe, natter natter (reply: grommish grommish)*.

* Extend this section a bit more – rather than being quite fixed according to scene actions and timing, repeat sound effect until the right sound is achieved for the scene before moving on, take your time, and sounds can be exaggerated as well.

Apply same dynamics as chosen scene.

With music in scenes, produce *general* music, rather than the actual tune.

* To end:

First to finish scene: Head to the top of rymer, behind audience seating, watch and wait. (maybe with a flashlight)

Second to finish scene: Put on boom operator equipment *hurriedly* (front of stage [downstage] – boom mic, boom mic stand, mic cable, headphones, holding end of cables or in pocket). To *follow* and *record* rest of ensemble individually, going around till the last performer finishes. Follow gestures of performers, try to situate microphone close to sound source creation. (*boom operator*)

Ensemble: Ignore *boom operator*. Finish scenes, step out of box, form a line at back of stage [upstage], back-facing audience.

Boom operator: Eyes follow and wait for last performer to step in line at back. Turns and shout to *First* to finish scene: “How’s that?”

First to finish scene: Respond: “Well done, good take!”

Both clap to finish.

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