

**DERIVATIVE COMPOSITION PRACTICE &  
APPLICATION:  
CREATING A COLLECTION OF WORKS BASED ON ELECTRIC GUITAR  
SOLOS**

by

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## ABSTRACT

This thesis concerns itself with the practice I have come to call derivative composition. The process involves taking fragments from earlier compositions and transferring them to form a new piece for a different instrument or ensemble. The differences between the original and target instruments causes deviations to occur. Consequently, these deviations are then used to purposely generate new works instead of arranging them from the old work. This new work then undergoes the derivative process again, generating another new piece. This process repeats deriving new pieces from the previous compositions and forming a series of pieces resembling a family tree. To explore the generative properties of derivative composition I begin with my own original pieces for solo electric guitar. The idiosyncrasies of various technical innovations create a significant number of deviations when transferred to very different instrumental forces, allowing the generation of new works. This thesis and commentary will be useful to composers interested in recomposition as well as performers/composers interested in using their instruments as a catalyst for compositions for other instruments, and vice versa. Other instruments might be the impetus for a new work for theirs.

# DERIVATIVE COMPOSITION PRACTICE & APPLICATION:

## CREATING A COLLECTION OF WORKS BASED ON ELECTRIC GUITAR SOLOS

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## INTRODUCTION

This artistic research will examine a process that I call derivative composition. The proceeding chapters will elucidate what derivative composition is, how it is applied, and provide examples of its application through pieces I have composed. This thesis will also deliver an account of the development of electric guitar techniques. These are techniques that I have not encountered in the electric guitar literature before and comprise my praxis as a guitarist and composer.

Part of the impetus for researching these topics is my interest and struggle in combining my background as a rock guitarist with being a trained classical composer. I have acquired skills, inclinations, biases, tropes, and other such elements from both disciplines. My struggle was organically mixing them, without the results being seen as 'insincere'<sup>1</sup>. The desire for this merger led to the consideration of the transcription process, which is a main component of a guitarists' learning in the mainstream contemporary music style discipline.

During my undergraduate studies at a school with a jazz focus, part of our curriculum consisted of transcribing the solos of jazz performers like Charlie Parker, taking from them fragments, licks, and harmonic ideas to be incorporated into our own praxes. Many performers' idiosyncratic styles are transformation and

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<sup>1</sup> This descriptor illustrates how I evaluate my own work, not as a criterion to judge others' work.

amalgamations of others' styles. For example, Eddie Van Halen has described his affinity for learning Eric Clapton licks and phrases, even though most people would not immediately make the direct connection.

To further this point of how important it is in the electric guitar discipline, there was a series of lessons featured in a guitar magazine<sup>2</sup> that I used to subscribe to that discussed transcription. It describes learning a phrase incorrectly and then create new licks or riffs from this error. This idea has since stayed with me as a valid way to create music.

This process of "lick-learning" is a direct link to my practice of derivative composition. They are both processes of taking, transforming, and recontextualising musical fragments. The key difference is that in this derivative practice I take from myself and create a whole composition, whereas lick-learning derives from other performers, keeping it a fragment within the performance or piece.

As an electric guitarist, I also perceive my relationship with notation and scores to be different. I learned western classical notation a couple of years after starting to play the guitar. In fact, as the double bass player in the high school wind band I had more proficiency reading bass clef. The ability to compose came next, and the ability to sight-read on the guitar came after during the fourth semester at my undergrad. This means my proficiency in guitar was further developed than my musical literacy. While it probably takes me longer to learn another composer's work, I am quicker in understanding 'alternative' forms of musical communication and notation. It also means I tend to consider scores as tools.

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<sup>2</sup> I am unable to locate this article at the present time since I cannot remember from which magazine, though probably *Guitar Player*, the website archives does not appear to backlog articles from the period I was a subscriber.

My relationship with the guitar is present whenever I am composing. The guitar informs a substantial portion of my work as a composer, even if the work is written for an unrelated instrument. As mentioned, I learned to play the instrument before gaining the ability to read and write music, which is why it is my point of reference as a composer. During the writing process ideas are tested on the guitar whether they are techniques, melodic content, or rhythmic content.

The initial inspiration for writing these guitar solos is the music of the No-Wave punk band DNA. Their music comprises of only extended techniques for guitar, like muted notes, feedback, etc. These techniques are performed with the typical energy and aggression associated with hardcore punk rock. For me, utilising these techniques in a non-punk rock and non-aggressive context was intriguing, especially employing them in notated music, emphasising their inconsistent, unstable characteristics for expressive impact.

While simultaneously listening to DNA, I was rehearsing the solo electric guitar piece *polynya, or ever less* composed by British composer Oliver Thurley. This piece exemplifies his focus on fragility as a means of composition (Thurley, 2021). In this piece he directs the performer to turn the volume on their amplifier loud (in my performance the volume was at an eight, whereas most pieces are at three maximum), yet instructed to play as quietly as possible (Thurley, 2018). Because of this dichotomy, every movement and accidental sound are heard. Couple this with the unusual playing techniques with a test tube (functioning as a glass slide or "bottleneck") and the difficult chords shapes, the piece is prone to errors and extraneous noises. This incongruity creates a quiet tension that could be described as "sonic intimacy" (Warrenburg, et al., 2021).

The final piece of music making a direct impact to the composition of many of these guitar solos is the solo electric guitar piece *Trash TV Trance* (hereafter abbreviated to *TTVT*) by Italian composer Fausto Romitelli. *TTVT* is a seminal work in the electric guitar repertoire that advances the technical and sonic aspects of



the guitar through technique and effect pedals. Most influential in my artistry are bb.70-95 which have minimal employment of effect pedals, yet there are three voices happening simultaneously, with huge demands on the fretting hand in terms of fingering and plucking. It is a notoriously difficult section yet fits very well on the guitar. The way Romitelli exploits the affordances<sup>3</sup> of the guitar is influential for my research.

The image shows a handwritten musical score for guitar, consisting of three systems of notation. Each system has three staves: a top staff for the melody, a middle staff for the fretting hand, and a bottom staff for the plucking hand. The score is annotated with various performance instructions and technical markings.

- System 1:** Starts with a circled 'L' and a circled '70'. The first staff has the word 'NEW' written above it. The second staff has 'SPONGE (low)' written above it. The third staff has 'BOW CIRCULAR MOVEMENT' written above it. The bottom staff has 'RH: TAKE THE BOW WITH THE WOOD OF THE BOW!' written below it.
- System 2:** Starts with a circled '75'. The first staff has '(idem)' written above it. The second staff has a circled '1' above it. The bottom staff has a circled '2' above it.
- System 3:** Starts with a circled '80'. The first staff has '-3-3-' written above it. The second staff has '-3-3-' written above it. The bottom staff has 'ALWAYS ON 6' written below it.

Figure 1 Excerpt of Romitelli's *Trash TV Trance*.

<sup>3</sup> Affordance is "a use or a purpose that a thing can have, that people notice as part of the way they see or experience it." According to <https://dictionary.cambridge.org/dictionary/english/affordance>. "Affordance" is mentioned when describing the technical nature of the guitar techniques and during the workshop sections of this thesis.

The quietness and precarious affordance of the Oliver Thurley piece provided me a goal of what I wanted my guitar pieces to emulate. While simultaneously wanting to instil the level of technique and looking at the guitar in a different perspective that is prominent in *TTVT* by Romitelli. My appreciation for them as a performer led me to incorporate these elements into my own compositional practice. My own desire however was to strip away the accessories of *polynya*, or *ever less* and the effect pedals of *TTVT* leaving just a clean<sup>4</sup> guitar signal running through a clean amp.

This thesis will discuss my derivative compositional approach, with special attention given to a collection of pieces based on my guitar piece *Reticence*. I will be demonstrating it as a tool for generating material for new separate pieces intended to be listened to on their own. Other examples will follow, as well as a discussion of other solo electric guitar pieces that expand the technique of the electric guitar.

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<sup>4</sup> "Clean" is a reference to a signal that has no effects or buffers added.

## DERIVATION AND DERIVATIVE COMPOSITION

My artistic research is concerned with the process of derivative composition. Art criticism often uses the word derivative as a pejorative to describe a work as banal, uninspired or the greatest artistic sin, boring!

Disvalues are left to implicit negation: if artistic excellence is *this*, what is not this specifies the inferior product. The vulgar and tasteless, the derivative and academic, brummagem, borax, and kitch [sic]- such as these are left to purely tacit and inferential analysis. (Kaplan, 1966)

But if she slavishly follows the works of others, whatever other admirable qualities her artworks might have, their style will be derivative, and they will be unoriginal works. (Kivy, 1995)

Yet this is not an accurate definition of the term. If one were to refer to the definitions of the word, it becomes apparent that the word 'derivative' is a neutral rather than negative term. According to the Merriam-Webster Dictionary, derivation is simply '[s]omething that originates from something else', while the United States Copyright Office states, 'A derivative work is a work based on or derived from one or more already existing works.' Furthermore, 'To be copyrightable, a derivative work must incorporate some or all of a pre-existing "work" and add new original copyrightable authorship to that work. The derivative

work is often referred to as the adaptation right.’<sup>5</sup> This means that one could apply for the copyright of the translation, revision, or adaptation of a work because it is seen as enough of a modification or transformation to justify it as a work unto itself.

These definitions aid in describing how derivation applies to my compositional practice<sup>6</sup>. It is important to mention these definitions due to the already mentioned derisive tone ‘derivative’ often infers. The definition also helps elucidate the process that my pieces have taken. Most of the pieces in this portfolio are derived from a series of guitar solos that I have composed<sup>7</sup>. If one piece is not directly derived from a guitar solo, then it derived from another work that is itself derived from the guitar solo, creating a lineage of derivation<sup>8</sup>. Distinct from the polywork concept discussed below, or the notion of a cycle or pieces intended to be heard in a particular order, or during the same performance, this lineage forms a loose collection of pieces that may be heard individually, or in any order a performer chooses.

My process of derivation consists of taking fragments from a composition and transferring this fragmented material to a new composition. The original composition is written with a specific instrumentation that changes in the new composition<sup>9</sup>. The transference of material causes deviations to occur due to the

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<sup>5</sup> Copyright in Derivative Works and Compilations (June 2020) Circular 14; U.S. Copyright Office

<sup>6</sup> This does not protect my work from being described as derivative in the usual way, however distressing this would be to the composer.

<sup>7</sup> The laws mentioned above are often controversial, especially when talking about sampling and YouTube content, but since I am deriving from myself it is much less of a legal quandary. This thesis will not delve into Intellectual property law, its mention is to clarify the conceptual process.

<sup>8</sup> See the chapter on *Reticence* and the *Reticence* Family.

<sup>9</sup> The new instrumentation could be by personal choice or prescribed.

instrumental changes. When fragments transfer from the electric guitar over to tuba, for example, they transform via timbre, affordances tessitura, amongst others. These transformations are due to differences in construction, sound production, physical materials, and others. In some cases, the difference is not just instrumental but also pedagogical, as electric guitarists' training tends to be different to that of a tubist. If one were to disregard these considerations as limitations when transferring, but instead as idiosyncratic characteristics, it enables a new composition to be written. In many ways the previous composition is a source of generating material.

### PRECEDENCE

A source of inspiration for this type of working is the parody and paraphrase Mass, a staple of the Renaissance era. These techniques are characterised by employing a plainchant melody as their cantus firmus, with composers borrowing parts from others, or even their own previous compositions. Often the borrowed material is embedded within the composition, not intended to be recognised, serving as a base that the composer then extemporises upon. Especially in the paraphrase, there is extensive elaboration of the source material.

Examples of this can be seen in the works of Josquin Des Prez, considered by many to be a master of this technique. His *Missa Pange Lingua* is a paraphrase of Thomas Aquinas' *Pange Lingua* (Planchart, 2000), with all the voices in the texture having some sort of elaboration being manufactured from the hymn. The

*Missa Pange Lingua* by Josquin also features a musical phrase that has since become a common fugal subject<sup>10</sup>.

My process could be analogous to that of a Dub<sup>11</sup> producer. Dub music initiates with the producer, usually the original/first producer, of a band recording creating alternate versions or dubs of the recording to be played at sound system events. These versions would become increasingly remixed almost becoming a separate work to the original. The original usually features vocals in the mix while the dub is largely instrumental, with sparse interjections of vocals, emphasising the bass. In a dub, there is also a substantial use of studio effects, like reverb, and extensive cutting and pasting. Whether the Dub is recognisable to the original recording is not a priority, so long as people are dancing to it. (Navas, 2012) My derivative process of composition is similar insofar as these Dub producers are often the producer of the original track, especially in the early days. They created versions of their own work that relied on itself, with the original as simply base material for manipulation. These characteristics are shared within my own practice. My process is similar in that largely the recomposing happens through workshopping with performers, trying it out on the electric guitar, or on the score. It is not done in the studio, as is the case in producing Dub tracks.

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<sup>10</sup> The line in question is the 'Do-Re-Fa-Mi-Re-Do' line that can be found in J. S. Bach (no. 9 Fugue in E from the *Well-Tempered Clavier* Book II BWV 878, Fux *Gradus Ad Parnassum*. Mozart *Symphony no. 41 Jupiter*. These composers used it not as a reference to Josquin, but as a starting point for their own composition. In the 20<sup>th</sup> Century, Korngold used it as the fugal subject in his *Suite for Left-Hand Piano, Violin, Viola and Cello*, which could be an homage to the line's classical lineage instead of referencing Josquin.

<sup>11</sup> Dub is a genre of music coming from Jamaica with roots in Reggae, Ska, and Rocksteady music. What differentiates Dub from the others is that Dub is largely created in the studio using studio effects. It is considered by many the pioneering genre for electronic-based music and hip/hop genres. It should be noted that this is by no means a definitive history of Dub. It is only a brief description in the general process of creating Dub tracks to demonstrate the analogy with my own derivative process.

Plunderphonics also precedes derivative composition as a compositional praxis devised by John Oswald where the composer creates a new work by taking recognisable sonic quotes from recordings and manipulating them into new compositions while maintaining the recognisability of the original sonic quote. The new works created are derivative works of these sonic quotes (Oswald, 1985). There are also mainstream artists that take part in this practice like Girl Talk and The Avalanches.

There are numerous examples of classical composers using pre-existing material within their own works such as Charles Ives, Luciano Berio, and others. Recognition of the source material and their associated contexts is often the impetus for inclusion by the composer, with a prominent recent example in Max Richter's "recomposition" of Antonio Vivaldi's *The Four Seasons*. Richter's interpretation is based on association and his feelings towards the original source material<sup>12</sup>. The generative purpose of this process is my intention, not recognition of the original source. I am still making new versions of my own work without the reliance of an audience member's awareness of the recontextualisation.

Examples in contemporary music utilising similar processes include *Notations I-IV* (Boulez, 1978/1984) by Pierre Boulez, the various incarnations of *In Freundschaft* (Stockhausen, 1979-2002) by Karlheinz Stockhausen, and the *Next to Beside Besides* (Steen-Andersen, 2005-2017) series by Simon Steen-Andersen.

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<sup>12</sup> Richter remarks that *The Four Seasons* is a type of remixing in an interview with Férdia J. Stone-Davis (Richter, 2015).

### RELATIONSHIP WITH ARRANGEMENT PRACTICE

Many of the concepts discussed in this thesis can be traced back to arrangement techniques. Broadly defined, an arrangement is when a musical work is transferred to a new medium. Arrangement brings up a question about the nature of the work. There are many texts that talk about the wide spectrum of what a work can be, especially talking about arrangement and arrangement like practices. In her text *The Imaginary Museum of Musical Works*, Lydia Goehr describes how transcriptions, orchestrations, and arrangements could be considered works in their own right. This is due to instrumentation often being considered essential to the work, like Brahms' *Piano Quartet*. When Schoenberg orchestrated it for orchestra, she asks whether it changes the nature of the original (Goehr, 2007). This example also raises questions of titles and instrumentation as it relates to the work, as there is a certain paradox in *Piano Quartet for Orchestra*. If it were a more abstract title like *A Canoe Ride Over Waterfalls*, it would be easier to arrange, as the instrumentation appears to be less essential to the work. Peter Kivy in his book *Authenticities* posits that:

For the arranger, unlike the composer, cannot start from scratch. He or she starts with a preexistent work, of which a *version* must be contrived; and in order for his or her result *to be a version* of the work and not a new work in its own right it must be, whatever else it is, a possible, plausible way *that work goes*. Thus the arranger must have an idea of how the work goes in order to make a credible version of it. (Kivy, 1995)

These examples show how there is a wide spectrum for defining a "work".. As such, the ontology of a musical work is too complex and nebulous to be within the scope of a thesis documenting practice-based research. The intention of the brief overview is to distinguish my approach from arrangement and orchestration.

In an arrangement, there is a varying degree of how much new material might be added, but it is generally accepted that the overall character of the original should be retained, which is where my practice differs. The goal for the



derivative work is to be heard as a separate artefact whose merit is based on itself and not on its relationship with the original.

My interest is not in the replicative part of practice, but rather the transformational properties of transferring a musical fragment from one instrument to another. When a fragment relies on a guitar-specific technique, it will undergo change when it is transferred to tuba, for example. Instead of trying to minimise the amount of change, I want to capitalise on it and emphasise this transformation. The focus on alterations renews the musical material allowing the emergence of a new piece. The pre-existing material is therefore embedded into the fabric of the new composition, obscuring any reference to the original.

This approach to composition is less about creating materials, often referenced as inspiration, and more about decisions affecting the material. The discovery of usable material is often the most frustrating and stressful part of the process, occasionally manifesting as overwhelmingly nebulous. I have found through my research that derivative composition helps alleviate some of these problems.

When arranging, I often feel more freedom because the basic material is already set, and I can focus on inventing ways to present it. Even if the arrangement deviates greatly from the source you are still aware of the original, often comparing the original to the arrangement. Dirty Loops' jazz-fusion renditions of bubblegum pop songs like *Baby* by Justin Bieber are a good example. The complex harmonies and arrangements contrast with the idea that one is still listening to Justin Bieber, even when maj7#11 chords are sounding, while "simplifying" arrangements are also possible <sup>13</sup>, such as Israel

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<sup>13</sup> Simplifying an arrangement is often more difficult. In my personal experience expanding a string quartet to orchestra is simpler than compressing an orchestra to string quartet.

Kamakawiwo'ole's *Somewhere Over the Rainbow*<sup>14</sup>, demonstrating the artistic breadth that is available with recontextualisation. Derivative composition mimics this, but dispenses with the reliance on reference to the original; the audience is never meant to be aware of where the material comes from.

### RECOMPOSITION

Derivative composition goes together with recomposition. Swiss composer Klaus Huber is important in my research for this concept. He is most associated with his concept of the polywork<sup>15</sup> where multiple works are simultaneously a part of the same work. The common attribution to this concept is a work being played on its own, or with others at the same time. Examples include his orchestral cycle entitled *Protuberanzen*. However, recomposition also falls within his concept of the polywork which this research will concentrate on. An example of this being Huber's *Beati Pauperes* cycle. This cycle contains three versions of *Beati Pauperes*, each with their own individual orchestrations. They are all contrafacts of Orlando di Lasso's *Beati Pauperes*, yet they are idiosyncratic enough from each to be considered different pieces. Yet, due to their shared base, they share clear qualities. This is where Klaus Huber considers the second *Beati Pauperes* to be a recomposition of the first, and likewise with the third Huber describes this as a form of polywork. (Mahnkopf, 2010) This version most closely resembles my research.

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<sup>14</sup> Originally sung by Judy Garland, music by Harold Arlen and lyrics by E.Y. Harburg.

<sup>15</sup> According to Klaus Huber given in an interview with Claus-Steppen Mahnkopf (Mahnkopf, 2010)

## TRANSLATION

There was an attempt early in my research to use linguistic translation as the basis for composition, but this turned out to be impractical. Translation is the transference of meaning from a source language to a target language. To complete this task a translator finds equivalence. This becomes problematic as languages are constructed differently, with diverging cultural ramifications and meaning. This means that perfect translations are almost impossible, especially poetry. There could be abundant possible translations for a single passage. Not only do translated works transfer meaning between languages, but the translated work also attempts transfer of style. Due to this variability and subjectivity translation could be considered an art.

The attribution of translation to the arts is founded on the fact that it is possible to compare several translations of the same original, rejecting some as poor and praising others for their fidelity and natural flow. For a given text there would therefore not be a single translation, but a choice; translators weighing alternatives before proposing their solutions. And if there is a stage of free selection, it is the result of an artistic process, art involving essentially a free choice. (Vinay & Darbelnet, 1995)

Further contributing to the idea of translation as an art unto itself is the United States Copyright Office listing translation as a type of derivative work (United States Copyright Office, 2020).

It is this transformational filtering that interests me as a composer. There are many examples of ancient texts diverging significantly from their modern translations, like the Christian Bible for instance. The divergence between translations of the same source ends up being the part of the translation process that influences my work. The problem is there is a lack of direct transferability of the techniques to compositional processes. Translation is built on the idea of carrying over meaning and getting as close as possible as one can. Musical

meaning manifests differently to textual meaning being less concrete and more abstract. The specific techniques of translation are too cumbersome to map onto a musical context. The manner with which a translator would find equivalences<sup>16</sup> is different to that of a composer or arranger. While translation works as an analogical explanation for this compositional process, I lack the knowledge in the fields of either translation or semiotics to apply their nuanced methods to composition with any precision. However, *Reticence* and its ensuing lineage are a particularly good examples of where the illustrative qualities of the analogy are helpful, especially the filtering that happens over the span of multiple pieces.

#### **APPLICATION OF DERIVATIVE COMPOSITIONAL PROCESSES**

For the process of derivation to work, there must be a point of origin to be derived from. The point of origin for this research is a series of six electric guitar solos. I believe that an in-depth examination of these guitar solos should be undertaken to clarify the fragments and elements that transfer over into the derived pieces. The descriptions will commence with *Reticence* as it possesses the most derivations of the solos.

#### **GENERAL NOTES ON COMPOSITIONAL PROCESS AS IT PERTAINS TO THE ELECTRIC GUITAR SOLOS: NON-DERIVED WORKS**

The main divergence between the electric guitar solos, including *Reticence*, and the derivative works is that the electric guitar solos are not a product of derivation<sup>17</sup>. In fact, great attention was made to assure that the

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<sup>16</sup> For instance, modulation, calque, direct translation, borrowing etc. (Vinay, et al., 1995) I found that trying to directly emulate these techniques did not yield satisfying musical results, therefore I stopped attempting to use them.

<sup>17</sup> They are not directly derived at the very least. Arguments can be made about the role of influence in my and other composers' work.

electric guitar solos do not derive from each other. They have similarities, but that is a result of personal style and influence instead of the transference of fragments and ideas. Due to this, a general disclosure on how they are composed would prove valuable to understanding how the derivation process works. If nothing else, it will show the demarcation between my 'original' process and the 'derivative' process.

The 'original' compositional process consists of a cycle of improvisation on the guitar to generate material before distancing myself from the guitar and writing on paper, then returning to the guitar to test out the written material, using it as a new starting point for more improvisation. This reflexive process repeated until the piece was completed with only some minor, but crucial, revisions made after a couple of live performances. This process of original composition has proven to be powerful, especially when writing other solo guitar pieces like *Flower*, *Park*, and especially *Touch*.

## COMPOSITION OF *RETICENCE* FOR SOLO GUITAR & THE *RETICENCE*

### FAMILY

*Reticence* is the second electric guitar solo I composed, but it is probably the most important as it set the precedence by which the others follow. Its importance is also due to it being the piece most often derived from. This piece exemplifies guitar technical advancements, sparse and transparent textures, and a melodic through line. These elements are found in the rest of the electric guitar pieces.

The main gestures and motifs of *Reticence* are a constant quaver-pulsed muted note motif, melodic sustained harmonics, and string scrapes. The muted note motif is played with just the fretting hand, using the first two fingers to lightly press the string and the third finger to pluck the string. The lightly pressing action causes the string to be muted, while the plucking produces the note. A muted note on the guitar is often considered unpitched, but in this case the sparse texture allows a sliver of pitch to be perceptible. In this way, it turns into more of a staccatissimo note instead of percussive, though still possessing traces of percussivity.

One outcome of the fretting hand producing a sound by itself is the liberation of the plucking hand. The plucking hand is now separate from the fretting hand. This allows sustained harmonics to be rendered by the fretting hand counterbalancing the staccatissimo nature of the muted note. Fret-hand harmonics also allows the melody to ring out while simultaneously filling out the harmony. Both natural harmonics and artificial harmonics<sup>18</sup> are used, but there is a greater emphasis on natural harmonics.

The quantity of notes available as natural harmonics is finite<sup>19</sup>, especially when factoring tessitura. It would be remiss not to mention that some harmonics articulate better than others. Harmonics become truly precarious when playing above node five. Artificial harmonics, found in the C section of the piece, allow access to any note theoretically. Ergonomically they are more difficult however, especially considering the fretting hand already playing the muted notes. This physicality is comparable to how certain chord shapes are more challenging than others.

String scrapes are the third technique to be featured and are there purely to exaggerate the timbral qualities. They sound sustained and rough, but do not dominate the texture. String scrapes are usually meant to create noise, as found in the music of bands such as AC/DC and KISS amongst many others! *Reticence's* string scrapes are still noisy, yet convey a fragile and isolated atmosphere, lacking the aggression of the examples above. The sustain contrasts with the staccatissimo notes, and the roughness contrasts with the purity of the harmonics.

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<sup>18</sup> Artificial harmonics are like touch-harmonics on orchestral string instruments. A note is fretted, and the plucking hand plucks at a node point above it. Important to note in the context of 'Reticence' that both hands are involved to play artificial harmonics.

<sup>19</sup> A# nor Bb is available as a natural harmonic.

## SEPARATION OF HANDS

The hands are separated in this piece following two different streams<sup>20</sup> that rarely cross each other. This is comparable to piano affordances, where the hands play separate musical ideas, usually melody and accompaniment. There is a history of this type of guitar-playing, but usually it is in the form of advanced two-handed tapping<sup>21</sup>. Tapping is not a technique that is found in *Reticence*, replacing it are the techniques mentioned in the previous paragraph.

**Meditative**

The musical score for 'Meditative' is presented in three systems. The first system shows the Pluck Hand (top staff) and Fret Hand (bottom staff) in 4/4 time. The Pluck Hand part begins with a 'clean, neck pickup' and a circled '1' above the first measure. The Fret Hand part starts with a circled '3' above the first measure. The second system begins at measure 5, with the Pluck Hand staff showing a circled '4' above the first measure and the Fret Hand staff showing a circled '4' above the first measure. The third system begins at measure 10, with the Pluck Hand staff showing a circled '3' above the first measure and the Fret Hand staff showing a circled '4' above the first measure. The score includes various musical notations such as X-shaped noteheads, diamond-shaped noteheads, and dynamic markings like 'p' and 'mp'. The time signature changes from 4/4 to 3/4 and back to 4/4 throughout the piece.

Figure 2. Introduction of *Reticence* Displaying dual staves corresponding to the plucking and fretting hands. Also shown are the X-shaped and diamond noteheads.

<sup>20</sup> 'Streams' refers to the definition found in *Auditory Scene Analysis*. (Bregman, 1990) An auditory 'stream' refers to the perceptual unit that represents a single happening. (Bregman, 1990).

<sup>21</sup> There is also the Chapman Stick, a guitar-like instrument that is played exclusively by two-handed tapping. 'Tapping' is a technique where the plucking hand hammers-on then pulls-off a note on the fretboard. Popularised by Eddie Van Halen and many other shred guitarists of the 1980s. It is often cynically considered ostentatious by many other guitarists.



To reflect the separation, the score is divided into two staves, the top and bottom corresponding to fretting and plucking hand, respectively. X-shaped noteheads represent muted notes and diamond noteheads are harmonics. The X-shaped noteheads with a curly line represents the scrape. When diamond noteheads connect with standard noteheads, bridging the staves, these are the artificial harmonics. The standard noteheads specify where the fretting hand should finger, and diamond noteheads specifying which harmonic the plucking hand is to play. Artificial harmonics are the one technique in this piece where synchronous coordination between hands is necessary to produce the sound.

### USE OF MELODY

There is a clear melodic through-line in *Reticence*. The repeated phrase of G-D-C#-C-B joins the sections together acting like an adhesive.

The image displays two systems of musical notation for the piece 'Reticence'. The first system, starting at measure 10, consists of two staves. The upper staff features a series of X-shaped noteheads, some with a curly line above them, indicating muted notes or scrapes. The lower staff contains standard noteheads with fingerings (3, 4, 5, 2, 3, 6) and a slur over a sequence of notes. The second system, starting at measure 46, also consists of two staves. The upper staff has X-shaped noteheads, and the lower staff has standard noteheads with fingerings (5, 4, 2, 6, 5, 3) and a slur over a sequence of notes. This system represents an inversion of the melody shown in the first system.

Figure 3 Melodies from *Reticence*. Bb. 10-12 is the original melody with the pitches G-D-C#-C-B. Bb. 46-48 is the inversion with the pitches F-Bb-B-G-C#.

I have discovered I am drawn towards melodies in writing the works for this portfolio. They constitute an important part of a work in my practice. However, in my practice different works have their own melodies. Therefore, during the derivation process, I intentionally avoid fragmenting melodic

elements. A new melody replaces it, making large strides in legitimising the derived work as a new piece. Yet it is still important to note the function of the melody as this is an aspect shared amongst the pieces. It is also important to note because it differentiates this practice with arrangement.

#### **DERIVATION APPLICATION: WORKSHOPS**

A series of workshops were conducted where I would gather an undefined group of performers to discuss the original guitar score and work together to find equivalent sounds. I would also bring my guitar to aid in demonstrating the original sounds<sup>22</sup>. The impetus for these workshops came from a workshop/performance with the UnHeard Acoustic/Electric Hybrid Orchestra at the Royal Northern College of Music. For this project I submitted *Flower*<sup>23</sup> to be arranged. The unorthodox arranging process happened extemporaneously, directly from the solo guitar score<sup>24</sup>. The result ended up with a version of *Flower* that sounded similar, but with a vastly different timbre and flow.

At the time my research was tethered to translation. When exploring application of translation, *Reticence* appeared to have the most potential because it possesses a clear sonic intimacy that can be explored timbrally and technically. Since the techniques are idiomatic to the guitar discrepancies were likely to occur when translating to a different instrument or ensemble. There is potential for transformations materialising because of the variety of unorthodox techniques.

These workshops predominantly followed a model of generating and selecting components (Clarke, et al., 2017). In the workshops the performers

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<sup>22</sup> There is only a small sample due to the impact of Covid-19 and the ensuing lockdowns that occurred soon after initiating the series of workshops.

<sup>23</sup> The original will be discussed later in the *Flower* Chapter.

<sup>24</sup> Transpositions for ease of reading were applied.

generate materials based on *Reticence*, playing the guitar piece myself and working with the instrumentalists to find equivalent sounds and techniques. I then selected components and manipulated them for use in a composition. The couple of pieces that have a collaborative aspect used this type of model. Improvisation or transcription of improvisations, in the vein of Scelsi (Uitti, 1995), were not a part of the workshops. The objective of the workshops is to gather a palette of equivalent sounds and techniques to compose with.

The first workshop undertaken was with a pianist and electric bassist. Most of the workshop dealt with trying to distribute the equivalent sounds between the piano and the bass. We were able to obtain remarkably close equivalents, especially from guitar to bass guitar by virtue of being plucked stringed instruments. It seemed like something was missing during the session. Toward the end of the workshop, I gave a performance of *Reticence*. Afterwards the performers' suggested the missing element is not the sound itself of the original, but the interaction and coordination between the parts. As mentioned before, the techniques are not difficult in isolation, but in tandem create an elevated level of tension and coordination, as any wrong move is not only audible, but will affect other voices. These combine to create a single entity, instead of multiple contrapuntal ideas.

Interaction and coordination became especially apparent in the next workshop with a clarinet and bassoon duo. I again brought the guitar solo score with the aim that we would find equivalent sounds, eventually writing a piece with these discovered sounds. For this workshop they followed the score by separating the bassoon and clarinet as it appears in the guitar score, with the clarinet taking the fretting hand, and the bassoon taking the plucking hand.

This caused the piece to sound like two separate streams, instead of one stream as it does in the original solo. The discovered sounds are just as interesting as the guitar version, but not enough diligence had been taken with the interaction between the sounds, paying too much attention to the practicalities

of performing the techniques on the instruments than combining the sounds; I was being led by translating the score more than by achieving the desired resulting sound and sound world.

After this realisation, I began mixing and interweaving clarinet and bassoon lines, making it seem like both instruments are part of the same stream. This improved the interaction and coordination. *-Hesitant* replaces the title of *Reticence* because of these changes. While similarities present themselves between the pieces, they are clearly distinct. The clear idiosyncrasies of the instruments are the main cause of separation. A variety of glitchy and quiet sounds are available on these instruments, all with a particular character capable of elaboration for composition.

These few workshops proved to be helpful in my research on how to transfer materials between pieces. If I had more time<sup>25</sup>, more workshops could have been beneficial. However, enough data had been gathered to be able to compose with transformation in mind, yet still manage to keep certain important elements intact. It became explicit the unfeasibility of translation as a direct process leading to derivative composition replacing it.

#### HESITANT FOR CLARINET & BASSOON

This workshop process led to creation of *Hesitant* for Bb clarinet and bassoon written for the Sonix Duo comprised of Johanna Leung and Curtis Mann. It is notable as the first attempt deriving material consciously from a previous composition. This transformational process progressed during the composition of *Hesitant*.

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<sup>25</sup> The workshops coincided with the start of COVID-19 Pandemic and the ensuing lockdowns made it difficult to run workshops. I instead decided to write solo works that had some elements of collaboration, but were mostly written away from the performers.

The slap-tongues in the clarinet and the air-tones in the bassoon are the result of transforming the muted note line in *Reticence*, sharing a dry, percussive timbral quality. The interpretation of the staccato line in *Hesitant* manifests in slap tongues in the clarinet and air tones in the bassoon<sup>26</sup>. A variation of the air tone is the "half-tone" in the bassoon, indicated by a half circle above the desired note. Half-tones add variety to the timbre of the air-tones. These clarinet and bassoon techniques afford pitch, and because there are two instruments, counterpoint is available. An example is seen in bb. 12-14 where the clarinet is playing duple quavers against the bassoon playing a chromatic line with triplet quavers.



Figure 4. Introduction to *Reticence*, only the muted note line.

Figure 5. *Hesitant* bb. 12-14. Notice the muted note line from *Reticence* transforming to the slap-tongue, triangle noteheads, and subtones, cross noteheads, in the clarinet and airtones, crossheads notes, in the bassoon.

These technical affordances allow counterpoint and technical fluidity in the individual phrases. In the introductory bars we can witness the clarinet performing

<sup>26</sup> Slap tongues are represented by upside-down triangle noteheads and the air tones by X-shaped noteheads.

a slap tongue that segues to a normally blown note performed in the same breath. B. 25 the inverse is seen; the normal note ends on a slap tongue in the same breath. The same sort of technical phrasing is seen in bb. 8-9 in the bassoon. While not in one breath, the air tone and the normal tone alternate quickly enough to be considered one phrase.

Incidental noises are a by-product of these techniques, namely the sound of keys pressing. The texturally quiet nature of the piece allows these sounds to emerge when they are usually masked by blown notes. This is similar to extraneous noises found in *Reticence*.

*Hesitant* is important because it started the practice of writing with derivation. Also, of note is that it was workshopped with the two performers, Johanna Leung and Curtis Man, as mentioned before<sup>27</sup>. As a composition it has compelling sounds and demonstrating interplay between the two performers. Structurally it meanders too much, however. If the sections were more focused and tighter, I think it would have prevented this quality. This occurs partly due to lack of familiarity with the derivative compositional approach<sup>28</sup>. Through the process many variations of the same idea are produced. The ability to choose which variations to use becomes an important part of the process<sup>29</sup>. There are satisfactory moments in *Hesitant*, the timbres, contrapuntal interplay, and others, but I think more effort should be concentrated on the piece holistically instead of purely as an exercise in transformation. Pieces written after this are more efficient in using the derivative process as a tool within the compositional process.

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<sup>27</sup> Further workshops were hampered by Covid-19 and lockdown.

<sup>28</sup> Part of the reason might also be attributed to the mentality brought on at the beginning of the Covid-19 pandemic and lockdown, which is when the piece was written.

<sup>29</sup> As with any composition.

### *RETICENCE FOR TUBA (FIRST ATTEMPT)*

Before commencing the workshops for clarinet and bassoon, the opportunity arose to compose for tubist and researcher Jack Adler-McKean. For this piece the decision was made to translate the techniques of *Reticence*, hoping discrepancies emerge. My work process for this piece was to intuitively generate sonic and technical equivalents; for example, natural harmonics on guitar transfer to the partials obtainable without pressing any valves on the tuba. At first, I made an abstract translation, roughly following the structure of the original solo, but after rehearsing the first draft and feeling unsatisfied with the results I decided to completely revise the piece, more strictly adhering to the structure and the sounds of the original solo. This approach yielded a more satisfactory result, but still lacking.

Unfortunately, *Reticence for Tuba* does not end up sharing the same sonic intimacy as the original guitar version. Undertaking these aforementioned workshops exposed flaws in my approach of *Reticence for Tuba*. The results from the workshops led to a decision to completely revise *Reticence for Tuba* a third time, focusing on morphing the equivalent sounds instead of trying to follow the structure of the original solo. Jack never played directly from the guitar score, but because of sounds discovered, and errors made during rehearsals, I had a tonal palette that could potentially create a new piece.

The problem for me is that the resulting piece too closely resembles an arrangement. Instead of transforming into a new composition, it is still only another version of *Reticence*. Its relationship to *Reticence* is another '...plausible way *that work goes*.' (Kivy, 1995), hence the similar title. It is more the tuba version of *Reticence* than a work of its own. Transformations and deviations are still occurring, but not enough to justify calling it a different work, in my opinion. I initially thought more change would transpire by following the original as closely

as possible because of the instrumental disparity. Eventually it became clear to apply transformational derivative ideas more aggressively. The manipulation of materials is more important than following the materials. This reinforces my thoughts of the unfeasibility of translation as a direct process, derivation replacing it.

### PLACID FOR TUBA

After the artistic failure of *Reticence for Tuba*<sup>30</sup>, I reworked the entire piece with more transformative intentions. This time, elements were derived directly from *Reticence*. The three elements that are derived are the quaver muted notes, the string scrapes, and the contrasting melodic material. These are the same elements as *Reticence for Tuba*, but change is welcomed and reacted to as opposed to an exact note-for-note replication of the original work. This is why the title is *Placid* instead of *Reticence for Tuba* signifying a divergence from *Reticence*.

In *Placid* the muted note becomes a tap against the side of the tuba with a small object that will create a dry, crisp attack; initial performances used a metal thimble or a ping pong ball. The string scrapes transform into sliding the object against the tuba. Not only do the timbres transform, but so do the instrumental affordances. Instead of creating another version of *Reticence* by emulating it as closely as possible, I am writing a new composition. *Reticence* directly generated the material, but once that material has been extrapolated, *Reticence* is effectively 'forgotten', with this act of forgetting a key point of separation between *Placid* from *Reticence for Tuba*.

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<sup>30</sup> Failure, in this case, is according to me the composer.



Since the tone production and mechanics between the tuba and the electric guitar are disparate, deviations and compromises are made to the composition when transferring over *Reticence*. Consequently, the composition pursues its own trajectory. One example of this change in sound is the muted note becoming a tap against the side of the tuba with a thimble. This morphs the sound from a pitched staccatissimo sound into an unpitched percussive sound. The selection of the tapping technique notes is because the tap can be done concurrently with blown melodic notes. This means melodic contrast can be achieved. Variations of this tapping technique in *Placid* are slides across the rough part of the tuba, indicated by triangle noteheads with a glissando line between them. Another is switching the metal thimble for a table tennis ball altering the tap timbre. These variations function to sustain textural interest without the benefit of changing pitch.

The image displays two systems of musical notation for tuba. The first system, starting at measure 9, consists of a bass staff and a drum staff. The bass staff contains quarter notes with stems pointing down, and the drum staff contains eighth notes with stems pointing up. The second system, starting at measure 16, also consists of a bass staff and a drum staff. The bass staff includes dynamic markings (*mf*, *ff*, *pp*) and a triplet of notes. The drum staff includes a triplet of eighth notes and a dynamic marking (*p*).

Figure 6. bb. 9-20. Example of dual staves showing the blown notes and the tapped notes.

The string scrapes are emulated here by the toneless “sh”<sup>31</sup> blown into the mouthpiece, notated as X-shaped noteheads in the top stave. This is a major departure from a foot sliding across the floor as it is too variable (because of footwear and floor surface) and cumbersome to be performed with the tuba. The “sh” is more stable, with the only negative being that it can no longer play simultaneously with the melody. Therefore, it is employed sparingly and only in certain sections.

At b. 70, the performer switches the metal thimble to plastic material. In the recording, the tubist employs a table tennis ball attached to his finger by adhesive tape. The intention is to approximately reproduce the timbral transformation in *Reticence* when the modulation and slight technical alterations occur in the middle section. The material switch in *Placid* is effective because of the perceptible change from the stronger, metallic clack of the thimble to the drier, delicate click of the table tennis ball. The resultant effect prevents staleness, potentially problematic given the homogeneity of the tap.

Briefly foreshadowed in bb. 34-35, the B section starting at b. 82 contrasts the A section by concentrating on developing the tap rhythm. Eventually this leads to sparse taps which include moments of silence. Then the “sh” effect returns, with interjections of the performer playing their highest available pitch. In general, it is an active section of the piece, and probably the most active for the listener. This is important as in b. 100 silence suddenly undercuts, dominating the texture. Slight interruptions break the silence, alternating between techniques and gestures<sup>32</sup>.

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<sup>31</sup> “j” according to the International Phonetic Alphabet (IPA).

<sup>32</sup> This “silent” section is featured in works written after this piece including *Out* and *A Meagre Walk*.

*Placid* is a significant moment in my research. It shows a solidifying of the process of my research output. The focus becomes using the transformative powers of arrangement as a generative source for new compositions. This is the first transparent example of this intent becoming even clearer with further compositions. This demonstrates how derivative composition transforms material from *Reticence*, from which results a new composition.

### **A MEAGRE WALK FOR DOUBLE BASS**

The opportunity to compose for solo double bass materialised after finishing *Placid*, becoming *A Meagre Walk*. Following *Placid*, I decided to transfer over the unpitched tapping to the double bass. Instead of tapping metal against the body of the wooden double bass (which would assuredly draw the ire of any bassist) the palm slap technique seemed suitable. A palm slap is when the performer hits the string or strings against the fingerboard creating a percussive clicking noise. In certain ways it is like the muted notes in *Reticence* because it is using strings, in some ways it is like *Placid* because of the strike against the instrument and the sound quality produced. The lack of perceptible pitch from the palm slap also bonds it to *Placid*. The muted note from *Reticence* transformed into the tapping against the body of the in *Placid* and has now become the palm slap in *A Meagre Walk*. This shows how the original muted note line through transformation has generated two new pieces.

Rockabilly and Bluegrass performance practice use this technique rhythmically, usually fitting each palm slap between notes of the bass line. *A Meagre Walk* adopts a different approach, replacing the up-tempo pace with a slow, deliberate one. This change is mainly because of the "plodding" tempo indication at the beginning. Another contributing element changing the usual

pace is the removal of bar lines, like in *Flower*<sup>33</sup>. The pulse provides a contradiction however, as it prompts a certain weight to the performance, but I think because of the lack of bar lines the performer feels that they have more agency over the piece. In the recording provided in the portfolio, the performer, Ali McMath, shifts the beat around throughout the performance. This helps to allow the palm slap to shed its bluegrass and rockabilly underpinnings. This pleases me as the composer and as a listener.

The palm slap gradually transforms into a couple of variations. One is a muted bowed note, which is similar in nature to the chop technique<sup>34</sup> which is represented by X-shaped notation. The other is a tap against the body of the instrument, displayed as square noteheads. Both are percussive, each having their own timbral properties contributing to a more interesting and complex composition.

Counterbalancing the percussivity of the palm slap and variants, is the return of harmonics. Their role is identical to *Reticence* as well as the normally blown notes in *Placid*. For this piece, the harmonics are plucked only, except for the final note. This unveils a fundamental difference between *A Meagre Walk* and the previous pieces. While the percussive notes and harmonics preserve the separation of musical streams, they both require the plucking/bowing hand to produce them. The same movement is producing separate streams as opposed to the previous pieces having separate movements for each musical stream.

*A Meagre Walk* is another piece within the *Reticence* lineage. At this stage, certain modified characteristics of the lineage are repeating. These not only help

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<sup>33</sup> *Flower* will be discussed in more detail later in the thesis.

<sup>34</sup> The "chop" is a string technique for comping chords. It can be heard in Bluegrass and Jazz. The originator of the technique credited to Bluegrass fiddler Richard Greene during the 1960's while playing with Bill Monroe's Bluegrass Boys. (Risk, 2013)

to characterise the family itself, but they also identify useful materials for transformation in subsequent compositions. *A Meagre Walk* demonstrates the most spacious interpretation of the percussive and melodic material introduced in *Reticence*. This further shows the availability of transformative properties of derivative composition and its capacity as a compositional tool.

### **SHRINKING STEPS FOR BASS GUITAR**

*Shrinking Steps* is written for the four-string electric bass guitar and follows the *Reticence* lineage. Instrumentally speaking, the bass guitar is probably the most closely related instrument to the electric guitar. They both have popular music associations, often grouped together as the rhythm section, and have many similarities regarding sound production and electronics. There have been many instances of performers doubling these instruments<sup>35</sup>. There are obvious differences however, namely four thicker strings, increased scale length and a lower register. The electric guitar is often played with a plectrum whereas a bass guitar is played with the index and middle fingers<sup>36</sup>. This means the same two-handed technique of *Reticence* could have been easily applied to *Shrinking Steps*. Transformation as the means for generating a new piece is the priority however, capitalising on the strengths of the bass guitar.

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<sup>35</sup> Some famous examples are Carole Kaye, originally a guitarist, who played bass on many recordings (Doyle, 2021). Another is Steve Jones the guitarist of the Sex Pistols who played the bass parts of their album *Never Mind the Bollocks*. (Jones, 2017)

<sup>36</sup> This is by no means a universal. The electric guitar is often played with the fingers, especially slide guitar players. There are also performers such as Jeff Beck, Wes Montgomery, Joe Pass, and many others who have made significant musical contributions playing with the fingers. The use of the plectrum in the bass guitar community is also common, though controversial amongst bass guitar purists. Some of the most famous bass guitar lines by Carol Kaye, Chris Squire and others use a plectrum.

This piece is also unique amongst the pieces written after *Reticence* in that I am also a proficient performer of the bass guitar. This becomes important in the writing process because it happens with the instrument instead of away, like how *Reticence* was written. A tactile approach often yields different results to a distant approach in my compositional experience. However, *Shrinking Steps* is meant for others to perform, whereas *Reticence* is designed for my performance. The idiosyncratic nature of my performance style caused problems with the first iteration of *Shrinking Steps* however. It was written using techniques that I am comfortable performing, but the bassist that I was rehearsing with struggled with them. These techniques included wide finger stretches, counterpoint, and precarious harmonics. This caused me to reassess, and ultimately, completely overhaul the piece and start anew.

The image displays three staves of musical notation for the piece *Shrinking Steps*, first version example. The notation is written in bass clef and includes various musical symbols such as notes, rests, and accidentals. Measure 53 features a sequence of notes with fingerings 4, 3, 2, and 1, and includes triplets. Measure 56 shows a continuation of the melodic line with complex rhythmic patterns. Measure 59 includes a triplet and a sequence of notes with fingerings 1, 2, and 3, followed by a descending melodic line with triplets. The notation is dense and complex, reflecting the idiosyncratic nature of the piece.

Figure 7. *Shrinking Steps* first version example

The second iteration simplifies the techniques which in turn simplifies the texture. Moments with multiple techniques occurring in a short span of time are replaced with one technique, sometimes two when the techniques are simpler. In the previous draft, techniques separate the voices. For this version, separation develops through traditional methods such as contrast in movement and pitch

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differentiation. This can be seen in bb. 20-24 with the melody while A and D open strings are pulsing quavers. The next bb. 25-28 demonstrate shows more complex textures, though considerably more relaxed than the previous version. Fundamentally it has now become a gesture followed by a muted note pulse.

The introduction to *Shrinking Steps* begins with a statement of the melody using harmonics, which is the only time more unstable examples are heard such as the sixth node harmonics. The introduction continues with gestures of harmonics into brief muted notes followed by silence. This repeats four times, followed by similar short phrases without the harmonics that lead into the first statement of the melody at b. 20. In a way, the melodic statement resolves the tension created by the silence.

The melody is succeeded by another silent section. The silence is protracted and is followed by two sections of the melodic statement. The second recurrence is notable for the contrapuntal voices underneath the melody, constituting the most technically complex section of the piece. *Shrinking Steps* concludes with harmonics followed by muted note pulses and silence, harkening back to the very beginning of the piece.

Copying the same techniques from *Reticence* to *Shrinking Steps* would have been straightforward. Instead of feeling an obligation to recreate the same sound and techniques, it is an opportunity for transformation. The pulse that is characteristic throughout the *Reticence* Family is still embedded as the connective tissue throughout the piece. It is often muted, yet there is variation to the timbre, as the open A and D string pulse exhibit. Harmonics are there, but not nearly as prominent as in *Reticence*. These transformations and changes prove how this approach can be used as a recompositional tool. Given its resemblance to the electric guitar, the level of deviation shows how effective this process could be. It shares many traits with other pieces in the lineage yet is its own work.

### NIGHT FOR PERCUSSION

*Night* is written for snare drum, woodblock, glockenspiel, and vibraphone, deliberately chosen as a pair of unpitched instruments and a pair of pitched instruments, with all four offering distinct timbral features in relation to each other. Considering that a main element throughout all the *Reticence* Family is the percussive muted note, a work for percussion made sense. The difficulty in the compositional process is not finding transformations of gestures and figures but choosing which ones. These decisions govern the trajectory of the muted note. Therefore, the muted note pattern that distinguishes this family of pieces can undergo a wide spectrum of metamorphosis.

The first example of the muted note transformation is seen at b.7 in the woodblock which derives from the pitchless percussive note stemming from tapping the side of the tuba in *Placid*. The rhythm diminishes and augments preventing the unpitched timbre from becoming stale. The vibraphone concurrently plays melodic material contrasting the "muted" woodblock gesture. The brushing of the snare drum is analogous of scraping the strings of the electric guitar.

The first transformation occurs at b.32 when the snare drum briefly replaces the woodblock reverting at b.38. The first full transformation is at b. 59. At this moment the glockenspiel fully adopts the muted note figure. Not only changing the timbre of the woodblock's 'tock' to a high 'ding' chime, but also affording variable pitch.

One development emerging through this *Reticence* lineage is sparseness, expressed using rests and transparent orchestration. This can be seen in the introduction where the woodblock plays steady quavers while only a single glockenspiel note rings over it. This sparseness is a conscious focus during the compositional process of *Night*, which in itself is a reflection of composing late in the evening.



The original *Reticence* has some space, but mostly due to timbral qualities rather than rests and spare orchestration. *Placid* is the first example where an extensive silent section appears. This gradually develops in *A Meagre Walk* until it now becomes an integral element of the music. During the writing of *Reticence*, my preoccupation was with filling space whereas *Night*, I am trying to augment the sense of space and isolation.

In general, *Night* is a further development of the *Reticence* family, increasing the quantity of possible reinterpretations of the quaver pulsing muted note figure. Given the number of transformations of muted note at this point, I would have a broad palette at my disposal to produce a derivative composition of *Night*.

#### **OUT FOR STRING QUARTET AND AIR FOR STRING ENSEMBLE - USING A SOLO WORK AS THE BASIS FOR LARGER ENSEMBLE WORKS**

The reader may have noted that most of the compositions from this period are solos or duos. The lack of large-scale works is a symptom of the lockdowns occurring in response to the COVID-19 pandemic, where the only viable way to work with musicians was through solo or virtual performance<sup>37</sup>. Fortunately, the RNCM organised workshops with a 20-member string ensemble in April and a string quartet in May 2021, when restrictions were loosened. Despite the later performance date *Out* is written before *Air*; therefore the former will be discussed first. It makes more sense to discuss it in this order because the string orchestra piece ends up deriving its material from the string quartet.

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<sup>37</sup> This will be discussed in the *Reticence (Unfurled)* section.

### OUTFOR STRING QUARTET

Like many of the previous solo works, *Out* derives the muted note figure from the *Reticence* lineage. Usually for this research the previously written piece is directly the source of derivation. *Out*, however, derives its material directly from *Reticence* instead of from *A Meagre Walk*, the previous piece. The similar production of the muted note on strings and guitar is one reason for returning to *Reticence*, insofar as the instrument is easily capable of producing a staccatissimo note with flexible perceptible pitch in the upper range of the instrument, in this case becoming pizzicato in the upper range of the violin. It produces a similar tone to the muted guitar note, but the pizzicato has much greater pitch clarity. Pizzicato is more standardised and easier to perform than the technique that I developed for guitar, especially when moving between pitches.

One key difference between the pieces is that the pizzicati are played with both hands rather than the one-handed guitar technique, allowing for transformation to transpire. This eliminates the possibility, for the most part, of multi-stream performance on a single instrument. The multiple streams instead must be spread out amongst the quartet. In *Reticence* a single performer is performing the melody while plucking the muted note figure, in *Out* this is split amongst the ensemble which can be seen starting in b. 12. The first violin is playing D while the viola is playing an artificial harmonic on G. This stratification happens throughout the piece.

The advantage is the staccatissimo note can be expounded upon. Two simultaneous staccatissimo lines can harmonise or engage in counterpoint while free from worrying about problematic hand ergonomics. This can be seen in the introduction where the second violin weaves in and out of the deliberate pulse of the first violin. The rest of the piece latches onto this idea. Also seen are quick gestures involving the entire ensemble for example at b. 17.

Also, being the first piece for more than two instruments, I thought it would be more interesting to see what could be done with the original. At this point as well, the process was feeling stale, so I wanted to slightly alter it. By reverting to *Reticence*, an alternative lineage presented itself, and I decided to follow this lineage when writing the next large ensemble piece *Air*.

### *AIR* FOR STRING ORCHESTRA

*Air* is the last piece in the *Reticence* family of compositions. At this stage, the amount of deviation between this piece and the original *Reticence* is considerable. The number of pieces between the original *Reticence* and *Air* has caused much filtration of the musical material, and as a result it is difficult to perceive the resemblances between them, barring maybe a few scant details. The deviations between pieces have led to deterioration of the resemblance, with the deterioration favouring the additional musical material that is original to *Air*. This weakening relationship allowed for this integration of additional sources, as well as growing weary of writing the same material repeatedly. This section will demonstrate how derivative composition can lead to very different works, especially over the course of many pieces.

*Air* strongly embodies the ideas of derivative composition with its own version of the muted notes like the others in the *Reticence* family. There are, however, elements taken directly from other compositions like *A Meagre Walk*, alongside new materials like the artificial harmonic chorale that will be discussed below.

Since a string orchestra resembles the instrumentation of a string quartet<sup>38</sup>, albeit larger, I thought deriving directly from *Out* would be a logical

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<sup>38</sup> A string orchestra having multiple strings to a part and an added double bass.

step. Yet, because of the larger size of the orchestra to a quartet, many of the techniques change from a timbral perspective. There are also practical considerations to consider when composing for a large ensemble versus a chamber ensemble. A great example is the upper pizzicati as featured in both *Out* and *Air*.

The upper pizzicati gain prominence due to the size of the orchestra but surrender agility due to the difficulty coordinating pizzicati amongst many players. The method for producing pizzicati is the same as both are constituted of strings, but due to the coordination necessary to deliver a simultaneous pizzicato within a string orchestra, the technique transforms. My reaction is to arrange the pizzicati to be steadier in *Air* as opposed to the interplay found in *Out*. The high C pedal in the violas at the beginning illustrates this point. This viola gesture establishes the rhythmic pulse that remains consistent throughout the piece, being subsumed by the other sections with the rhythm rarely augmenting or diminishing. In *Out*, the rhythm is constantly being varied.

The image shows a musical score for the introduction to *Air*. It consists of five staves: Violin I, Violin II, Viola, Violoncello, and Double Bass. The time signature changes from 5/4 to 4/4. The Viola part is marked 'pizz' and 'pp' and features a repeated high C pedal. The Violoncello part features a triplets marked 'pp'. A note in the Violoncello part is marked 'pizz' and has a '+' sign above it. A text box in the Viola part reads: 'Hard hammer-on with fingering only. Do not pluck. pizz'. The Double Bass part is marked 'pp' and features a triplets marked 'pp'.

Figure 8. Introduction to *Air* with the Violas playing repeated high C's while the first violins play the melody.

The double bass is the one instrument the string quartet and the string orchestra do not share. Instead of trying to transform an element from *Out* for the double bass, *Air* derives from *A Meagre Walk* for double bass, the first-time

deriving from multiple pieces. At b.14 we see the palm-slap technique taken from *A Meagre Walk*, recontextualising it for *Air* by combining this technique with a continuation of the steady pulse established by the violas.

The image displays two systems of musical notation for the piece *Air*. The first system, starting at measure 10, features a double bass line with dynamic markings *pp*, *ppp*, and *p*. It includes instructions such as 'arco', 'pizz', and 'slap strings with palm'. The second system, starting at measure 15, shows the first violins and violas playing 'muffle string' parts with a *pp* dynamic, while the double bass continues with 'pizz' and 'slap strings with palm' techniques. The score is written in 3/4 time and includes various musical notations like triplets and slurs.

Figure 9. Section of *Air* showing the appearance of palm slaps in the double bass.

The melody, introduced at the very beginning, is played using touch-four harmonics in the first violins, like what is found in *Out*. *Air* though develops it throughout the piece, unlike the treatment of the melody in *Out* distributing itself unchanged throughout the quartet. At b. 20 we see the melody is played using standard technique, still staccato. To me, it sounds like a very loose homage to

the classical period. Contrapuntal interplay is explored around the melody, as opposed to the high pizzicato figures.

The orchestration effect at bb. 51-55 and b. 68 to the end is only possible in orchestral settings. Only in this setting can multiple performers on the same instrument be divided. In *Air*, this affords the steady pulse pizzicati figure to be thickened and thinned in a hairpin crescendo-like effect. If it were to be adopted for another type of orchestral stringless ensemble, it would undergo substantial transformation.

As the first piece for large ensemble employing the derivation-based approach to composition, it is successful. The process generated substantial useful material, especially when deriving from multiple sources within the *Reticence* lineage. Because of this, the pre-composing for *Air* was short, only lasting about one week and a half. Regarding its relationship with the original *Reticence*, it still shares characteristics, however the relationship is tenuous due to the addition of new materials, like the touch-four chorale section<sup>39</sup> for example. The relationship between the works is starting to break away and only becomes apparent from looking at the family tree as whole. I think if I were to continue deriving from *Air*, it would start to form another branch in the *Reticence* lineage. It could even start branching out from *A Meagre Walk*, adding complexity to the *Reticence* family tree. This filtering is ideal. This shows this process is an effective tool for generation. Pieces can still be related by concrete gestures, even if aesthetically distant.

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<sup>39</sup> Drop-two voicings are a jazz arrangement technique. It operates by dropping the second voice to the bass.

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### RETICENCE (UNFURLED)

A project materialising during the third lockdown in March of 2021 was the UnHeard Hybrid Virtual Concert, which is where *Reticence (Unfurled)* was premiered. Via an open call for works, composers wrote for a broad pool of RNCM musicians which we were able to select from. I decided to work with all twenty-five of those who applied<sup>40</sup>. Before the instrumentation was made available, I was required to have the piece prepared, leading to the open score of *Reticence (Unfurled)*. The original guitar score is split into three parts, (staccato line, melody, extraneous "noises") adding a fourth bass part contrapuntal to the main melody line. Parts were randomly allocated, resulting in an ensemble of soprano saxophone, classical guitar, and soprano voice (part 1); Bb clarinet and cello (part 2); violin and alto saxophone (part 3); mandolin, accordion, trombone, and contrabass (part 4). Performers received limited directions for reading the notation by email. Instructions were explained further only when questions arose.

Like most ensemble recordings made during this period, the performers record their part adhering to a click track, isolated from each other. The click track itself consists of me playing the guitar as if it was a metronome. Listening to the indicated tempo on the score, in this case  $J=80$ , I would then switch off the metronome trying to replicate that tempo as closely as possible. Since I am very much a human, the click was imprecise!

At the same time, the quality of the recordings varied. Some performers used camera phones, some used field recorders, and some made audio recordings with higher-quality microphones. This, alongside the imprecision of the click track, intentionally vague directions, and lack of communication between

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<sup>40</sup> Though the final total amount of musicians ended up being eleven due to a multitude of reasons.

players, led to discrepancies between each video and audio recording<sup>41</sup>. This became clear during the editing process upon receiving all the video and recording materials.

The control lost during the recording process was regained in the editing process. While most of the editing dealt with synchronising the recordings, there was also some mixing, equalising, and panning. Once I had completed these stages, a pad was added underneath. This pad's creation involves playing the recording through the pickups of an electric guitar. The sound was further filtered through a low/high pass envelope filter stompbox effect pedal<sup>42</sup>, as well as switching the pickup position on the guitar.<sup>43</sup> This additional noise and timbral colour to the final recording, as well as to the overall texture when adjoined amongst the instrumental performers. A universal digital reverb also adds coherence to the timbres of instruments and recordings, reducing the impact of the differing circumstances each recording was made in.

*Reticence (Unfurled)* is clearly derived from *Reticence*. Some might assert that the former is an arrangement of the latter. On some level I agree with this sentiment since *Reticence (Unfurled)* takes most of the elements (melody, harmony, approach to timbre) and brings it over to a new medium. Though the piece keeps the same name to highlight the debt to the original, the added name in parentheses is a reference to the separation of the streams (and performers). The addition of the bass part, and the higher degree of music production removes *Reticence (Unfurled)* from its original solo context. Comparing both versions,

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<sup>41</sup> There were two cases where the performers used their own click tracks instead of the one provided to them. The discrepancy was mitigated during the editing and mixing process.

<sup>42</sup> Also known as a wah-wah pedal.

<sup>43</sup> The electric guitar used has three pickups; bridge, middle, and neck. Different frequencies are picked up according to the position causing timbral shifts. It is analogous to a bowed-string instrument playing *sul ponticello* versus *sul tasto*.



*Reticence (Unfurled)* loses the intimate quality and instability of the original, but there is a fuller timbral colour in the “orchestral” version. The fixed nature of the electric guitar score is also opposed to the new, open-score version, expanding the potential results when performed. *Reticence (Unfurled)* certainly has characteristics of an arrangement, but the substantial changes give it a new character.

### SUMMARY OF *RETICENCE* LINEAGE

This chapter shows the derivative compositional practice and its application. Certain fragments transform greatly, like the muted note gesture. By the end, with *Out* and *Air*, there is a large quantity of possible transformations. There is opportunity not to derive directly from the piece before it, but from other previous pieces as well. This can be exhibited more clearly in the diagram below.

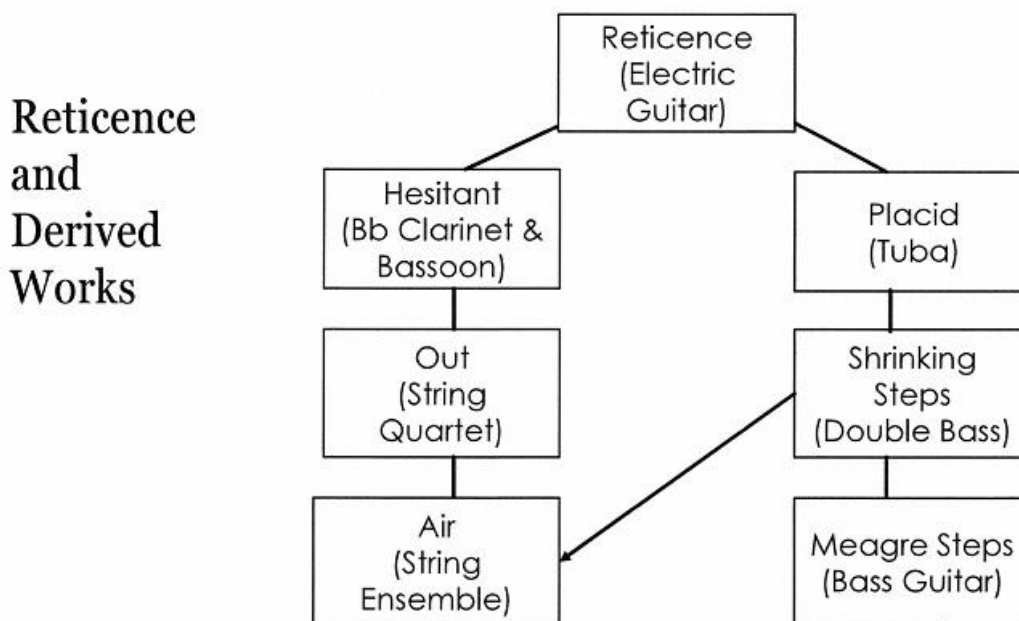


Figure 10 *Reticence* Family Tree showing derivational lineage

*Reticence* and its derived pieces exemplify how one piece can be transformed, generating a wealth of new pieces.

## OTHER ORIGINAL ELECTRIC GUITAR COMPOSITIONS AND DERIVED PIECES

### *HIDING*

The first electric guitar solo written is titled *Hiding*. This piece sets the precedence the next five solos follow: frequent usage of harmonics, no effect pedals or electronics, yet still extracting as much glitch and noisy sound I can from the guitar instead of avoiding it. This is also reflective of a DIY punk influence, more specifically the post-hardcore and no-wave genres<sup>44</sup>. In *Hiding* the influence is most apparent due to the continuous quaver downward picking<sup>45</sup> and that the bulk of the music is based on three chord phrases being repeated.

The impetus for *Hiding* is replacing standard chords with harmonic chords. I have found that this substitution transforms the timbre enough that new potentialities arise and could become the basis for a composition. As a composer and musician, I have always had the desire to combine my classical composition

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<sup>44</sup> More about the influence DIY punk has on my work in the introduction of this thesis.

<sup>45</sup> Continuous downward-picking (referred to as down-picking) is commonplace in punk and heavy metal, almost a trope in the guitar community.

training with my background playing in punk and rock bands, but I was not able to ascertain the right approach for an organic process. *Hiding* supplied me a solution to this problem. It is fully notated yet retains a simplicity and raw energy that I enjoy in punk rock music.

Initially a notated shorthand was employed using tablature without rhythms. Some of the symbols used would only make sense to me. This system is useful to cue myself, the performer, during a performance. This did lead to some variation between performances, until the work was standardly notated using western classical notation. The reason for notating it fully is the desire for others to perform the piece. If someone else were to play this shorthand version of *Hiding* verbal explanations or written text would be necessary. These options seem less efficient than standard notation. However, I often take liberties when performing this piece, which is why the piece started in its shorthand form. A performer that is not me would be given similar performative liberties.

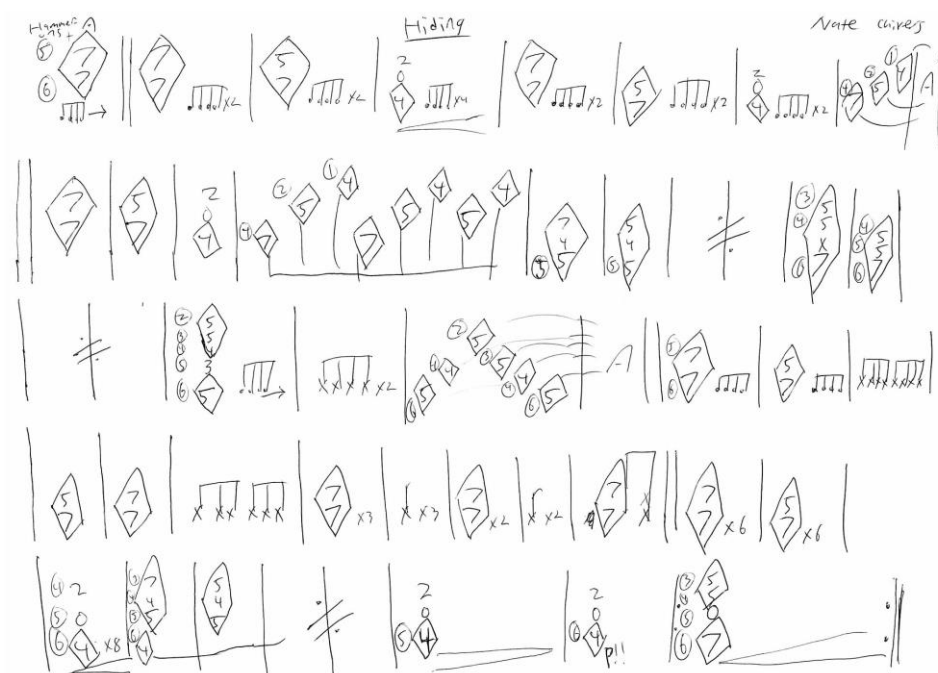


Figure 11. Example of notational shorthand used for *Hiding*.

Since *Hiding* is the first electric guitar solo written it was a natural decision for it to be the first foray into derivation as an approach to composition. A

commission for wind quintet presented an opportunity to trial this approach. The result is *Connected* for wind quintet and electric guitar.

### *Connected*

The idea and application of derivation to composition was vague to me during the process of writing this piece<sup>46</sup>. The original commission specified wind quintet and an allowance for additional instruments on the condition that the composer provides them. This led to the inclusion of the electric guitar acting as the foundation around which transformations would form. I would be deriving gestures from the original solo from the original instrument for a new ensemble. Berio's method of multiplying out (Osmond-Smith, 1991)<sup>47</sup> provides some influence regarding composing out from a solo piece. There are key differences, however. Whereas Berio keeps the solo relatively intact within an ensemble, *Hiding* fractures within *Connected*. Fragments taken from the solo are enacted by the guitar, proceeding to reverberate throughout the ensemble. I perceive my technique as reverb, instead of adding layers of tones like Berio does. Part of the decision based on the commission itself, based on data sharing between hospitals. The commissioners are an organisation that promotes research into facilitating sharing patient data across hospitals in the UK. The piece loosely mimics the idea of sharing a patient's information starting with one hospital being passed around to other hospitals.

Harmonic chords from the guitar transform into repeating chords when they appear in the wind quintet. Almost no extended techniques appear in these

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<sup>46</sup> At this point, the derivative process I was using was still called translation.

<sup>47</sup> Multiplying out is an expansion process for Berio's *Sequenza's* into the orchestral *Chemins* by adding layers texturally and harmonically to the original instrumental solo, analogous to Berio's process working in electronic composition (Osmond-Smith, 1991).

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repeated chords except for a 'sh' breathe tone. 'Sh' is equivalent to the 50/60 cycle hum emanating from the amplifier and electric guitar. Mixing traditional wind sounds with the hum results in chords having characteristics more akin to the sound of the guitar in *Hiding*, or at the very least with the tone that I use. Other sound mutations are the guitar muted strings transforming into key-clicks in the woodwind. The key-clicks are arhythmic, playing as quickly as possible. The arhythmic change is more effective at expressing a similar sound quality as muted guitar than copying the same rhythm because the timbre is more pronounced. A single key-click lacks projection, losing distinction within the mix of the ensemble. As a rhythmic element it would hardly be noticed. Instead of fruitlessly attempting to force key-clicks to be rhythmic, I decided to accentuate the timbral effect. This is the type of compromise that I look for in derivative composition and would utilise better in later pieces.

Even with this accommodation, *Connected* shares too many characteristics with *Hiding* for me to consider it separate from an arrangement. *Connected* would need more of a sense of detachment from *Hiding* for me to consider it a composition that is derived as opposed to an arrangement. My error was keeping the guitar in the ensemble. It is too similar to an orchestration and not a transformation. If there was more focus on developing gestures like the key-clicks, it would more likely be a new work. The guitar's distinctive timbre also makes it difficult to divorce *Connected* from the same guitar tone in *Hiding*. Removal of the guitar completely would be the first revision I would make. More concentration would be directed to developing the reverberation effect and key-click gestures. This would be the starting point and knowing how the approach manifests in my practice now, would result in a vastly different piece.

It should not be misconstrued that I think that *Connected* is worthless, but I think that more could be done, and its associations with *Hiding* are too close to justify it as a separate piece. This is an example of a failure of the process. Even though it is not indicative of the derivative process that I use, it is the first stage

in refining what it would end up becoming. As it is, it shows what derivative composition is not.

### ***PARK***

As mentioned before, rock and pop music deeply influence my work. This is most clearly seen in *Park*. From the driving downbeats, syncopated rhythms, and straightforward harmonies, there are many traits from popular music<sup>48</sup> that appear in the piece. Genre is noteworthy in *Park*, but it is not a driving force in my practice. While there is a clear relationship with aforementioned genres, genre itself is not of great concern to me as an artist, but I think it is important to acknowledge it.

Musically, *Park* is a study in harmonics and muted notes. The harmonics are played on the downbeat of almost every bar, also supplying the harmony which is basically a I-V progression. Muted notes then follow the harmonics with the melody. The construction of the melody is built on the interval of a third, lasting about eight bars long, consisting of four bar phrases. Each statement of the melody is a slight variation and is stated six times in the piece. Coupled with a brief eight bar bridge/b section at bb. 49-57 the duration of the piece is about two and half minutes long. Its brevity is notable as most of the pieces in the series range from five to eight minutes long, almost twice the length<sup>49</sup>.

Amidst the oeuvre of the six solos, it shares the most characteristics with *Scratch*. Both are energetic, highly rhythmic pieces with distinct popular music connotations. They are brief, using some form of strumming harmonics and

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<sup>48</sup> Obviously, an oversimplification of popular music considering the number of artists and genres. The intention is to illustrate *Park* being grounded in pop music as opposed to the western classical tradition.

<sup>49</sup> Except for *Scratch* which is about one minute long.

muted strings. The diverging elements are that *Park* develops and employs more variations of the theme than *Scratch* which is more based on riffs. Technically, *Park* separates harmonics and muted strings, while in *Scratch* the strings are always struck simultaneously. In *Park*, the harmonics are on the low strings and the muted notes are high strings, which is a substantial string skip, an already difficult technique. The precariousness of the techniques requires even more agility and precision than normal. This piece is easily the most difficult because of the technique and the brisk tempo.

This piece receives a derivative composition for sitar. My experience with the sitar is limited, never playing one or interacting with a sitarist. Even with this limited understanding, I knew there would be many similarities between sitar and guitar as both are fretted and plucked instruments. This would allow smooth transference, yet changes would still occur. These are the reasons why I thought that it would generate a foundation for a derivative-based composition which would become *Lull*.

### LULL FOR SITAR

When discussing the composing of the piece, the sitarist, Jasdeep Singh Degun, shared the standard instrumental techniques and provided insight into his performance practice. I quickly realised my assumptions were naïve. There are transferable and shared techniques between guitar and sitar, yet there are specific techniques unique to the sitar where a complete transfer is impossible. *Park* is played with a plectrum while the sitarist plays with a metal clip on the end of their finger<sup>50</sup>. The most striking technical difference is the fretting hand employing two

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<sup>50</sup> It could be compared to the metal fingerpicks of a banjo-player. The difference is that the sitar plectrum is longer, while the banjo fingerpicks covers the fingerpad. A banjo player also usually has two fingerpicks, plus a thumb pick. A sitarist has the one plectrum, reflecting the more monophonic nature of the instrument.

fingers, the index and middle, for sitar, and chords are almost never used. It is common for all four fingers, sometimes five, to be used for guitar. For these reasons the sitar tends to be monophonic, whereas a guitar is a chordal instrument.

The sitar has two melodic strings, two drone strings, and a set of sympathetic strings resonating with the drone and melodic strings. It should be noted that a sitar is purely acoustic while an electric guitar is amplified. Amplification is what causes the muted notes of the guitar to be prominent in the texture of *Park*. On the sitar however, muted notes are drowned out by the sympathetic strings, therefore not as effective and used sparingly

Due to the solely acoustic nature of the sitar, timbral divergences still occur when these similar methods of sound production carry over. For example, harmonics resonate the sympathetic strings creating a striking texture, the resonance being more pronounced than on the electric guitar. The harmonics ring out over the sympathetic strings while reinforcing and being reinforced concurrently with the sympathetic resonance, almost like a feedback loop. As a result, striking one note produces a full harmony brimming with sound. This increased resonance is attractive enough as compositional material to become the crux of the piece.

Muted notes and harmonics are not standard in the Indian Classical music tradition, as Jasdeep informed me, thereby proving to be unnaturally tricky for him. This is even more true when the electric guitar techniques in question are already unorthodox, making the technical transfer even more abnormal. Plucking a muted string on the sitar is less satisfactory. The sympathetic strings are still triggered by the muted strings, and while the attack is not obfuscated by the resultant resonance from the sympathetic strings, the prominence is lacking. They are not as percussive as on the electric guitar. My hesitance with the technique was also due to the sitarist's discomfort with this specific technique. He would



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typically try to cull as much sustain for the melody. For these reasons I decided to deemphasise the muted strings, instead using standard sitar techniques of sound production. The standard method is also more cohesive timbrally with the harmonics in terms of interaction with the sympathetic strings.<sup>51</sup>

While harmonics cohere with standard notes timbrally, they are still uncomfortable for the performer. They are not as counterintuitive as performing muted notes, but still uncommon in classical Indian music. The sitarist was aware of how to produce a harmonic, but he informed me that he would need to practice this specific technique, along with the piece itself.<sup>52</sup>

The sitarist is not used to reading western classical notation so notating this piece is an exploration into unconventional methods. For his discipline, the standard transmission of a work is aurally.

I have experience with this method, playing and jamming in rock bands as a youth, so this theoretically could have been done. With the limited time we had however, this probably would not be practical. Luckily, he demonstrated a written notation that he is more comfortable with. Appearing like the Nashville Number System<sup>53</sup> style of notation, the system is less based on symbols and more on writing out the solfege<sup>54</sup>. The structure is more clearly laid out, being based on grids, with the sections written out and clearly defined. It is clearer to read, but precise notation is less practical. Because of the improvising and embellishing

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<sup>51</sup> The sound of the muted notes could be useful. Sympathetic vibrations without an initial note could be useful for composers. While not appropriate for 'Lull' I could imagine a composition using this technique.

<sup>52</sup> It also should be noted that this piece was commissioned alongside four other composers. He had to learn five pieces for this workshop, along with his general commitments as an in-demand performer, so he had limited time to learn 'Lull'.

<sup>53</sup> The mention of this system is purely for convenience in describing the notation of *Lull*. This research will not discuss in-depth the intricacies of the Nashville Number System as it had no direct influence on the compositional process. (Clements, 2020)

<sup>54</sup> The solfege used is the one used in Indian Classical Music, according to Jasdeep.

capabilities of the performer, precise notation would not be a concern in this case. To achieve a satisfactory performance, I had to bear in mind these factors.

In the end, *Lull* is close to *Park*. The melody in *Park* is different and is attained by another means of sound production, yet still share similar characteristics in terms of being simple, bright, and bouncy. The harmonics are also on the downbeat of every bar, establishing the harmony, which is itself limited to a I-V progression. The biggest difference however is the lack of muted notes. *Lull* is also twice as long and gives a lot of space for the performer to extemporise and embellish. There are only a few elements that are derived from *Park* yet there is still a clear kinship between the pieces. While these shared elements create a direct kinship with each other, they are still different pieces caused by refocusing on other elements not present in the original electric guitar solo *Park*.

### FLOWER

The crux of *Flower* is based on light tremolo picking and plucking harmonics with the fretting hand. Plucking harmonics with the fretting hand unfetters the plucking hand, allowing multiple streams to transpire. Not only does it liberate the plucking hand, but also softens the attack of the harmonic. Through careful manipulation of hand ergonomics, the fretting hand still manages to fret notes, which are tremolo picked.

Tremolo picking is when the guitarist repeatedly strikes the string as rapidly as possible within a given duration<sup>55</sup>. A famous example of tremolo picking is the surf-rock classic *Miserlou* by Dick Dale, based on a traditional Middle Eastern/Eastern Mediterranean song. This song elicits excitement, tension,

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<sup>55</sup> Similar to the tremolo bowing of stringed instruments.

exclamatory phrases. These are common associations with this technique. I employ it in a quiet, textural context in *Flower*. Due to this atypical implementation of tremolo picking, an unexpected effect arose. Two pitches are perceived simultaneously; one being the fretted note, the other is the striking location of the plectrum, which can be heard because of the continuous nature of tremolo picking<sup>56</sup>. These two perceptible pitch sources create an almost out-of-phase effect, almost like a comb filter. The comb filter-like effect is only audible when the texture is subdued and transparent. This might be a reason why it has not been a feature of earlier musical works using tremolo picking.

Figure 12. *Flower* Example. The line underneath the staff represents where the performer is to tremolo pick starting from the twelfth fret. The line is purposely vague to allow performer freedom.

The left hand plucking of harmonics is played simultaneously with fretted tremolo picked notes and with proper hand ergonomics is an affordance of the guitar. This does not mean it is a simple technique to play. In fact, the amount of coordination and precision needed to perform "perfectly"<sup>57</sup> is high. They are separate movements with limited space and little margin for error, it is easy to

<sup>56</sup> Originally the idea was to transition from *sul tasto* to *sul ponticello* for expressive reasons.

<sup>57</sup> This word is used subjectively. It is not meant to refer to the idea of exact replication/compliance of the score.

accidentally add or omit notes that could be considered obtrusive. It is probably the most difficult of the six guitar solos, other than *Park*.

The score of *Flower* has no bar lines, which is unique amongst the works in my research, only appearing again in *A Meagre Walk*<sup>58</sup>. The reasoning is to give the performer a large amount of durational flexibility. I think this flexibility transfers to more performative freedom in this case. The quiet, ethereal nature of the techniques lend themselves to this type of notational practice. I am the only person who has performed *Flower* at this time. Another performer is likely to diverge from the original recorded performance. For instance, I approach this sort of notation like a constant rubato, albeit without the need to return the "robbed time". Another performer could theoretically play it straighter or with even more rhythmic wavering. Expressive freedom for the performer is important in *Flower*.

Harmonically and melodically, the piece uses notes that are next to each other (as best as possible, octave displacement is used to facilitate ease of performance). The frequencies vibrate against each other when harmonics are a semitone or two apart. Each fretted note corresponds to a different harmony, mildly influenced by jazz harmony, and gives the piece a block-like structure. There are two section breaks with standard chords, indicated by double bar-lines, the only bar lines in the piece. This section contrasts against the instability of the harmonics and tremolo. The chords are more stable, while the main techniques are considerably more unstable.

*Flower* as a composition happened gradually. This is due to the technical innovations that are introduced in the piece. The complexity of the technique needs practice to become proficient in its execution. Running parallel to this is the actual composing of the piece, which also takes time. While the need to

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<sup>58</sup> Not an intentional relationship.

practice delayed the composition, the tension between what I am capable of and what I wanted caused some new guitar technical innovations as well as influencing the music of the composition.

I find *Flower* has a close resemblance to *Reticence*. They both have similar understated and ethereal qualities. Performing both evokes a similar response from the audience, and a similar state of mind as a performer. Both pieces rely heavily on the affordances and timbre of the guitar, also taking advantage of its amplification. The sustain of the harmonics lend to a certain tempo based on their natural sustain. Yet variability is possible with how much space a performer feels is necessary. While both pieces separate the hands, their technical qualities do not carry over as they are specific and self-contained, like all the guitar solos composed for this research.

They are separate pieces constituted by key characteristics. Fundamental differences include the structure of *Reticence* being much more fixed than *Flower*. *Flower* is free, where much of the score is left up to the performer. *Flower* is a basic roadmap, while *Reticence* is a GPS Navigator (albeit up a treacherous mountain with no guardrails). A performer has more to comply with in *Reticence* than in *Flower*.

### *TOUCH*

*Touch* is the most recent solo electric guitar piece completed in April of 2020. The last of the electric guitar solos to be written, it shares many characteristics with the other guitar solos, despite being regarded as entirely separate from the others. The piece features techniques centred around harmonics and delicate muted tones creating sonic intimacy like the previous guitar solos. In a similar vein to the preceding works, the technical affordance was the impetus for the composition consisting of harmonic chords played exclusively by the fretting hand. As opposed to the other pieces, including *Reticence*, the

crux of the piece is not placed on technique, with multiple techniques I have developed being developed instead of developing a technique specifically for this piece. There are fretting-hand harmonics in the upper-register, there is two-handed playing similar to *Reticence*, and many natural harmonics. This piece is more narratively focused, rather than exploring techniques in a more flexible manner. A substantial amount of coordination is needed between the hands. The technique is the initial inspiration and its role as the focal point shifted with subsequent drafts, as for all my electric guitar solo compositions. I will describe its compositional development, because it goes through more drastic changes from the first to the last draft than the other guitar solos. The derivative and transformative techniques used for generating materials provided a useful tool. The application of Derivative Composition to this single piece on multiple levels, taking fragments from one draft to another, recontextualising them with each step, is the main reason it came to fruition. It could be said that this is a standard model of composition, and while I would partly agree, using derivative composition for previously written pieces allowed me to be more articulate for this type of composing. As discussed below, each draft is very different from the next, with new iterations discarding much material from previous versions.

There are four drafts of *Touch* that received performances each with substantial differences. This is distinct from the normal trajectory of how my guitar pieces are generally composed. As the performer of *Touch*, I was able to make adjustments after performance. When a piece is written for someone else, there is little reason or opportunity to make more substantial revisions to a piece after a single performance, most often because a performance of a piece by a performer external to the composer is often considered to be a unique event that

is either not to be repeated or replicated exactly at the next performance<sup>59</sup>. Most of the guitar solos were generally completed by the time of their first performance, with only minor changes made after. The reason for multiple drafts for this specific guitar solo can be attributed to feeling tethered to a specific idea yet feeling unsatisfied with the results. I realised that substantial revisions would be appropriate.

The composition of *Touch* is like the process of derivation, in that a fragment from a previous draft would be transferred and recomposed. The only difference is that these recompositions culminate into one composition, as opposed to creating a new piece unto itself. I have not transferred *Touch* material into a new composition with new instrumentation, but because there are four drafts sharing fragments in various forms, it is a valuable case study into how derivative composition is able to produce a single work. This exhibits how the derivative process is not only useful in recycling material for multiple pieces, but also for a singular piece. It would have been inconceivable for me to write *Touch* in its final form without researching derivative and transformational techniques.

Even though the final draft looks and sounds barely like the first, revisions made between drafts of *Touch* have a few universal fragments. One of the main features between drafts are harmonic chords played by the fretting. As mentioned before this technique is the focal point of the first draft, but its foreground role gradually diminishes, evolving into the background texture supporting the main melodic material.

In the forthcoming comparisons between the first and last draft, the differences soon become clear. Once the clarification of the division between the

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<sup>59</sup> There are obvious exceptions to this, but the opportunity to revise a work-in-progress is often a rare opportunity when one is not performing it themselves.

first and last is established, analysis of drafts two and three reveal the piece's gradual evolution.

Figure 13. *Touch* intro, first draft

In the first draft, the fretting-hand chords are joined by single-note harmonics with the plucked hand, oscillating between the two techniques creating a singular gesture. Sharply contrasting this gesture are sections of muted notes played with the plucking hand on the sixth string, returning to the harmonic gesture. There are hints of melody in the first draft of *Touch*, most clearly heard in bb.14-20, but the primary function of the melody is to contrast with the timbre of the harmonic gesture. The intention of the melody is to reinforce the monolithic quality of the harmonic gesture as the focal point.

A reversal of priority of the harmonic chords and melody is apparent in the final version, with the chords accompanying the melody throughout. The final draft employs the left-hand harmonics without additional right-hand harmonics removing its gestural status, transforming more into a texture. The harmonics playing simultaneously with the melody often requiring coordination between both hands. Since the techniques occupy different tessitura, musical separation is more manageable.



Figure 14. *Touch* bb. 13-32 Final version. Notice the retention of harmonic chords and the string scrape, though their priorities are rearranged.

Few residues that appear in the first draft also appear in the last, namely the D to G harmonic chord motif from b.10, b. 12 and b. 27 of the first draft. This becomes the introduction of the final draft as well as insertions between declarations of the main melody. Another noteworthy similarity is the G# minor – B minor chords on the three highest strings, on the fifth and sixth partials respectively, that can be first seen in b.7 of the first draft. They appear in the final draft without the right-hand notes in bb.23-24. This also functions like a cadence signalling the end of the section. These gestures are what originally inspired me to compose *Touch*; their timbre and harmonic qualities being attractive compositionally. As such, it is unsurprising that these specific gestures and motifs survived throughout the writing process.

Drafts two and three show the transition from the first to the last draft. We can see the recycled and transformed fragments, and which ones are added and removed. One major revision is the introduction: the first and second draft feature string scrapes, whose abrasive timbre contrast with the purity of the harmonics.

It became explicit that the scrapes did not project the appropriate tone after performing *Touch* in its second draft. As a result, the third draft introduces the D – G harmonic chord motif foreshadowing the beginning of the fourth draft. Setting the harmonic chords as the main texture, instead of as a gesture, produces a more satisfying effect. They also have the added benefit of establishing some sort of harmonic backdrop, creating the intended sonic intimacy.

Changing the introduction has the consequence of subsequent material changing. As the previous paragraph alludes, there is a clear melody in the final version. Draft two does not contain a clear melody and draft three does, though it is unaccompanied.

Draft three still has many elements excluded from the final version. It still follows a segmented structure going from melody to harmonics and back again (akin to the “Verse-Chorus-Verse” structure associated with nineties era alternative rock). The harmonics and the melody countering each other prevent it from possessing the fluid structure of the final version. We do witness in the final measure the sections blending causing the harmonics and melody to coalesce.

*Touch* took the longest amount of time to compose, about one year and a half. This difficulty could be partially attributed to the material being difficult to manipulate. This compounds with the lack of understanding about how to effectively compose with the material. I think the application of derivative compositional procedures helped solve these issues. If I were to have consciously transferred fragments and recompose them, the composition process could potentially be less arduous<sup>60</sup>. One could look at this as a form of editing, and if so, it is an extreme form where substantial revision, if not outright new

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<sup>60</sup> ‘Arduous’ is relative when discussing composition. Most would describe it as naturally arduous!

composition takes place. In any case, I am convinced that without the derivative process, the composition would not culminate in the way that it did. I think this shows that derivative composition and the procedures I have described can be implemented as a tool for composing a single work.

### SCRATCH

*Scratch* is an example of a "happy accident" becoming a full piece. I do not remember when exactly I came up with it, as it started as a lick while mindlessly playing the guitar. It shares characteristics with the other six solos employing harmonics and muted strings, adopting them in unconventional manners. Following the precedence of the other solos' treatment of harmonics and muted strings, *Scratch* has its own idiosyncratic technical variation. The primary technique in this piece is strumming muted strings, with a plectrum, simultaneously striking harmonics on the sixth and fifth string. These harmonics ring out while the strumming maintains a consistent semiquaver pulse.

What separates this solo from the others is the simplicity of the main materials, the brevity, and a more "pop" feel. The argument could be made that these qualities apply to *Park* and *Hiding*, but are more apparent in *Scratch*.

The main motif of *Scratch* is G# - B - E performed on the sixth string as harmonics. This is repeated four times and is followed by G# - C# - A- B and G# - C# - A- E played on the fifth and sixth strings using harmonics. Combining this with the syncopations of the motif against the semiquaver pulse gives the bright, unabashedly bouncy quality that is present only in this guitar solo in the research.

The bridge section alters the semiquaver pulse with a halftime quaver pulse and contains the most dissonant 'chord' in the entire electric guitar solo series, a multiphonic played at fret VI on the fifth and sixth. Scant thought is given to the functionality of the harmony, meaning it does not resolve according to western classical or jazz theory. The intended function of the dissonance, roughness, and timbral complexity is to contrast with the simplicity of the main

motif. Recapitulation of the main motif follows the bridge, and the piece ends with a muted string glissando being rearticulated at a semiquaver rate, while an A harmonic on the fifth string rings out. All these sections together amount to thirty-four bars total, equalling about one minute of music, constituting the shortest of the electric guitar solos.

Its simplistic harmony and clear, simple, and short structure are appealing to use as the starting point for a derivative composition. The opportunity arose when a classical guitarist asked for me to write a new piece for him. I decided this was the perfect opportunity to use *Scratch*, as well as capitalise on the differences between the electric guitar and classical guitar. It might be beneficial to acknowledge the differences between the instruments and instrumentalists as they appear to be similar on the surface.

#### **THE DIFFERENCES BETWEEN ELECTRIC AND NYLON STRING GUITAR TECHNIQUE**

The most obvious difference between an electric and nylon-string guitar is that the latter is acoustic, and the former is amplified through pickups. Their construction reflects this as the classical guitar is built to create as much volume as possible, while an electric guitar is designed to be amplified by deadening the sound as much as possible to eliminate feedback. Reflecting the construction is the general approach to instrumental technique. A classical guitarist's primary concern in their technique is to bring out as much sound as possible, whereas an electric guitarist's technique involves a lot of muting to limit extraneous noise (especially during a loud rock concert). The instruments also have a different playing technique with the classical almost exclusively being fingerpicked, while an electric guitarist most often uses a plectrum. Fingerpicking is not uncommon though, and many electric guitarists often combine both techniques known as hybrid picking. These are aspects that I had to consider, especially since *Scratch*

is a noisy piece. It is also the piece that is most suited to an electric guitarist's sensibility. Ergonomically it fits with being played with a plectrum, and the muting is a hallmark of electric guitar technique, as opposed to classical guitar. I thought this incongruity between seemingly identical instruments could lead to a compelling result, which ended up becoming the guitar sonata *Valley*.

### VALLEY FOR NYLON-STRING GUITAR

The aesthetic preferences of the guitarist directed many of the initial decisions for *Valley*. We had a meeting where he showed me a few contemporary works that he enjoys, and they all had strong romantic tendencies to them, common in the contemporary guitar literature. My music, while emotional, does not have strong romantic qualities, so I was interested to see if some of these qualities could be applied. He also stated a fondness for 5/8 and 7/8 Balkan dance rhythms, which I thought could be transferable, as the original *Scratch* is rhythmic.

The first movement is in 5/8 consolidating harmonics and muted strings. While not a Balkan rhythm, it still has a rhythmic vitality to it. Its relation to *Scratch* is in the way the harmonic is followed by a muted note. *Valley* is a bit more syncopated than *Scratch*, partially due to the 5/8 time signature. I think the difference in syncopation though has more to do with the slight gap in between the harmonic and the muted note, as in a quaver followed by semiquavers. In *Scratch* the rhythm is a constant semiquaver pulse. While a subtle distinction, it is key in each piece's characteristic rhythmic feeling.

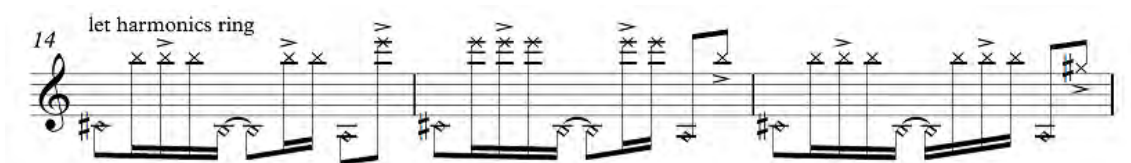


Figure 15 Example of how rhythm manifests in the first movement of *Valley*

Harmonics are the focus of the second movement. Rhythmically the periodicity is written down, but the tempo, duration, and repetition are generally left up to the performer. Arrows in the score indicate this. The periodicity is controlled by tremolo technique, where the thumb plucks a harmonic and is immediately followed by three harmonics using the ring, middle, and index fingers. This is a classical guitar technique most famously used in Francisco Tarraega's *Recuerdos da la Alhambra*, albeit without the harmonics. The technique is almost never used on the electric guitar.

The third and final movement is like the first movement in how the harmonics and muted notes intermix. The main difference between the movements is the third being less syncopated than the first. I think that this comes from composing this movement while writing other solo pieces in the '*Reticence*' Family. In that way, I think this movement shares many of the same characteristics as *Reticence*, as opposed to *Scratch*. That does not mean that this movement has nothing in common with *Scratch* nor does it become a member of the *Reticence* Family as it directly derives from *Scratch*. One would only need to look at the melodic contour of the harmonics and the slight bounce in the movement<sup>61</sup>.

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<sup>61</sup> It may not be as bouncy as the first movement, but the third movement is considerably livelier than *Reticence*.

Figure 16. bb. 42-62 *Valley* mvt. III

A section that I want to specifically talk about is from bb. 42-62 in the third movement. This is a substantial deviation from *Scratch*. The technique utilised is the crossing-over of the hands to play muted notes. Engaging visually, it serves a musical purpose as it allows the performer to disambiguate the polyrhythms. At b. 41 we can see this in practice as two quavers and a triplet interpolated underneath it. The stems going up are meant to be played by one hand, and the stem going down indicate the other hand.

While brief, *Scratch* offers numerous possibilities for recomposition, there is enough material for a new three movement sonata. By looking at a previous composition, and recycling material into pre-compositional material, we can extend the life of the original. The opportunity for transference to similar instruments, yet achieving different results, demonstrates the possibilities derivative composition has as a compositional tool.

## ELECTRIC GUITAR TECHNIQUE ADVANCES

### GUITAR TECHNIQUE DEVELOPMENTS

The techniques developed for the six electric guitar solos are evolutions of common electric guitar techniques. The new techniques are: harmonics produced by the fretting hand (like in *Flower* and *Touch*), muted notes plucked by the fretting hand (*Reticence*), melodies played using muted notes (*Park*), tremolo picking where the pitch of the contact point on the string is emphasised (*Flower*). As these are evolutions, I will discuss how they manifest in the guitar solos as well as similar techniques that the new ones evolved from.<sup>62</sup> Extended techniques are relatively commonplace in electric guitar discipline. The techniques in this research can be organised as harmonics, muted notes and string scrapes. There are many examples of muted notes, harmonics and string scrapes in mainstream contemporary music (i.e., rock, metal, funk, etc.). For me, the desire is to discover new sounds to increase the affordance on the electric guitar without using accessories such as effect pedals, bottleneck slides, or ebows. These accessories

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<sup>62</sup> A link to a video demonstrating these techniques and their precedence can be found in the Appendix.



are effective, but I wanted to find possibilities beyond them, specifically quieter sounds. I will proceed to describe how these techniques manifest in the guitar solos.<sup>63</sup>

### MUTED STRINGS & NOTES

Muted notes can be heard in songs like 'Smells Like Teen Spirit' by Nirvana, *Mr. Brownstone* by Guns N' Roses, *Voodoo Chile (Slight Return)* by the Jimi Hendrix Experience, the "chicken scratch" style of James Brown's guitarist Jimmy Nolen, and countless more examples in mainstream contemporary music. In this style, the muted notes serve a purely rhythmic function, often being strummed, the pitch being arbitrary. *Scratch* and *Hiding* follow this approach. However, the pitch of the muted is defined in *Park*, *Reticence*, and briefly in *Touch*. *Park* melodically appropriates muted notes while still having a rhythmic element to it. *Touch* is more delicate and less rhythmic.

Melodically playing muted notes is difficult because of the agility needed without pressing down the strings. Intonation is difficult because frets are no longer a factor in differentiating pitch, like it would be for violin. There is also a lack of adjusting intonation due to brevity of the muted note.

*Reticence* evolves this technique by utilising the fretting hand to play the muted notes. The resulting timbre in *Reticence* is quiet, with a softer attack than heard in *Park*. The low amplitude demands amplification to be audible, particularly within a complex texture. Even then, the texture still needs to be transparent enough for muted notes to come across, especially pitch. Using the fretting hand only to play notes is influenced by the hammer-on from nowhere. The pull-off also provides some basis. Its execution is essentially re-plucking the

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<sup>63</sup> Note that every piece is written in standard tuning.

string with the plucking hand. Inspiration also comes from the left-hand violin pizzicato, famously found in Niccolò Paganini's *24<sup>th</sup> Caprice*. The technique as it appears in *Reticence* is an amalgamation of influences from these various hammer-on and pull-off techniques. The plucking hand gains more freedom because of this, an important facet for *Reticence*.

## HARMONICS

The use of harmonics is commonplace in the guitar repertoire. A few famous examples would be the beginning to *Roundabout* by Yes. The bassist Jaco Pastorius composed the piece *Portraits of Tracy* extensively using harmonics throughout the piece, providing insight to my applications of harmonics. Lenny Breau is also a guitarist who pioneered the use of harmonics for harmony and melody, offering some influence.

Heavy metal guitarists have significantly contributed to the technique of harmonics. Two guitarists that have made an impact on my practice are the late "Dimebag" Darrell Abbott of Pantera and Swedish guitarist Mattias "la" Eklundh. Abbott would play harmonics by plucking an open string with his fretting hand, slightly depress the tremolo bar, then release the tremolo bar while simultaneously touching a node point<sup>64</sup>. Eklundh implements a slight variation to this technique tapping a node point without the pluck, but still depressing and releasing the tremolo bar (Gold, 2008). He is also an exponent of using harmonics in the upper nodes often using partials six and above (Musicoff- Where Music Matters, 2014). These were my points of reference when I started experimenting with harmonics. Both guitarists apply immense gain to perform these, making use

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<sup>64</sup> This can be most famously heard in the Pantera song *Cemetery Gates*. Referred colloquially as a "squealie" or a "horsie" sound, it is often played with a high-gained distortion.

of the tremolo bar. For these guitar pieces I intentionally avoid producing harmonics with distortion and the tremolo bar. Instead, softness and fragility are the centre of attention.

*Hiding*, *Park* and *Scratch* all follow a relatively conventional approach to how they are performed. They use natural harmonics plucked with a plectrum. They offer some technical variation, however. *Hiding* handles chords by combining harmonics and normal notes. Many of the harmonics are fingered with different fingers, uncommon when playing harmonic chords. A guitarist would typically apply a barre<sup>65</sup>. I found this too limiting and wanted a broader palette of notes. The degree of difficulty is considerably greater as harmonics are already precarious, becoming more so with multiple fingers. Nodes five and above especially have limited margin for error. Nevertheless, *Hiding* is less difficult than the other guitar solos.

*Scratch* is also not troublesome technically. Harmonics being struck simultaneously with muted notes are not difficult yet have not been previously explored.

The techniques of *Park* are harmonic chords and melodic muted note playing. Harmonic chords are like their appearance in *Hiding*. *Park* is more difficult piece to perform though. Harmonic chords on the bottom strings and muted notes on the top strings are challenging not just because of the techniques themselves, but the added challenge of string skipping makes it exponentially tougher, especially given the brisk tempo.

*Flower* and *Touch* treat harmonics by plucking them with the fretting hand. To enact, one finger is placed on the node point, then the finger behind it (closer to the headstock) plucks the string. If I were to use my third finger, I would pluck with my first finger. The reason for playing behind the node point is physiological

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<sup>65</sup> A barre is when a single finger covers multiple strings, almost like a "bar" across the strings.

as it is much more comfortable. However, playing a harmonic in this manner results in softening the attack. This lends itself to the much cleaner and delicate tone that can be heard in pieces such as *Flower* and *Touch*.

### STRING SCRAPES

String scrapes, which are made by rubbing one of the wound strings with either a fingernail or plectrum, are a trope of the electric guitar, especially in rock music. Watching any rock band live, pick scrapes will be used throughout. Usually, this technique is employed to create noise evoking excitement and to transition between sections. There is almost no technical evolution of the technique, the change being its context. In the six electric guitar solos they simply provide contrast with the fragile texture. String scrapes are not used to emulate or evoke rage, but to advance a fragile texture. They are used sparingly however, so they are not a feature of most of the works.

### TWO-HANDED GUITAR PLAYING

A feature of the pieces *Reticence* and *Touch* is two-handed guitar playing (*Flower* could be included, but in a unique way, as will be discussed later). This refers to when the hands are playing independently of each other. Oftentimes, the term more specifically refers to both hands playing over the fretboard. A famous example would be the two-handed tapping technique pioneered by Eddie Van Halen. Two-handed tapping or just "tapping" is when the guitarist taps the string on the fretboard with the plucking hand then pulls-off instead of plucking the string. There are guitarists who employ eight-finger tapping and some like Stanley Jordan who use two-handed tapping almost exclusively.

Acoustic guitarists like Kaki King, Michael Hedges, and the Candyrat<sup>66</sup> guitarists expanded the steel-string acoustic guitar by including percussive techniques combined with advanced tapping techniques to create the impression of a full band during a solo performance<sup>67</sup>.

The two-handed approach increases the level of difficulty in my electric guitar pieces by necessitating precise coordination between the hands. *Reticence* is a good example as the fretting hand performs muted notes at a consistent quaver pulse while the plucking hand is producing harmonics. The space between the harmonics is not adjacent on the fretboard, often quickly leaping from the fifth to twelfth fret and vice versa. The constant muted notes forge a metronomic quality leaving no leeway for the plucking hand to delay or quicken, as well as being contrapuntal. For these reasons the difficulty compounds.

Two-handed playing implies a variation of fingerstyle technique. *Flower*'s is unique because the hands are independent yet using a plectrum-based technique. The plucking hand is tremolo picking a separate string while the fretting hand plucks different strings for harmonics<sup>68</sup>. Both hands are also not over the fretboard.

The electric guitar is a recent development in the history of music. Due to the popularity of the instrument, rapid technical expansion has happened. Due to its youth, there are still uncovered possibilities. The techniques found during this research are a small contribution to the ever-growing list of techniques available

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<sup>66</sup> Candyrat Records is a record label that features many guitarists who use a two-handed guitar style. Their most famous recording is Andy McKee's *Drifting* which has over 59 million views on YouTube as of March 2021.

<sup>67</sup> Special mention of the Chapman Stick, closely related to the electric guitar, which is played by tapping the strings only.

<sup>68</sup> This technique is similar to the one used in Van Halen's *Little Guitars*, where he tremolo picks while executing hammer-ons from nowhere simulating Francisco Tarrega's *Recuerdos de la Alhambra*.

for guitarists and composers. I believe there are more techniques to be discovered meaning more compositional possibilities.

## CONCLUSION

The research hopefully presents how derivative composition is a useful tool for generating material. From a historical perspective, composers have been using derivative techniques for centuries. Varieties of this practice are found in the work of medieval and renaissance composers like Josquin des Prez as well as more modern composers such as Klaus Huber, amongst others. There is also a strong relationship between arrangement practice and derivative composition, especially considering the transfer of materials from one group of instruments to another.

What this research shows is how one could fragment their own pieces to create new pieces multiplying an idea or gesture. By recycling materials, a composer can explore ideas more fully through multiple perspectives. I think employing such techniques can create multiple pieces effectively sharing themes, gestures, and an overall sound world. For composer/performers, this could serve as a catalyst for employing their own instrument for composing for other instrumental forces.

The prime example of this in practice is the lineage of derivation of *Reticence*. By fragmenting certain elements and transforming idiosyncratic technical material, the muted noted figure for example, new but separate pieces with similar characteristics were composed. These newly derived pieces are independent works that do not rely on an audience member's knowledge of where the piece derives from. They are meant to be listened to on their own.

Workshopping with performers provides the composer with information about the nature of the instruments they are working with, and the transferability these instruments could share in terms of technique and timbre. It also provides a composer with insight into how their own work manifests, highlighting elements that can be expounded upon. For instance, during the *Reticence* workshops the importance of coordination between the musical elements emerged. The impact being that I had a clearer understanding on utilising *Reticence* for derivative composition.

Derivative transformation happens even when there appears to be a high degree of instrumental transferability. *Valley* for nylon-string guitar and *Lull* for sitar show this. Comparing how *Out* and *Air* derive from *Reticence* also demonstrates this. They are very similar in terms of instruments used, but the size difference causes enough changes in timbre and affordances to warrant recomposition.

The compositional development of *Touch* displays how practicing derivative composition could aid writing a single composition. Fragmenting a draft and recomposing the fragments can be powerful. This shows derivative composition has multiple applications, it can be used as a generative tool for coming up with material but could also be a tool for reconfiguring the same piece. This could be especially helpful when a composer is not satisfied with the current state of a composition.



I have also shown the effectiveness of fragile techniques for the electric guitar expanding the sound palette and its technical affordances. This is useful for electric guitarists and for composers who want to employ electric guitars in their compositions. The guitar can be beautifully loud, raucous, and cacophonous, but it can also achieve intimacy and fragility.

For my personal artistry, I feel closer to achieving a satisfactory organic relationship between my pop and classical trainings. The guitar tones I am using are akin to those found in rock, yet I am still composing with classical technique and thought. I plan on expanding the scope of derivative composition by writing for more types of ensembles and larger ensembles like orchestra. At some point I will attempt to compose a solo electric guitar piece that is derived from an ensemble piece, in a way returning to the original source. Alongside these compositional ideas, I will be continuing to explore sounds on the guitar.

There appears to be potential for derivative composition and the expansion of electric guitar technique. I think that they warrant further exploration into their applications for composers in any genre, whether it is contemporary classical music, traditional classical music, jazz, rock, hip-hop, and others. It would also be interesting to involve electronic instruments and see how their idiosyncrasies affect transference and transformational practice within derivative composition. In all, there is much potential in this practice.

## APPENDICES

### APPENDIX A: COMPARISON OF THE ELECTRIC GUITAR TO NYLON-STRING GUITAR

In writing these six guitar solos, it is apparent how important the construction of the electric guitar is in informing these compositions. The topic's importance became clear when writing a piece for the nylon-string guitar that are derivations of gestures from the electric guitar. The juxtaposition of these related instruments (i.e. plucked and fretted instruments played with a guitar-like posture) reveal certain characteristics unique to each instrument. Construction characteristics also have an impact on the performance technique of these instruments leading to their own set of affordances. It seems appropriate to describe these contrasts as it could explain the reasoning decisions made during the derivation process and subsequent composition of works such as *Lull* and *Valley*.

As the electric guitar is my main instrument, and therefore my point of reference, I think it would be appropriate to describe this instrument first and then proceed to comparisons nylon-string guitar. An electric guitar comprises of a neck connected to the body. There are usually six metal strings, tuned E2, A2,

D3, G3, B3, E4, connecting from the headstock to the bridge<sup>69</sup>. The typical scale length from the nut to the bridge is either 24.75" or 25.5". 20 to 24 frets are common on the electric guitar, reaching E6 in standard tuning. The neck of the guitar is typically made of maple or mahogany, and the fretboard is usually maple, rosewood, or ebony. It is common for the neck and the fretboard not to match. There are a greater variety of tone woods for the body of the guitar with alder, basswood, mahogany, and ash being the most common. There is oftentimes a cutaway on the body of the guitar to facilitate ease of playing in the higher register of the guitar. This allows a guitarist to perform solos more easily. This affordance explains the plentiful amount of guitar solos in rock music. The bridge is usually either a stop tail bridge or a floating bridge with a tremolo bar, which is what my guitar is fitted with. In these guitar pieces I do not make use of this, but it can account for a few discrepancies heard in the recordings (i.e. tiny pitch fluctuations or flutters). On the guitar the bridge 'serves principally as a string support and separator.' (Gambella & Daniel, 1969)

Another element unique to an electric guitarist is the reliance on amplification. The selection of an amplifier is not only a matter of increasing the amplitude of the instrument but is a critical factor in defining the guitarist's tone. There are a wide variety of amplifier brands and types that make use of vacuum tubes, solid-state amplifiers, modelling amplifiers, and a mix of all three types. Each type has its own advantages and disadvantages depending on the guitarist's objectives. My setup involves a solid-state amplifier, chosen because of the clarity of clean (without distortion) tones and its low-cost. The guitar solos do not

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<sup>69</sup> There are numerous styles and builds of electric guitars that are commonplace in rock and pop music. There are seven-string, eight-string, and the monstrous nine-string guitar. This is not to mention the various scordaturas of the guitar, which are too numerous to list here. For these pieces I restricted myself to the six-string guitar in standard tuning.

stipulate which type of amplifier to use, so a performer could conceivably use whichever suits their preferences.

The electric guitar is designed for amplification, explaining why many guitar bodies are a solid piece of wood, known as a solid-body electric guitar, without any resonance chamber or sound box. This eliminates as much feedback as possible, a problem common with acoustic and hollow-body guitars.

The vibration of the strings is picked up by the magnetic pickups, the signal then transported to the amplifier via cable, and the speakers then produce the sound. The variety of pickup configurations, and pickups themselves, allows many choices for players tonally. The closer the pickup is to the centre of the string, the more bass frequencies emerge, and treble frequencies towards the bridge. Accordingly, harmonics are also much clearer. The effect is like the bowed string techniques of "sul tasto" and "sul ponticello", but without any change in location or plucking action of the string, just the location of the pickup. The construction of the pickup itself also lends its own tonal character. These factors give an electric guitar its unique characteristics. It is one of the few truly acoustic-electronic instruments, as it can be played unamplified, albeit very quietly. Its electronic components are what allow the guitar to have its associated sound.

The construction of the modern classical guitar is more standardised than the electric guitar. The most obvious difference is that the classical guitar has a large sound box, and generally has no pickups and no amplifier.<sup>70</sup> It is made up of six-strings in the same standard tuning as the electric guitar.<sup>71</sup> The strings are

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<sup>70</sup> Some classical guitars have piezo pickups that allow a guitarist to increase the amplitude without sacrificing the original acoustic tone. Most high-end classical guitars do not have any electronics on them because most guitarists argue that they lose tone. The decision to amplify is more pragmatic than artistic, though there are exceptions to that statement.

<sup>71</sup> Scordatura variation applies to the classical guitar, especially in contemporary classical music. Some extended-range classical guitars exist but are considered specialty guitars.

nylon and are further apart than on an electric guitar, which is to facilitate fingerstyle and better access to contrapuntal playing. A nylon-string guitar is usually fitted with nineteen frets and the body does not have a cutaway<sup>72</sup>, with much of the playing occurring below the twelfth fret.

It would be considered a doubling to play electric guitar and classical guitar in the same piece or show, mainly because of the technical divergence between the respective instruments (also partially because of the cost of owning two separate instruments).

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<sup>72</sup> Flamenco guitars are an exception.

**APPENDIX B:**

A demonstration video of the electric guitar technical innovations mentioned in this thesis can be found via the video link:

*Presentation of Guitar Techniques Featured in the Portfolio of Nate Chivers*

[https://youtu.be/JrgwrJ\\_DWZU](https://youtu.be/JrgwrJ_DWZU)

The content of the video includes techniques and examples found in this thesis, as well as examples of similar electric guitar techniques preceding and influencing the technical innovations. Examples from the thesis will be played first, then the influencing techniques will follow. Video Duration is 20'04".

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