Patternless Music

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ABSTRACT

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As more music is being created and consumed than ever before, vast audiences can freely explore and experiment with new ideas and make advances in music. Innovative thinking can be unfortunately often forgotten or go unnoticed, as popular music and the majority of music listeners and creators alike cling to their safe zones in music.

Repetition is one of the most apparent characteristics of popular music. As opposed to everyday repetitive music, this thesis focuses on patternless music, a form of non-repetitive music where the repetition of exact patterns is avoided altogether.

Thanks to the development of modern digital tools in both quality and quantity, this complex type of music can be created and performed in increasingly fluent and innovative ways, as well as taught and analyzed in clear and unambiguous terms. Examples of patternless music in this thesis provide solid evidence of its existence. This thesis takes an open but critical approach towards this new, experimental type of music by analyzing the examples both as audible and visual representations.

After all, patterns and repetition are crucial elements in music: recognizing these elements helps composers, musicians, and listeners understand the complex structures embedded in the music they create and/or listen to. Keeping these assumptions in mind, this thesis analyzes the basic tenets of patternless music, its creation process and its effects, as well as the challenges it poses to its users.

Therefore, this thesis opens the door for an analytic and critical approach to repetition, patterns and music in general. This new form of music can enable us to look critically at our assumptions regarding the boundaries of music and creativity, and thereby helps widen these boundaries, allowing us to look beyond our current limits in music and strive for even higher standards and greater understanding.

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Key words: patternless, patterns, non-repetitive, music production, composing

CONTENTS

GLOSSARY

DAW   Digital Audio Workstation

VST   Virtual Studio Technology

FL Studio   Music production software

1 INTRODUCTION

My interest in less-repetitive and later on non-repetitive music began when I was a teenager. As my musical vocabulary, skills and the amount of different music I was listening to grew, I became more aware of the structures in music. The more I exposed myself to music in all its forms, the more I felt annoyed when I heard the same patterns and melody lines repeating themselves over and over again, across the different genres. This was by no means a unique feeling but a common criticism towards music (Middleton 1983, 37). This often led to me completely discard songs after a very short time and ultimately to the question of whether it was possible to create music that could stand the test of time better than all the patterned music that I heard.

Music is generally written in patterns. This seems even more evident when we look at the phrases, sequences and structures to which most music seems to adhere to, even though it does not necessarily need to. It repeats itself and copies itself, but to what end? I pondered on the thought that perhaps patterns in music did not have to repeat; in fact, maybe it would be possible to create music that never repeated. Thus, the idea of patternless music was created.

The thought of not repeating something seems incompatible with our common conceptions of music, as that is what music generally does, all the way down to the basic sound waves themselves, but it is not clear why music is structured this way. Could it be possible to compose music in a different way? Mixing genres together or being influenced by specific values from one culture to another (Dennis 1974, 36) has had a way of renewing modern music, but there might be limits to how much innovation can truly come from new influences alone.

The research and theories presented in this thesis are largely based on my personal experiences with this type of music. Since the current understanding of non-repetitive forms of music is limited, references to other works and examples on the subject are scarce. Some level of musical knowledge is recommended to fully comprehend the concepts and reasons behind patternless music and what it means for music in general and the possible advancement of each person's musical understanding.

2 PATTERNS AND REPETITION

2.1 Patterns

What constitutes as a *pattern*? While this subject could well fill its own thesis, my rough definition of a pattern is a form that repeats. When we look closely at sound waves, such as a simple sine wave, its repeating form can be visually recognized as a pattern with ease (Hillenbrand 2017, 36). However, detecting the repetitive nature of the single sine wave or any sound wave for that matter with our ears is far more difficult.
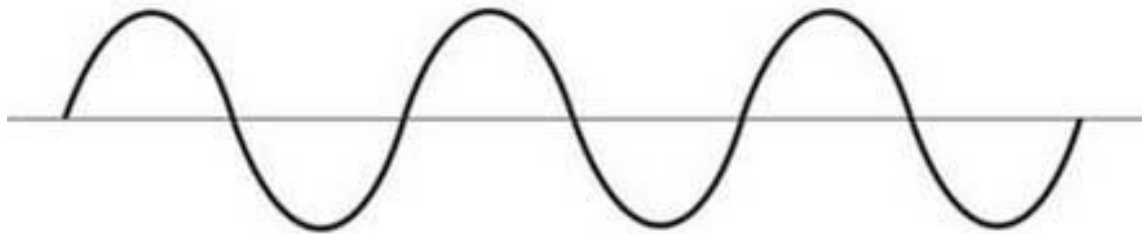

FIGURE 1. Example of a simple sine wave. (Soo Shim Kwan, 2012)

If even the simplest sound is already a pattern, how could anything be pattern-free? In this sense, it cannot. There are undeniable, objective patterns on the micro level of sound waves but humans do not naturally see or hear sound in this level of detail. Therefore, to truly determine what could be considered pattern-free music, we must examine more closely what constitutes an audible pattern in music that listeners can recognize, where to draw the line in recognizing them, and how subjective these patterns really are.

Human ears are incapable of recognizing a pattern in a single sine wave note, but when the sine wave plays a group of notes, these notes can form a pattern that is audibly recognizable to listeners. The patterns are constructed in our minds when more than one note plays sequentially. For example, if someone listened to *"Twinkle, Twinkle, Little*

Star" over and over again, they would eventually – if not instantly – recognize the patterns within the song.

Looking at patterns of music in visual terms, like notes on a paper or on a DAW sequencer, they are not that different from any patterned art in general. Notes can form patterns that are much more obvious when represented visually than when we hear or play music. Maybe that is because human sight is so carefully developed throughout the years (Lynne 2011, 37). It is likely that listeners do not recognize many of the patterns by hearing alone. However, combining these two senses makes recognizing patterns in music much easier. In fact, reading and playing from the notes simultaneously is often the core of and a basic requirement for any instrument's learning process in academic institutions.

Notes for many compositions reveal that there are, in fact, patterns that repeat. In the patternless examples I created, I attempted to compile the notes on the FL Studio sequencer in such a way that it would be both audibly and visually impossible to recognize any repeating patterns in them, while also trying to keep the song as musical as possible. That is of course one of the most important notions in patternless music: as many attributes as possible should be as pattern-free possible, but in doing so the piece should retain its utmost musicality.

2.2   Repetition

Repetition in music is a subject that has troubled many (Middleton 1983, 37). Repetition is integral in music, and not only common in the west or only in popular music, but a core value that all the music in the world tends to share (Margulis 2013, 37).

The *mere-exposure effect* sheds some light on the question of why we like repetition so much (Margulis 2013, 37). It is a psychological phenomenon that states that humans are more likely to lean themselves towards things or people they have encountered before. It is by no means an old theory, as the earliest studies of the effect are from 1876 by a German philosopher and physicist Gustav Fechner. (Falkenbach, Schaab, Pfau, Ryfa & Birkan 2013, 36.) Still I wonder how deep the indubitable roots of this effect really are in human history. While this effect has been further studied ever since, the science be-

hind it has not yet been disproved, on the contrary only strengthened (Falkenbach et al. 2013, 36).

Repetition is attractive because it makes both listening and creating music easier. Most composers often repeat patterns – they are essentially pressing the repeat button on the behalf of the listener every two seconds or so before continuing to the next pattern. On the other hand, it also takes a lot more effort to come up with a second phrase, something different and unique in comparison to the first part, and still keep the overall piece musical. In a way, that is what different parts – such as intro, verse and chorus – have successfully done for music: they have kept listeners interested and still do. Most musicologists would argue that repetition is the key aspect of beauty (Rickard 2011, 37).

From the perspective of the composers and listeners, repeating patterns in music are a safe choice. It is a fast and easy way to create more content and increases the chances of listeners recognizing something, as sufficient repetition in the end results in recognition. The importance of familiarity in marketing should be also taken into account, as it also applies to popular music (Falkenbach et al. 2013, 36).

Structures in music are recognized through significant amount of repetition (Dannenberg & Hu 2010, 36). Getting accustomed to the structures, chords, rhythms and melodies of the music played on the radio can lead to a state in which it is far harder to listen to and/or create something new and unique, and to approach unfamiliar genres of music. This is due to the *mere-exposure effect* (Falkenbach et al. 2013, 36). Middleton (1983, 37) proposes that repetition could be seen as "commercial manipulation" and there might be some truth in that statement, as research shows that listening to a specific type of music can even alter our thinking (Yudkin & Trope 2014, 37).

This all contributes to the fact that it is unlikely that any unknown chords, atonal melodies, overly complex rhythms or annoying single sounds are going to pop up in popular music. The patterns or structures of a song or phrase are being made familiar to the listener with repetition, decreasing the need for what could be called additional work by the listener to understand what is going on. If the listener is forced to do extra work to understand what they are hearing, their experience might be closer to studying instead of just listening and enjoying. Therefore, repetition alone seems inherently fun and easy.

While the patternless approach aims to lessen the amount of simple, easily identified repetition, I found that in the end it required a substantial number of repeated listens of the composition as a whole from the listener. The amount of repetition required altogether in order to understand it might even surpass that of repeating patterns in popular music. Nonetheless, one of the intrinsic values in patternless music is its ability to withstand a great amount of said repetition without becoming quickly boring and/or losing the interest of the listener. On the other hand, Hargreaves (1984, 36) also argues that the majority of pop songs rise to a certain level in popularity due to repetition before declining rapidly, and this seems inevitable with any genre of music.

The difference between a pattern and repetition can be made clear with simple chords. Exact repetition of a single chord could be interpreted as a single pattern, but as long as this pattern is not repeated it stays within the patternless rules.
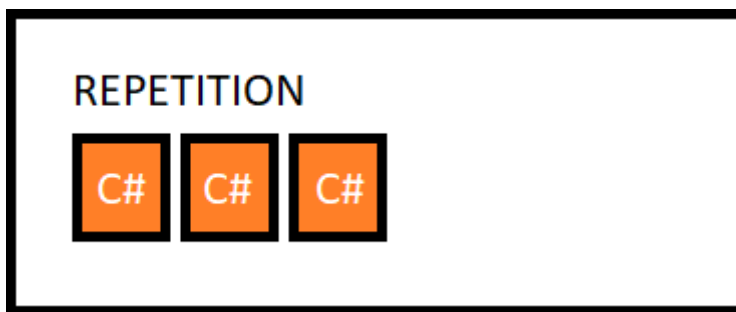

FIGURE 2. Three C# chords could be played in a sequence, but no repeating pattern is perceptible as of yet. (Kristian Huuki 2018)
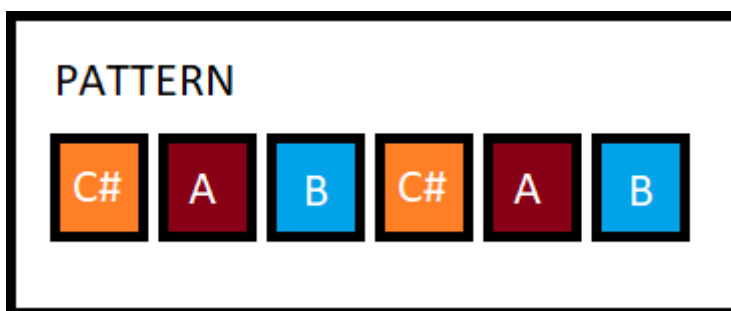

FIGURE 3. When a pattern of three different chords (C#, A and B) is played in sequence and repeated, it can be recognized as a repeating pattern and thus disqualifies as patternless music. (Kristian Huuki 2018)

2.3   Complexity

Complexity in music can be viewed rationally. Heyduk's (1975, 36) study shows that when specifically the number of less familiar chords and more complex rhythms is increased in a composition, the more complex it will appear to the listener. There is even evidence for the higher complexity of classical pieces as opposed to simple children's songs (Simonton 1980, 37). It is not certain, however, that the level of complexity between genres can be as clearly stated (Hargreaves 1984, 36).

Popular music reaches its maximum potential at the early stages of its repetition while music that is generally deemed to be more complex, such as classical music, requires further repetition to fully reach the maximum pleasantness of the composition (Lundin 1967, 37). The likeability of more complex compositions can increase accordingly, but only to a certain point before decreasing (Heyduk 1975, 36). In any case, the optimal level of the compositions complexity should match that of the listener's musical understanding (Heyduk 1975, 36). In case it does not, e.g. the complexity of the material is too high or low, the likability of the composition should decrease (North & Hargreaves 1995, 37). Even if the likability of the composition would decrease in the listener, familiarity still increases and should eventually lead to the reduction of the composition's complexity, as the optimal complexity model states (North & Hargreaves 1995, 37).

While the level of complexity in music is inherently difficult to define (Hargreaves 1984, 36), I have come to view the form of patternless music in general, and the examples I have created, as more complex than many of the compositions in the same genre, merely based on the fact that the number of differentiating rhythms and melodies is far greater in comparison. I hope my examples presented in this thesis serve as proof for this statement by, while complex, still being able to avoid the drastic decrease of likability in the listener.

2.4   Rarity of non-repetitive music

One of the biggest reasons for the uncommon nature of non-repetitive music is that it can be very time-consuming to create, depending on which elements of music in the song the composer seeks to make non-repetitive. It is often a daunting task and can feel

unnatural, as the composer is forced by necessity to come up with something new or different every moment and nothing can be reused.

Indeed, it seems almost unmusical for a song not to repeat itself at all. Non-repetitive music is not an easy form to approach, and since there is an endless supply of surprises for the listener, it is not easily understood either. Especially when it is not even presented in a form or genre of music that is familiar to the listener, which can play a significant part in familiarity and likeability of the listeners determination towards the music they are presented (Hargreaves 1984, 36). Ironically enough, a patternless composition does not repeat itself, but to really like or to even understand it, one most likely needs to repeat it by themselves anyway.

3   WHAT IS PATTERNLESS MUSIC

Patternless music is a form of music I created in 2012. It is a form of non-repetitive music with a set of rules that are applied through the exclusion of repeating exact patterns and/or phrases. These patterns and phrases can be detected in the four attributes determined in this thesis: rhythm, pitch, velocity and sound. By looking at these attributes, the pattern-free nature of the piece can be objectively proven and reproduced visually with ease.

Patternless is not the same as non-repetitive, nor does it claim to be completely pattern-free, as the repetitiveness can vary in different ways and across the attributes. While the reuse of individual patterns is allowed, it is not encouraged, and repeating them without taking one of the four attributes into consideration while doing so forbidden. The relations between the attributes can still include patterns, such as playing the same notes in the beginning and in the end of a song, as long as one of the attributes is pattern-free within it.

There are no pre-determined rules dictating the structure, key, rhythm, tonality, etc. of patternless music and its creation. The only rule comes from the pattern-free use of the four attributes.

3.1   Attributes

Music could be cut down to many more elements rather than just the ones chosen for this thesis (Middleton 1983, 37). In fact, similar simplifications have also been made in past research for the sake of convenience (Schwanauer & Levitt 1993, 37). The creation of patternless music and the necessities for its clear re-presentation in a sequencer eventually led me to a total of four attributes.

1. *Pitch*: What notes are played e.g. what is the pitch of the notes
2. *Rhythm*: What rhythm(s) are they played in
3. *Velocity*: How hard the notes are played
4. *Sound*: What technique or instrument is used to produce or play the notes

I established these four attributes as the main elements in patternless music, but they could as well be used to analyze any form of music. Apart from the attribute of sound, which includes most unmentioned though significant elements of music, the attributes are simple enough and contain the information needed to create this type of music and to explain its merits with considerable clarity. Were the elements reduced even further, for example pitch and velocity included inside the attribute of sound, the definitions for the two would still have to be acknowledged in detail.

Similar simplifications have also been made in past research for the sake of convenience (Schwanauer & Levitt 1993, 37). Over simplifying the elements of music for patternless music in this thesis was also done with high hopes of enabling wider audiences to understand the material regardless of the level of musical knowledge and the attributes can now be visually presented to the reader with ease.

The minimum requirement to classify music as patternless music requires one pattern-free attribute. Repeating the other three attributes is allowed as long as the fourth attribute is pattern-free and non-repetitive. If at any point the fourth attribute repeats, then one of the remaining attributes must break form. Therefore, patternless music does in fact also allow repetition and the repeated use of the attributes per se, but not without changing one of the other three attributes.
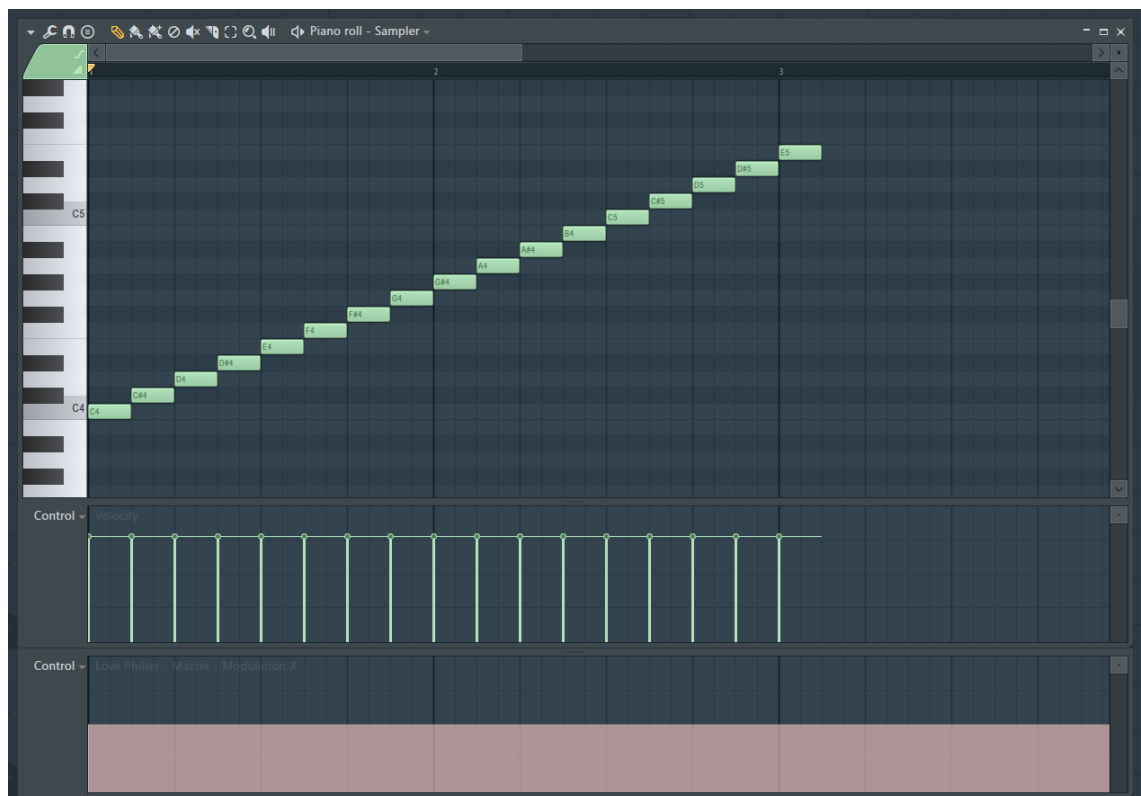
The rules are meant to force constant innovation and thinking outside the box. There are exceptions to each of the attributes, and the reasoning behind them – what, why and how – is explained further in this thesis.

The tools available for and allowed in the creation of patternless music are no different than the ones used in any music, though the writing process can become even more difficult and limited if a single instrument is used alone. Multiple instruments can make it more time consuming, but ultimately they allow for more headroom, figuratively speaking. The use of modern day DAW's makes digital creation of patternless music quite easy, as opposed to writing and recording with a specific instrument alone. Working in a sequencer enables clear visuals on the values of the notes, rhythms and velocity exactly and instantly. In addition, the sounds available in a DAW are practically limitless.

3.1.1 Pitch

Pitch refers to the pitch and/or melody the notes are played in (Straus 2011, 36). Pitch can vary from the lowest to the highest note possible. For example, when played from the lowest to the highest note on the keyboard, never once repeating, the pattern-free nature of pitch is acquired at the highest level of patternless music, and the attribute of pitch would in this case be truly non-repetitive, regardless of the rhythm, velocity and sound.
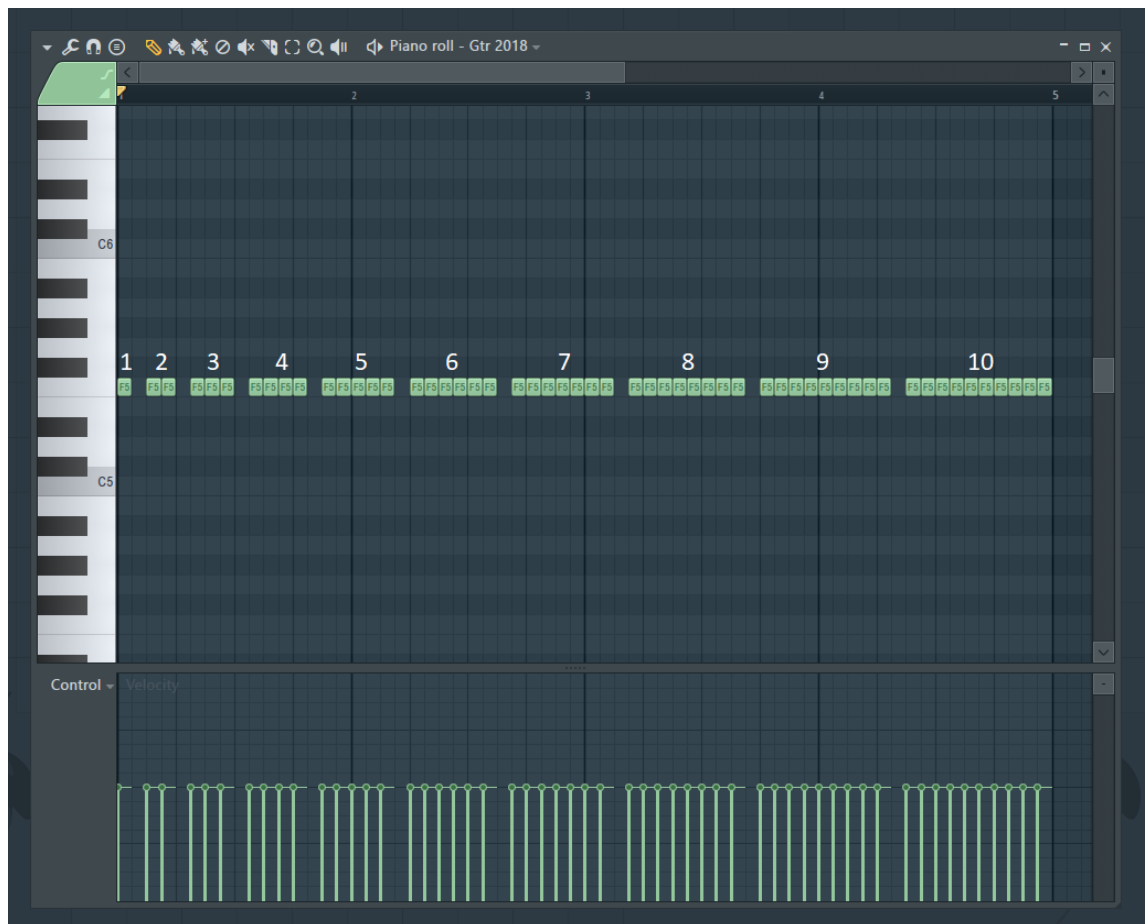
However, this is not required in patternless music. Never repeating a single note as a requirement for the rule of pitch would not be sensible, as my experiences throughout the years and Rickard's "Perfect Ping" (examined further in this thesis), were enough proof of the limitations that would impose on the composition. Therefore, I decided to allow the repeated use of any single note, but not the exact repetition of two notes forming a pattern without changing one of the other three attributes.

PICTURE 1. An extreme example of the attribute of pitch never repeating itself while velocity, sound and rhythm are constant. (Kristian Huuki 2018)

3.1.2 Rhythm

This attribute denotes the *rhythm* that the notes are played in (Straus 2011, 36) and the duration and time between them. A good example of rhythmically patternless music would be playing a group of any notes, starting from one and increasing the number of notes on each phrase by one, as seen in the picture below.
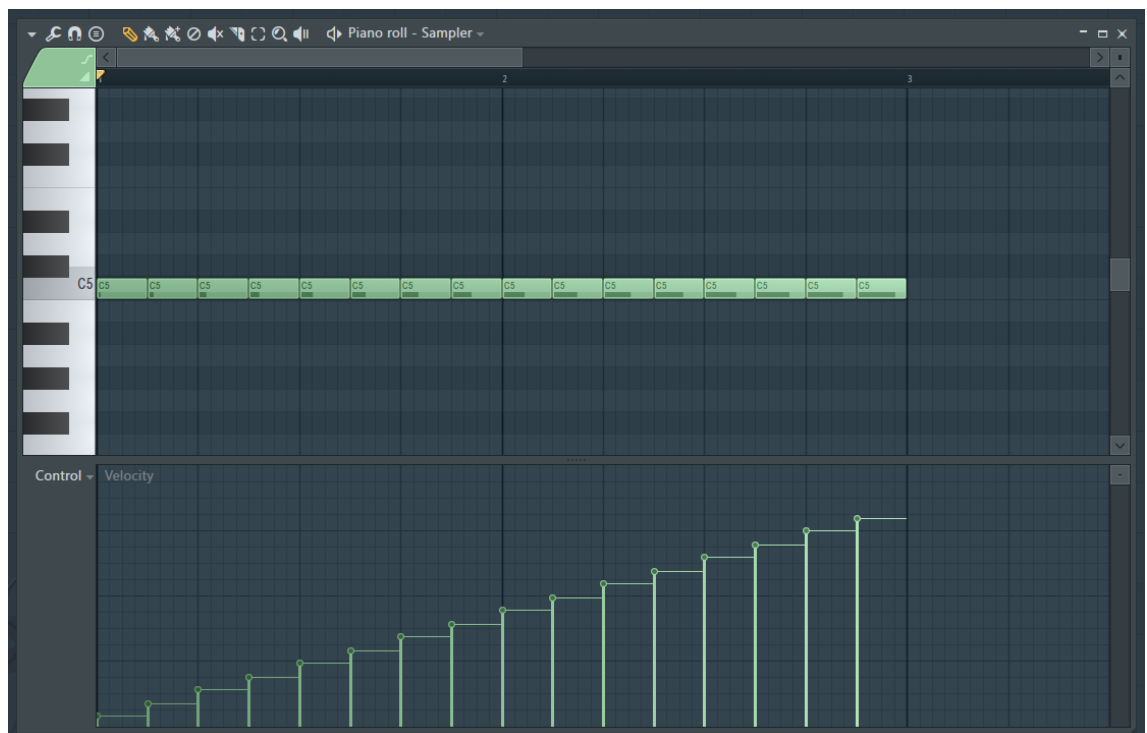

PICTURE 2. Rhythmically extreme patternless music utilizing different simple rhythms. (Kristian Huuki 2018)

Further in this extreme scenario, an ever-changing group of rhythms could be played infinitely, never repeating any group of rhythm. In a sense, the only pattern of rhythm that is not repeated in the example above is the last one consisting of ten notes. All other rhythms are generally repeated in one of the latter groups at least once. Allowing the repetition of these rhythms under the condition that at least one of the attributes is pattern-free within was paramount, as the viable options for using different rhythms would have been otherwise very limited and unpractical at best.

3.1.3 Velocity

Velocity stands as a definition of how hard the notes are played (Straus 2011, 36). A single note in the same pitch and rhythm can be played for an indefinite amount of time, if only the velocity differentiates for each note. Dealing with velocity is a lot easier in the digital domain, as the control for it is precise, far greater and easily attained than it is with most analog instruments. However, the minor differences in velocity are audibly much harder to recognize than rhythms, for example.

PICTURE 3. Truly patternless velocity curve (Kristian Huuki 2018)
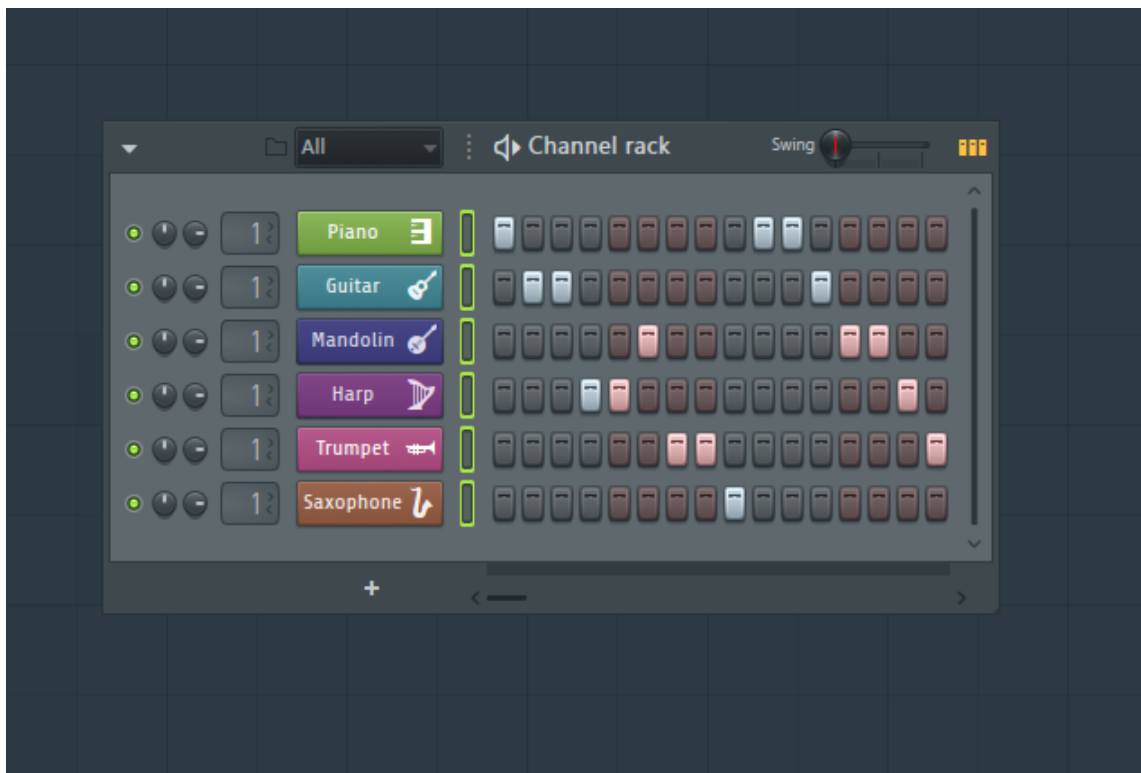
The same exception that is in pitch applies to velocity, as well. Single velocities can be used but the exact repetition of patterns of velocities must be avoided, unless at least one of the other attributes is pattern-free.

3.1.4 Sound

What does it sound like? (Straus 2011, 36) The attribute of *sound* is quite self-explanatory; in patternless music, it stands for what sound is used and in what ways it can be played and reproduced. It includes timbre, attack, release, etc. and all the differ-

ent elements of sound itself and techniques available that can be used to make an instrument sound different.

Physically constantly changing the sound of a classical guitar, for example, can be very challenging and limited to a point. The digital domain does not have this problem and allows for a practically endless amount of differentiation in sound with ease. Frequently differentiating sound quickly contributes to the patternless sound but with the dangers of turning music into noise. Just like with the attributes of pitch and velocity, exact sounds can be repeated as long as one of the other attributes is pattern-free.

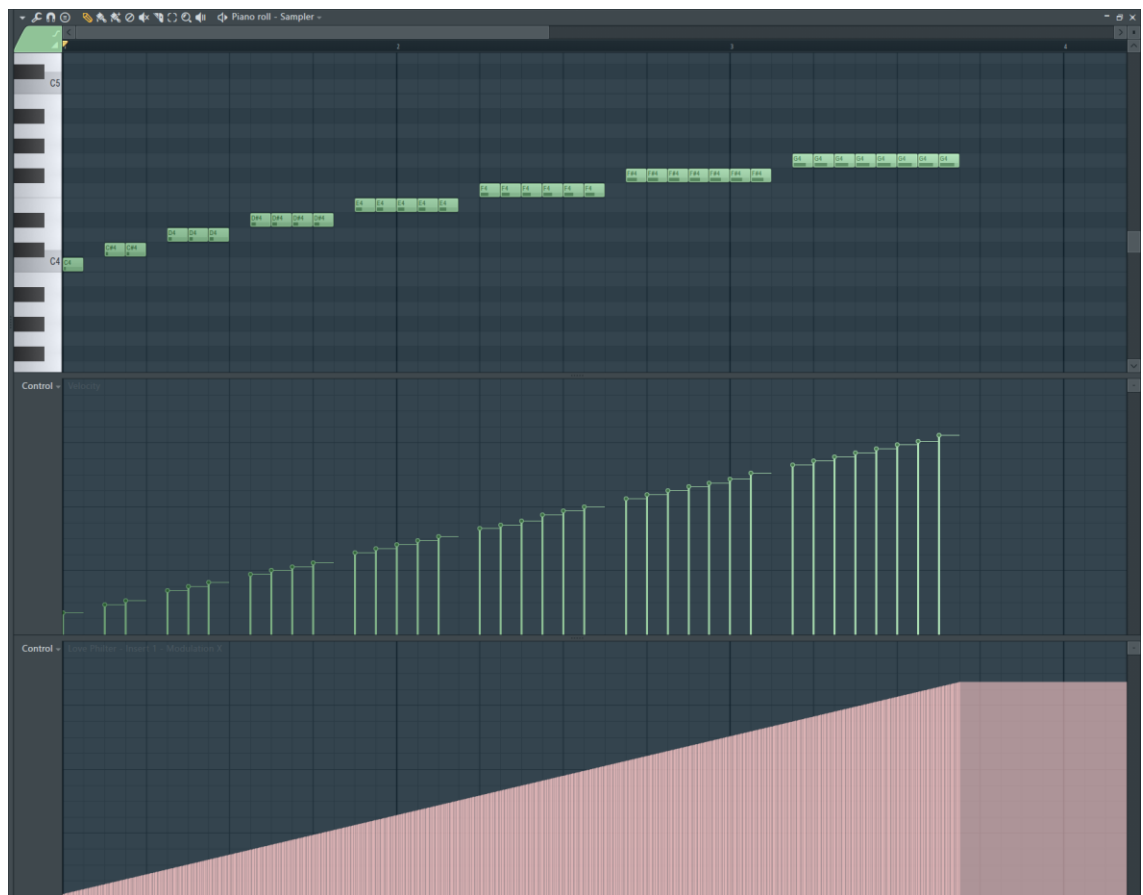PICTURE 4. Assuming a constant pitch is maintained during each note (highlighted blocks); sound is differentiating without repeating any rhythm by any of the instruments. Can you name a song with a piano, guitar, mandolin, harp, trumpet and a saxophone? (Kristian Huuki 2018)

Exact sounds can be repeated just like with the attribute of pitch and velocity; as long as one of the other attributes is pattern-free.

3.1.5 Is it just noise?

Now that the rules are somewhat clear and all four attributes are considered, it is easy to digitally create a simple example of the most non-repetitive, sophisticated patternless music. Playing different rhythm and pitch for each phrase, different velocity for each note as well as changing the sound for each one of the notes played, by changing the envelope thorough the duration of the piece, as shown in Picture 5, one can create truly patternless music in a matter of seconds.

PICTURE 5. Example of patternless music incorporating the most extreme nature of the four attributes from top to bottom: pitch & rhythm together, velocity and sound. (Kristian Huuki 2018)

An example like this is not generally perceived as very musical, but it is at least in the extreme end of truly patternless spectrum and adheres to the rules given in this thesis coherently. Still, the point of patternless music is first and foremost to retain musicality instead of creating visual, mathematically correct noise.

3.2   Does patternless music already exist?

Even though single sound waves contain clear visual patterns, in another sense, all the music in the world is in fact pattern-free already. In the research for this thesis, few non-repetitive or less repetitive forms of music were found. It is necessary to examine these forms further in order to understand the ways in which they are similar to patternless music, why they exist and what they actually mean.

3.2.1   Through-composed

Through-composed is a form of music, or rather a composition technique, that shares its core values with the patternless approach. Through-composed music is written thoroughly without repetition or without returning to the musical material that was played earlier in the composition. In through-composed music, the music is continuously changing as it progresses. (Svanoe N.d., 37.) Each lyrical verse in through-composed song should have different music accompanying it, as opposed to *strophic form,* where each verse has the same repetitive music or melody within it (Tilmouth 1980, 37).

This common definition of through-composed leaves several important details unclear and unexplained: What does "musical material" refer to? What does it include? What is the actual definition of "played earlier"? What qualifies a piece of music as through-composed in its use of patterns and repetition, and how strict are these qualifications? These are the questions patternless music tries to find answer to with clear definitions.

A good common example of through-composed music is Franz Schubert's "Erlkönig" (Elfking). As can be clearly seen below, many singular words in the lyrics repeat themselves, but the bolded lines are repeated several times, which constitutes a repeating pattern visually. When examining the composition as a whole aurally, however, the actual differentiating melody and rhythm within the composition compensate for the bolded lines (attribute of sound) repeating. Therefore, the composition as a whole could in fact be called patternless in sound on accord of the lyrics, as each line is different from each other and changing throughout the composition, confirming the contrast to strophic form. Based on the vague definitions of through-composed music is not quite clear why and how "Erlkönig" should be classified as through-composed, but it definitely classifies as patternless as a whole.

> **Mein Vater, mein Vater**, und hörest du nicht,
>
> Was Erlenkönig mir leise verspricht?
>
> Sei ruhig, bleibe ruhig, mein Kind;
>
> In dürren Blättern säuselt der Wind.
>
> Willst, feiner Knabe, du mit mir gehn?
>
> **Meine Töchter** sollen dich warten schön;
>
> **Meine Töchter** führen den nächtlichen Reihn,
>
> Und wiegen und tanzen und singen dich ein.
>
> **Mein Vater, mein Vater**, und siehst du nicht dort
>
> Erlkönigs Töchter am düstern Ort?
>
> **Mein Sohn, mein Sohn**, ich seh' es genau:
>
> Es scheinen die alten Weiden so grau.
>
> Ich liebe dich, mich reizt deine schöne Gestalt;
>
> Und bist du nicht willig, so brauch' ich Gewalt.
>
> **Mein Vater, mein Vater**, jetzt faßt er mich an!
>
> Erlkönig hat mir ein Leids getan!
>
> (Franz Schuber - Erlkönig 1815)

Originally a poem by Johann Wolfgang von Goethe (1782), were the words of the poem merely examined like notes on a paper, one could infer the bolded lines as repeating patterns, thus possibly disqualifying it from being considered through-composed and certainly making it non-patternless.

The evidence for through-composed and its examples indicate that the emphasis of musical material, such as patterns and repetition, differs greatly from that of patternless music. I have not found an example of through-composed music that focuses on making more than one attribute pattern-free. In addition, the ones often presented only do so lyrically (as the example above), which can be categorized under the attribute of sound in the patternless rules. The difference between patternless and through-composed is presented in Figure 4, at least as far as I have understood it with the limited information on the latter.
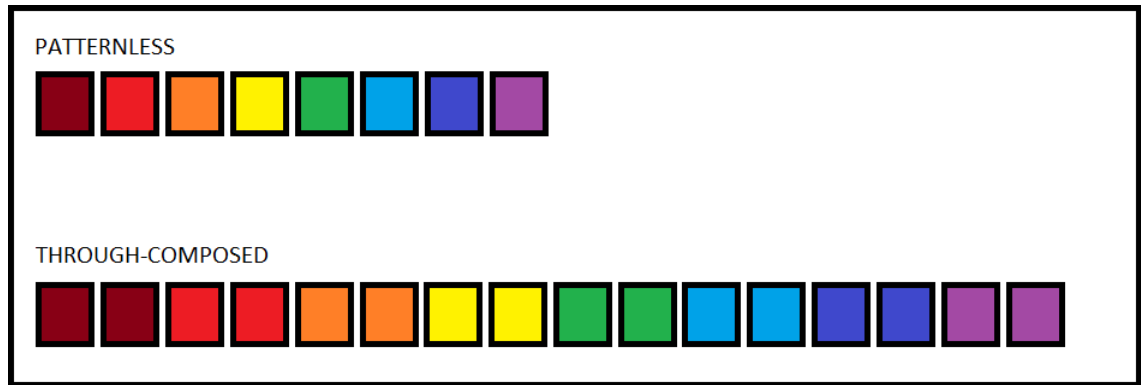
FIGURE 4. Patternless vs. through-composed. Note that patternless does not repeat a pattern played prior. (Kristian Huuki 2018)

Vocals alone can very quickly fulfill the requirements needed to make music patternless in the attribute of sound. Lyrics themselves already provide the rhythm, velocity and sound, and each is often unambiguous and patternless in its basic form. It seems quite complicated as the sound itself is always changing; and yet, the popularity of vocals and lyrics in music seems to exceed that of any other instrument, especially in popular music. Maybe this could be explained by the long history of vocal music (Besson, Faita, Peretz, Bonnel & Requin 1998, 36).

Most song lyrics, especially in the verses, already follow some of the patternless rules, as the phrases in the verse are not usually repeated, and therefore it could very well be that the specific verse is lyrically pattern-free. The song might repeat some of the individual words while re-using specific letters, as if the alphabet was the lyricist's available pitch. The rhythm and melody in the verse is still often repeated and predictable.

> Move one inch at a **time**
> Don't make shit **rhyme**
> Would it be easy to repeat the first **line?**
> My mind's not a **well**
> It won't run **dry**
> Just keep drinking water and you'll be **alright**
> (Circa Survive - The Difference Between Medicine and Poison Is in the Dose 2007, 36)

In the example verse above, not a single word is repeated, though the rhythm of the singer is quite constant and the sung melody repeats itself throughout the verses. Apart from the fourth phrase, each one ends with a matching rhyme in the end of each paragraph, which is audibly recognizable as a pattern per say, while the second line ironically implies detestation towards rhymes. The third line also summarizes the purpose of this thesis quite well.

3.2.2 Dodecaphony

Dodecaphony, or twelve-tone technique, often misleadingly referred to simply as serialism, relates to patternless music as well with its similar rules imposed on the creator of music. In extreme dodecaphony, not one of the twelve notes available can be repeated until every other note has been played prior (Covach 2002, 36). This does not exclude the use of any exact notes further in the composition, nor is this prohibited in patternless music.

One significant trait for dodecaphony and what separates it from the aforementioned forms is its atonal nature. While there is proper reasoning for it in dodecaphony (Covach 2002, 36), neither patternless nor through-composed encourage or discourage the use of atonal or tonal tone rows, let alone demand such a rule to be followed. An initial assessment of dodecaphony could be made as chaos or noise, but tonal beauty is not the main purpose of serial music in the first place. In fact, it is to avoid tonality (Ashby 2001, 36).

3.2.3 Perfect Ping

Another form, while rather the most extreme representation of non-repetitiveness to date, also related to the idea of patternless music and one of the main influences for the eventual creation of this thesis, is "Perfect Ping" created by a Professor at University College Dublin, Scott Rickards. It was performed by the director of chamber music of New World Symphony, Michael Linville with a classical piano on TEDxMIA. It is, in fact, absolutely pattern-free and does not even repeat any single note, which is the integral part that differentiates all other aforementioned forms and Perfect Ping. According to Rickards (2011, 37), it is the world's ugliest music and the world's first truly pattern-free piece of music.

In "Perfect Ping" tonal beauty is avoided just like in Dodecaphony, though in this case it was not done intentionally nor unintentionally. In fact Rickards (2011, 37) encourages listeners to find beauty in Perfect Ping, while in the end reaching the conclusion that they will not. Furthermore, alternating the velocity and replacing every note played with the piano instead with ever-changing sound would really take "Perfect Ping" to the next level, potentially making it the world's ugliest noise.

3.3   Why bother?

If a sine wave was played in any song, with its pitch slowly going from the lowest note to the highest, it could instantly be classified as patternless music because the attribute of pitch is in fact patternless, not in a very sophisticated way but patternless nevertheless. In this case, the piece is only patternless across one attribute which is not very creative, easily replicated, predictable, holds very little replay value, unlikely appealing and certainly does not seem very musical in western tonal terms.

So why bother with the patternless form, or any non-repetitive form of music? Creating and listening to patternless music could help understand, create and listen to more complex music and the melodies and rhythms in them, as the complexity comes partly only from even one of the attributes maintained patternless, regardless of the complete succession of creating this type of music. Especially when the attribute of rhythm and/or pitch is supposed to be patternless, a composer is forced to consider all the options and try things they would rather not in normal circumstances, ultimately forcing them to think outside the box, while trying retain the piece's overall musicality. It is exploring and experimenting with music by forcing one to think again and again about what should be done. Thus, the experiences with patternless music and knowledge acquired during can help in the creation of any music and increase the possibility of stumbling across something that might not have seemed musical before.

Listening to and creating patternless music can enhance one's understanding of polyrhythms, odd-times and tempo changes if the attribute of rhythm is followed intensively in the patternless composition. The same can be applied for the other remaining attributes. First and foremost, the patternless approach prompts experimenting and thinking

outside the box, thus enabling one to envision new unique values across the attributes altogether.

4   PATTERNLESS IN PRACTICE

With the four attributes in mind, avoiding the exact repetition of identical patterns and striving for complexity without compromising subjective musicality is at the core of patternless music. The rarity of non-repetitive music or even less repetitive music can make the creation process increasingly difficult, but rival forms like through-composed and dodecaphony reveal important information on how this type of music can be dealt with. The upsides of development in musical understanding outweigh the downsides of the challenging task.

Since 2012, I have been working with patternless music and studying its merits, trying to produce sensible rules and guidelines for others. I now aim to showcase the experiences and minor successes I have had in the creation of patternless music with the help of practical examples. The following chapter (Chapter 5) is a presentation of these experiences.

5 EXAMPLES

These examples are compositions of patternless music. They mostly showcase the creation process and problems one might encounter as well as the shortcuts one might use to keep calm during the writing process.

Some repeating patterns can be visually recognized in the examples, but the overall picture must be examined before any conclusions on the compositions' patternless nature can be determined – even though it might seem and/or sound like so at first, which it should not. Further examination of the examples in audible form (appendix 1-3) is recommended to understand them fully.

The examples were all written by me, in a single pattern on FL Studio playlist with a 6-string guitar for a configuration of two guitars (lead and rhythm), bass and drums, with an emphasis on zero repetition of exact melodies (pitch) in the main pattern which was assigned to the main rhythm guitar. The main goal was to create patternless compositions that could be hypothetically performed live.
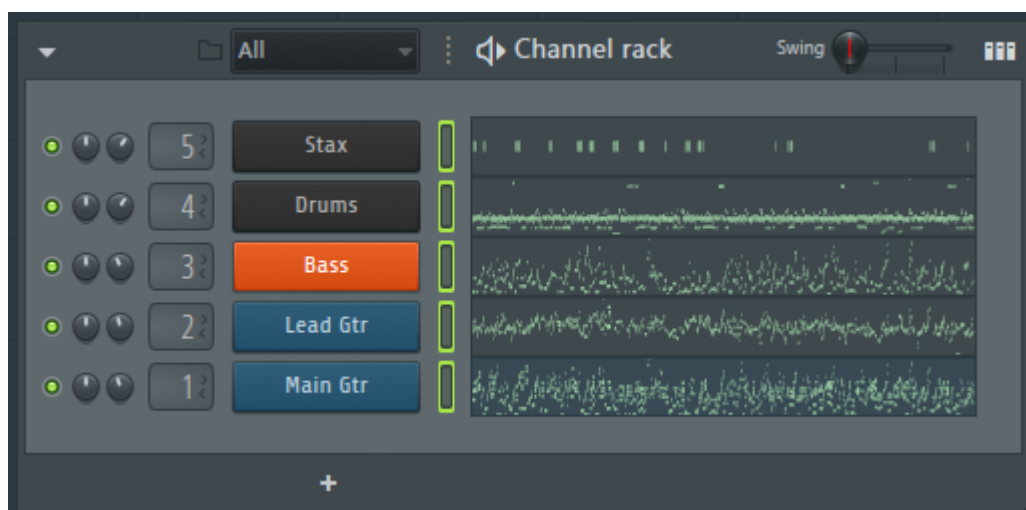
Essentially the writing process in each of the compositions started with differentiating riffs on the guitar that never repeat themselves. Furthermore, the choice of patterns or riffs can quickly run low, especially if a relatively consistent key is to be retained. Thus, the repeated use of some patterns might be noticeable but always compensated by the other instruments or attributes in the project.

The compositions start and end without an implicit structure. Parts, such as chorus and verse, were not intentionally created. The structure of the compositions was not determined beforehand, but the indication of a verse by the closed hi-hat as opposed to an open hi-hat for example might be obvious.

Some different genre conversions of the compositions were also made to accommodate a wider audience, although progressive metal was the original genre during the writing process. The nature of the electric guitar in the original writing process should be kept in mind when examining the examples presented in this thesis.
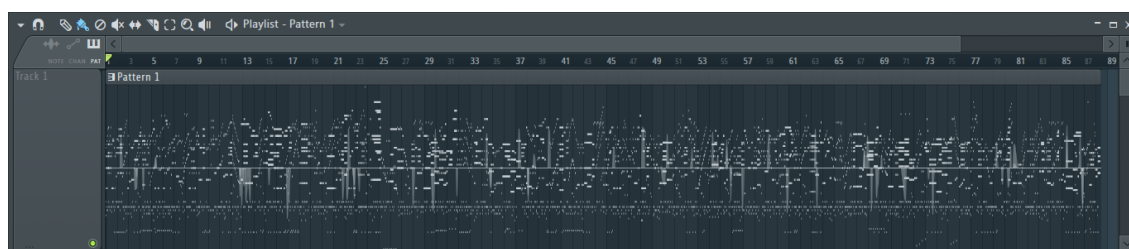
5.1   Use

"Use" is my longest, most successful attempt at patternless music at three minutes in length and serves as the main example for this thesis. The aim was to make it as approachable as possible from a tonal perspective by using relatively constant key and minimal atonal choices with a somewhat constant rhythm and tempo throughout the composition.

PICTURE 6. Channel rack on FL Studio. The "Stax"-sample is simply an additional cymbal for the drums, as the specific drum VST lacks in this area. (Kristian Huuki 2018)
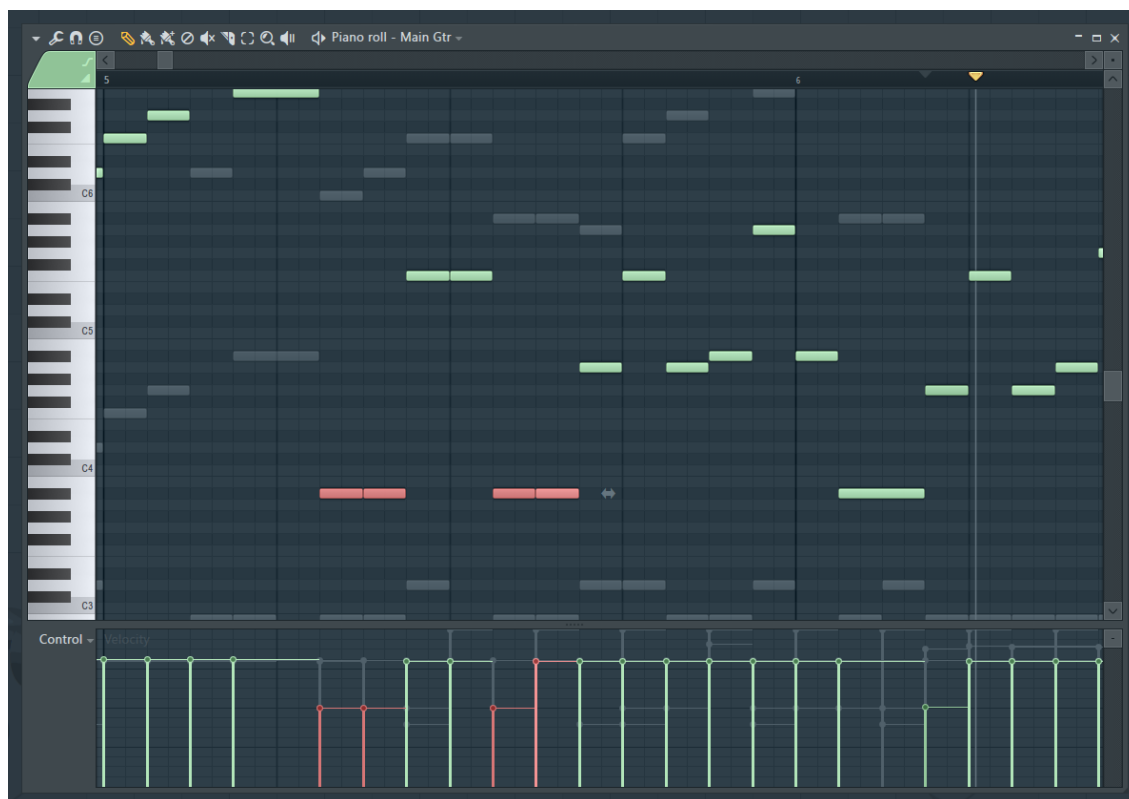
The visual proof for the composition as a whole is difficult to produce because of the way FL Studio presents the playlist, so my word will have to suffice.

PICTURE 7. The one and only pattern on the playlist of "Use" (Kristian Huuki 2018)

While writing with a guitar on the main pattern, I found it difficult not to make an exact intentional repetition of a group of two or more notes in pitch and rhythm. However, changing one of the attributes available, in this case the sounds played in the second repetition from an open string to palm-mute, solves this problem. Exact single notes are

repeated on several occasions as can be seen from the picture below, but never a group of two notes or more without taking into consideration the other attributes.

PICTURE 8. Slightly misleading visuals; in this case the nature of the velocity control in FL Studio with the specific VST used that produces the sound of the guitar, controls the sound and not the actual velocity. When the velocity is at about 50%, the sound produced will be palm-muted and open string played when the velocity is at 80%. (Kristian Huuki 2018)

The actual velocity of the notes could also be changed, but was not because of the obvious differences that palm-muting the strings provides visually and sound-wise as opposed to the slight changes in velocity. Having relevant control over the different velocities throughout the composition could also be problematic for the guitarist, contributing to the nature of how patternless it really sounds like to the listener, as the velocity changes would to some extent be seemingly constant under real-life circumstances.

The third repetition of these two notes would require another differentiating attribute as it matches the pitch, sound, rhythm and velocity of the first pattern exactly. The order of the open-string and palm-mute could be reversed, but I chose to change the sound pro-

duced by the drums and notes played by the lead guitar at the same time to make it stand out.

Even further, the fourth instance of the pattern would eventually assume either reversing the order of the open string and palm mute as mentioned before or changing one of the attributes played by the other instruments yet again, to keep the pattern itself as unrecognizable as possible and safely within the patternless rules.

This is exactly why using multiple instruments within the writing process offers substantial options to the composer, when seemingly obvious patterns are to be repeated. The fourth repeating instance would not be even possible if the guitar was the sole instrument in the composition unless yet another differentiating sound could be produced from the guitar, which is also plausible.
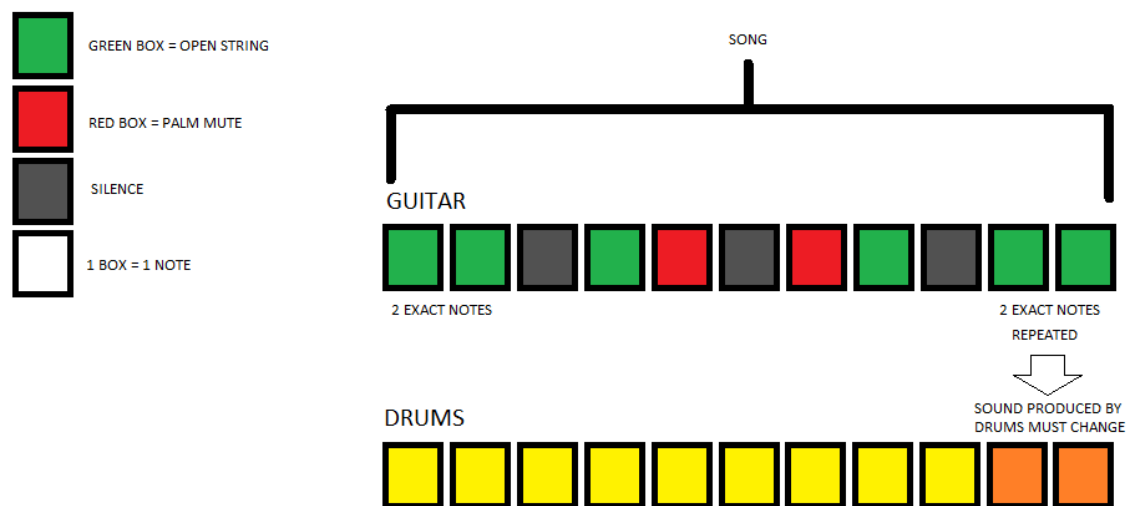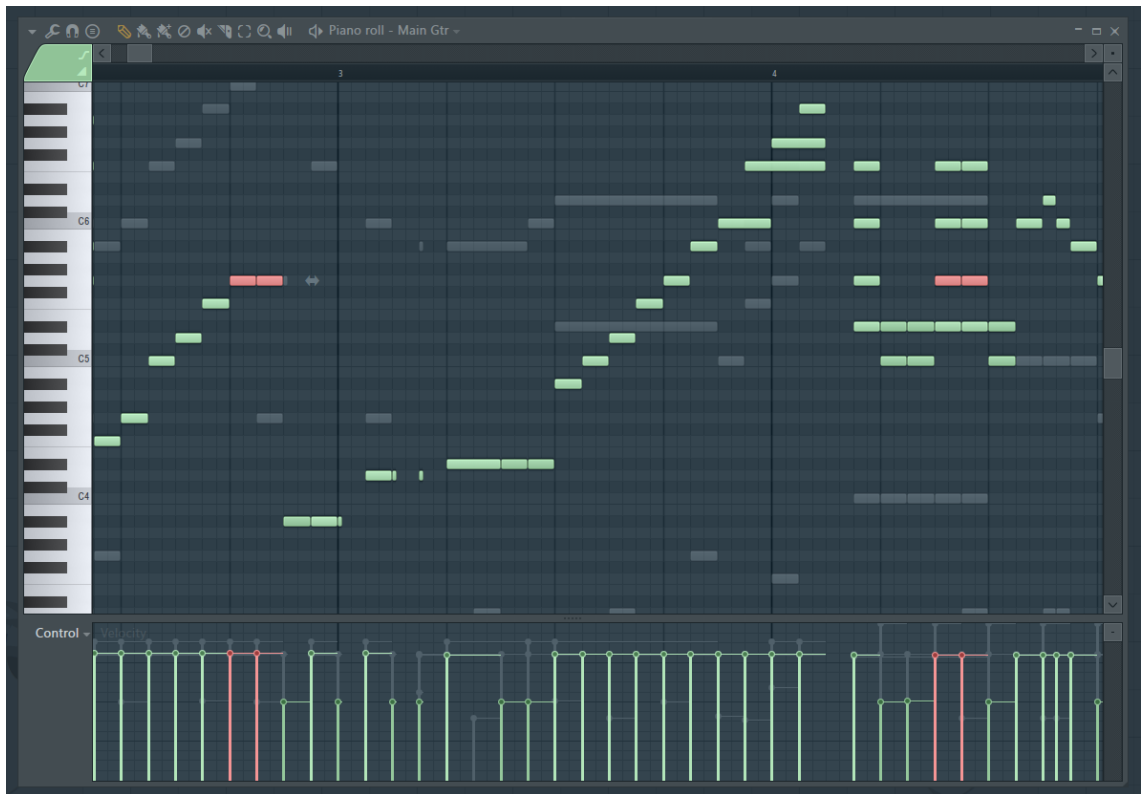

FIGURE 5. Example with 11 notes depicting the logic of repetition in "Use". Fourth repetition of the same pitch, rhythm and velocity with the necessary differentiating factor of another instrument, in this case the drums. (Kristian Huuki 2018)

It would also have been possible to change these two notes completely in pitch on any of the instances, but that defeats the purpose of intentional repetition. Furthermore, my intention was to stay with these two notes also because of the natural solutions my guitar provided.

PICTURE 9. The main pattern of "Use" in FL Studio 12 sequencer; pattern of two C#5 notes is repeating itself in all four attributes. (Kristian Huuki 2018)

On the second occasion, the pattern is accompanied by B4 and C#4, thus creating a chord and preventing exact repetition of the two notes. This is a simple but efficient way to re-utilize a group of notes or patterns. Nonetheless, at the same time the sound produced by the other instruments would preferably differentiate between the two instances just like in the former example, contributing to the overall pattern-free nature of the sound even when it is not specifically required. Once more, repeating the same notes and patterns is allowed as long as there is something that makes them different. In visual terms, the more obvious the difference, the better, depending on what level of patternless is desired. Audible differences will then certainly follow.

When writing with a single instrument, the possibility to reuse patterns in examples presented beforehand increase in difficulty as there are no other attributes for the pattern to rely on keeping it non-repetitive. If only the main pattern of this example in its current state was closely examined alone, these instances of repeating patterns would lead to its failure to comply with the patternless rules.

For the piano conversion of "Use" (appendix 1), I changed some of these more obvious patterns to single note instances or replaced exact repetitions with notes that were not

yet played, making the main pattern alone truly pattern-free in the attribute of pitch. The contribution of the other instruments makes these kinds of changes unnecessary in the original form of "Use", but combining them with the other instruments would make the composition as a whole even more sophisticated and less patterned. Whether this would make it better or worse is another discussion.

The 16bit conversion of "Use" (appendix 1) was created to simplify the composition and provide another genre in the hopes of making it more approachable. The drums went through dramatic changes because of this; all toms and cymbals were removed, except the hi-hats, which were modified in order to clearly indicate changes in rhythm throughout the composition, while the patterns of the other instruments were left intact.

5.2 Lower

"*Lower*" was my third attempt at patternless music with a focus on an overall heavier sound with a significant amount of changes in pitch, rhythm and the use of both tonal and atonal keys. It is an example utilizing almost every technique that I knew of at the time.

PICTURE 10. "Lower" playlist; again using only one pattern during the writing process (Kristian Huuki 2018)

"Lower" differs from "Use" as it intentionally does not stay inside a specific key, melody or rhythm, though the tempo stays at a constant 108.108 beats per minute. Every note from the low B3 up to the high B6 is played at least once; a total of 3 octaves accounting for 36 utilized notes, in addition to the few instances of notes played above B6.
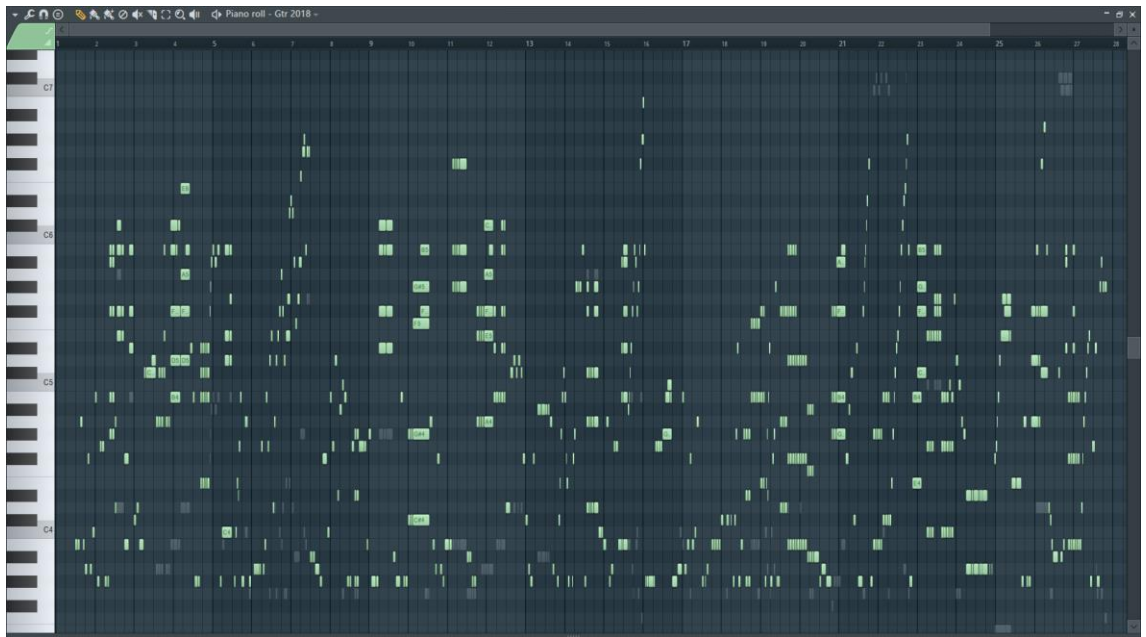
PICTURE 11. The "Main Gtr" pattern in "Lower" showing the played notes throughout the composition. (Kristian Huuki 2018)

Conversion of "Lower" was made by simply replacing the main instruments with 3 violins playing only pizzicato, minor edits and removing the drums completely. This shows some of the potential of the patternless form in classical music and how fluently it could be adjusted to practically any type of music.

5.3 Food For Thought

"Food For Thought" (*FFT*) was one of my first attempts at patternless music. It is similar to "Lower" in its tonal and rhythmic changes and approximately 3 octaves worth of utilized notes, but differs with only the rhythm guitar, bass and drums included in the project.

It was a testament to the challenges provided by the lack of a solo guitar, which contributes not only to the versatility and ease of composing but also to its likeability. This is proven by the length of the composition, with the mere duration at 1 minute and 18 seconds. Although the form of pitch is supposedly patternless in all 3 examples and compensated by the other instrument when it is not, the amount of exact repetition of pitch, especially in a group of 2 notes, is highest in "FFT".

PICTURE 12. The "Main Gtr" pattern in "FFT" showing the played notes throughout the composition. (Kristian Huuki 2018)

6 CONCLUSIONS

Creating patternless music may really not be that hard at all. As evidenced in the examples, there are a lot of available shortcuts and audibly undetectable ways one could utilize and still claim that the piece as a whole is technically patternless, for whatever that is worth. The digital tools make it very easy, especially with the amount of control one has with digital tools over the seemingly insignificant and significant attributes alike. However, the biggest issue is making this type of music sound musical and approachable while avoiding repetition in its most obvious form, patterns and phrases that humans recognize in music both audibly and visually.

The available definitions given for through-composed do not explain the form in enough detail and leave many questions unanswered. According to the rules in this thesis, "Der Erlkönig" is in fact patternless, therefore proving that patternless and through-composed could, at least in some cases, mean the same thing, or that at least the rule of following one pattern-free attribute is similar in both forms of music. I still have not found any examples of through-composed music that do not repeat any pattern of rhythm or melodies, making me question its integrity.

Patterns are implicit in simple sound waves and, in contrast, non-existent in the realm of pattern-free forms of music (e.g. Perfect Ping). At the same time, patterns are inherently everywhere and nowhere. The most detailed inspection reveals miniscule patterns in everything, while human hearing can barely recognize them in the other end. Neither one of these extremes can trump one another as they are defined by different measurements and can be perceived subjectively. Finding the midway in all this seems like the most prominent solution.

Humans are not keen on things that keep changing; on the contrary, we enjoy the repetition of that which is familiar to us. The original idea of one big pattern that did not repeat any patterns or phrases within it became quickly obsolete when I realized its limitations while creating the examples previously presented. I did manage something similar though. This writing process provided the patternless rules and clarified what rules could be plausibly followed, in so that they were not limiting the creation of music by being too extreme. Aiming for complete non-repetitiveness and/or following atonal

rules for whatever reason did not seem to be a viable option. In a sense, patternless tries to find a medium between everyday music, complete repetition and pattern-free music, in that it allows us to understand music in more detail without extreme limitations.

These rules guide the creation of this experimental music while also challenging the creator to keep it musical. This combination makes it possible for something completely unique to be created, something that brings with it the possibility to further increase and develop our understanding of music. Further studying, analysing and creating more representations of patternless music in multiple different genres with user testing (e.g. hearing tests) could help clarify the definition for this form of music even more.

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APPENDICES

Appendix 1. Use

Soundcloud:

Use

https://soundcloud.com/patternlessmusic/use

Use (Piano)

https://soundcloud.com/patternlessmusic/use-piano

Use (16bit)

https://soundcloud.com/patternlessmusic/use-16bit

Bandcamp:

Patternless Examples One

https://krisse.bandcamp.com/album/patternless-examples-one

Sync:

Patternless Examples One

https://ln.sync.com/dl/b4b1b7ac0/crcz6bdk-auaeh69d-n5wb5gt8-zh994bej

Appendix 2. Lower

Soundcloud:

Lower

https://soundcloud.com/patternlessmusic/lower

Lower (Pizzicato)

https://soundcloud.com/patternlessmusic/lower-pizzicato

Bandcamp:

Patternless Examples One

https://krisse.bandcamp.com/album/patternless-examples-one

Sync:

Patternless Examples One

https://ln.sync.com/dl/b4b1b7ac0/crcz6bdk-auaeh69d-n5wb5gt8-zh994bej

Appendix 3. Food For Thought

Soundcloud:

Food For Thought

https://soundcloud.com/patternlessmusic/food-for-thought

Bandcamp:

Patternless Examples One

https://krisse.bandcamp.com/album/patternless-examples-one

Sync:

Patternless Examples One

https://ln.sync.com/dl/b4b1b7ac0/crcz6bdk-auaeh69d-n5wb5gt8-zh994bej