



Bach and Busoni Essentials in A Chaotic World

Seow Phing Lee, C. H. Raymond Ooi[✉], Ku Wing Cheong

Universiti Malaya, Malaysia

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Abstract

The study analyses the manifestation of structural change from the Bach Violin Chaconne (BWV1004, c.1720) to the Bach-Busoni piano transcription (c.1897). This article explores the use of two-dimensional music abstraction for vertical (pitch height) and horizontal (time) and its signal insignificant identified bariolage sections in music. Bariolage excerpts are chosen for they are implied sounds captured in repeatability and recontextuality. The first part of the article offers an excerpt of the Bariolage from violin at bars (113-120) and its parallel piano transcription at bars (118-125). Significant expressions of registral change utilizing different voice parts (Soprano, Alto, Tenor) offer a wider expansion with piano. These excerpts were chosen after reviewing the original Bach Chaconne and its essentials in analytical aesthetics for the projection of beauty in symmetry-asymmetry-chaos in composition. This study captures the aesthetics of the beautiful from the original score of the violin Chaconne at (bars 89-96) and (bars 113-120) for Bach-Busoni piano transcription. Further, there are recommendations for future studies to explore vertical spaces and mathematical sequences embedded in the music in other sections. The findings of this study were implied through new music analytical formats to be applied in composition, pedagogy, and performance practice.

Keywords: piano transcription, beauty in music, symmetry, golden section, music aesthetics

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INTRODUCTION

The original Bach Violin Chaconne (c.1720) and its transformations to the Bach-Busoni Chaconne piano transcription (c.1897) contain beautiful excerpts that colours (bariolage, *fr*; multicoloured) multidimensional spaces within symmetrical (Voloshinov, 1996, Morgan, 1998), repetitive (Lester, 2001) or recontextualized forms (Hanninen, 2003). It permeates in timed series with expansions to spatial dimensions. Measurable through identification of significant notation of pitch height and distances on 2-dimensional platforms, the utilization of scientific methods, particu-

larly mathematical abstractions were employed. Using significant excerpts from scores, pitch distances as measures of height or depth in sound (y-axis) against musical flow in time (x-axis) provides graphics with recognizable features like regular repetitions, symmetry, and asymmetrical forms that span depths and heights. In the process of transcription, music is metaphorically liquified as flowing horizontally in timed series, textural change in vertical spaces transform linear lines in Bach Violin Chaconne to deeper dimensional monuments at the Bach-Busoni piano transcription.

The Bach Violin Chaconne composed

[✉]Corresponding author:
E-mail: rooi@um.edu.my

in 1720, was a creation of linear polyphony with great interpretative diversity (Irving, 2007). Techniques for “structural expression” were required to perform double, extended arpeggiatic stoppings, thus identifying pitch contours within polyphony (Brumeloe, 2000). Their meticulous construct of implied voices and transitions in motives behind the linear sequence is a challenge to virtuosic performers (Davies, 2005). In contrapuntal studies, counterpoint marks the eclipse of implied voices within single and multiple voice platforms, thus creating uneven tones. This unevenness permeates significantly within common points in music, where uneven beauty highlights melody as points for exaggeration in music.

This study reviews structural expressions through verticalization within symmetrical and asymmetrical patterns that apply from Bach Violin Chaconne (bars 113-120) to Bach-Busoni piano transcriptions (bars 118-125). For the piano, Busoni created a strong sense of texture by reinforcing structure through the extension of forms with repeated materials, transformed fragments, increased leaps, and widened registers dramatizing the piano with illuminated scalar octaves and double parallel chords (Kogan, 2010).

Aesthetics are experiences in music where the art of “the beautiful” occupy spaces of balance, proportion and perfection. According to Hanslick (1891), the book entitled “Von musicalisch schonen” (The Beautiful in Music) mentions the lack of relationship in music interpretation when problems arise in complexities of sound and a more scientific method was needed as it was too subjective in inquiry (Breakepear, 1879-80). From “The Beautiful in Music”, Hanslick (1891, p.92) postulates that mathematics controls the intellectual manipulations of primary elements of music and is secretly at work in the most simple relations, especially rhythm where the fundamental in mathematical pattern and the geometrical structures embedded in musical, architectural concepts convey beautiful dynamical forms (Knytt, 2012).

Measurements of beauty in musical signal processing using dimensional platforms in the x and y-axis has been informative by Altschuler and Phillips (2015) and Klapuri and Davy (2006). The recent analysis of Hanslick’s aesthetic principles in music explored the context of empirical methodologies in clarifying music (Wilfing, 2019).

Musical beauties are manifestations in spatial effect formed by patterns of pitch in vertical distances between them. Realizing their properties in counterpoint, composers control distances between voice to achieve the effects of spaces apart from other effects like modulations, symmetry, and repetitions.

Pitch height (y-axis) against time (x-axis) topologies of musical abstractions are insightful illustrations of graphical presentations of music flowing in time (Altschuler & Phillips, 2015, Klapuri & Davy, 2006). Within timed series, *symmetry* is built on principles of characterizing order in structures that control invariances within geometrical encapsulations (Voloshinov, 1996). As they are components of smaller parts to a whole, their aesthetic functions in the art are not sufficiently explained though they are thought of as beautiful events. Symmetry is man’s comprehension of order, beauty, and perfection in structure. Morgan (1998) outlines the three basic symmetrical transformations. While rotational and reflection transformation preserves the positions in spaces, *translational* property reminds listeners of the multidimensional possibilities of sound in music. As stated by Morgan (1998), “*translation*, displacements in planar spaces can occupy infinite themes at different axis with horizontal, vertical, or angular change. “*Translational* symmetry displaces a series of elements recurring at regular intervals” (p.7). Being translative, the process of elemental displacements recurring at regular intervals can be an extension in periodic patterns. In contrast to symmetry, the disproportioned or asymmetries are signatures of “aesthetics” in the ugly (Rosenkranz & Hauber, 2011). The understanding of ugly as a reverse of beautiful was incomplete

when the unaesthetic cannot have formed. Asymmetries are formed, and their existence carries incongruent sublime beauty. The art in *imitation* allows a variance in space to linger in music. Repetitions of the exact version of a subject are imitation and being a context in form; it is an expression for reinforcing a subject matter and, therefore, enhancing performances (Paddisson, 2010). Reformulation and reconstruction are translational processes in music that are repetitive in form and structure, are also the means of obtaining the effects of continuity, coherence, order, and symmetry. Lester (2001) mentions that repetitive events are ways of amplifying acoustics in the music of Bach. Reinventive in nature, the placements of these events either at different segments in music or combined with other materials are activities of recurrence.

By aligning *Bariolage* movements from the Chaconne as parallel sections, the frequency of amplified effects occurs in multiple intensifications of textures by verticalization. Hanninen (2003) described the change with recontextualization whereby being a compositional technique, slight changes in repetition create phenomenal transformations in sound. The *Bariolage* in Chaconne is recontextualized in many movements of variations projecting the same materials that occasionally appear different to inform listeners of an implicit change. Recontextualizing music transcends style, and its analytical inquiry into diminutive chaos or beautiful sequences are new subjects for interpretation.

METHOD

The transfer of Bach music through transcription leaves the listener with audible-visual impressions as they contain musical structure that theoretically amplifies questions in methods chosen for interpretative research. The violin Chaconne by Bach, its piano transcription by Bach-Busoni is essentially a beautiful work that describes music in structural forms. The music is tabulated with pitch height in semitones on the y axis and time series in quaver

units on the x-axis. They are challenging to capture graphically, a mathematical abstraction in 2D where different vertical pitches perceptible to the imagination in spaces occupied by their depths or heights in music. It is a testament to the existing spaces of frozen musical texture through horizontal timed series; their scattering points of notes form independent data on the x-axis. While vertical patterns (y-axis) reflect dependent data on time series, their alternation between the free and permanent music notes is recognized spatiality in two-dimensional spaces (Bonds, 2020).

RESULTS AND DISCUSSION

The Violin (bars 113-120)

From the *Bariolage* section of violin Chaconne, scattering plots of notes in alternation between common notes implies a resonance to raindrops in nature. There are perpetual movements with continuous flow in common repetitive notes but never in stagnation, like the rhythm of raindrops. Recontextualized towards the end of the movement, the music is visualized as the change in depth, height, or direction. Arranging the *Bariolage* sections into parallel bars of 8 in each analysis (Bars 113-120), every note in time and distance away from common points in a pointillist manner cumulatively affect aesthetics in sound through heightened musical patterns.

Bars (113-120) are rearranged as *Bariolage*, (B1a-B8a) in (Table 1 & Figure 1, 2 & 3). Aesthetically beautiful, it projects inspiring architectural landscapes, a way of modernizing ancient patterns of repetitive, symmetrical recipes in musical compositions. The *Bariolage* section is decorated with "falling droplets" of water as the music progressed. Altschuler (2005) studied scores referring to the Lute and suggested that the *bariolage* became a compositional technique for the violin with features of string alternation between open strings to subtle melodies. A form of spatial diffusion frozen in time, the violin recontextualizes, struggling with drowning sounds towards the end from (bars 118-120) at Figure 2. The

aesthetical beauty of the Bariolage can be visualized like points where droplets of repetitive notes allow different flowering layers of melody to signify change (Table 1 & Figure 2). The musical technique Bariolage (fr; "multicoloured") involves the alternation of notes on adjacent strings, one of which is usually open, the other usually accented. The mechanics of quick alternation between a static note and changing one forms melody either above or below the permanent note for forms of repeatability to grow (Winold, 2007). The permanent note could be an open string and with the technique of flexibilities in wrist and forearm, separate bow strokes or cross-fingerings present as order or oddness (Boyden & Walls, 2001).

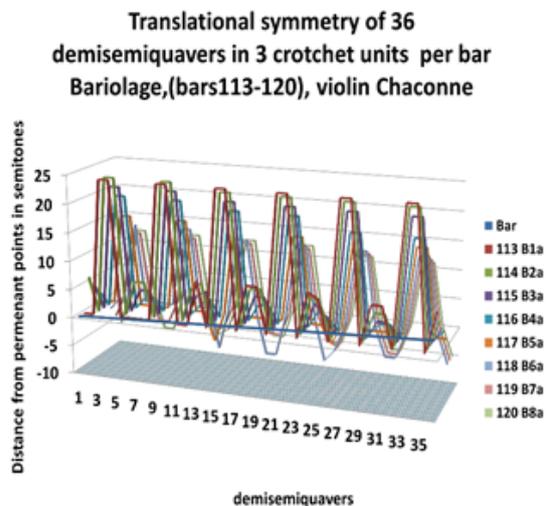


Figure 1. Bariolage (Bars113-120),Violin

It requires great performative endurance to execute the Bariolage sections, where the task is more difficult when structure dives deeper into the score from (bars 118-120), signifying music to its end. Measurements from permanent points (pedal/common notes) are demonstrated in (Table 1) whereby, a 3D-line graph is produced (Figure 2). Each point is calculated as pitch semitones from the permanent pedal point in D4 from the initiation (beginning at bar 113). Devices like sextuplets (6 demi-semiquavers to 1 quaver beat), create extra-metric groupings for diminution effects. Music had to be accelerated within

a quaver, creating increased tension. From Figure (2) there were repeated notes shaped like flattened peaks, and music plunged deeper into bass at the last three bars of (118,119 and 120) towards the end in the section signifying a change in direction.

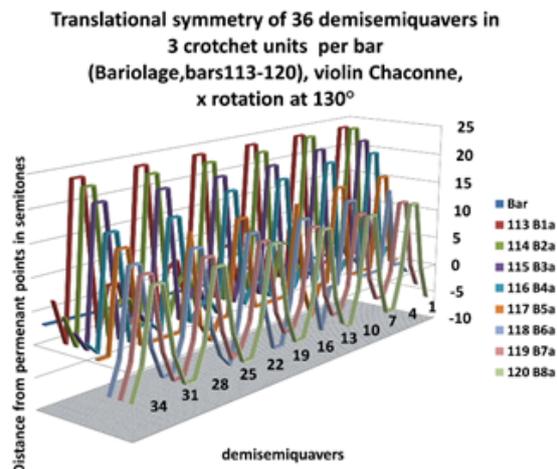


Figure 2. Bariolage (Bars113-120),Violin, x rotation at 130°

A rotation on the x-axis (130°) from Figure (2) is a testament to the aesthetical appreciation of symmetrical translative forms similar to models estimated by Morgan (1998). The aesthetics of perpetual movements are arranged in parallel for easier symmetrical comparison whereby Bariolage (B1a) at (bar113), B2a (bar114), B3a (bar115), B4a (bar 116), B5a (bar117), B6a (bar118), B7a (bar119) and B8a (bar 120) all have unique features. Identified easily with sharp drops into the negative zone, the corresponding B6a (bar118), B7a (bar119) and B8a (bar120) in Figure (2) are recontextualized for deeper timbre signifying a change towards the end. There is an assumption of infinite symmetrical patterns as music in frozen patterns of structure display composers' thought processes, sounding deeper tensions as transformations work towards endpoints in music. Here, music is translated symmetrically and graphically each (B1a) until (B8a) is moved by one element to another by an interval of displacement. Here there are 8 sets of multiple fractions (B1a-B8a) of similar patterns on a vertical axis. As ima-

ges of perpetual regeneration threaten the evocation of uncertain eternities, the music dives deeper into the baseline signaling a change of direction toward an end. With just 8 bars of graphic display the musical waves overlapping at alternating heights and depths in sound is the beauty to behold.

The Piano Transcription (bars 118-125)

The piano transcription (Bars 118-125) demonstrates larger capacity in sound through modified musical structure. Deeper structures by the method of expressing voice entries like Soprano (S), Alto (A) and Tenor (T) with large registers strengthen effects in sound. A spreadsheet with (Microsoft Excel 2010) is designed to tabulate pitch distances from common points in the music. With data arranged according to pitch distance from the common notes in the y-axis, music flowing in timed series along the x-axis is visualized in graphical form. Data stored in sets of 8 bars (B1a-B8a) are identified as forms of beautiful translative symmetry in violin (bars 113-120)(Table 1) and piano (bars 118-125)(Table 2).

The structural depth in the Bach-Busoni piano transcription (bars 118-125)

In tonal theory, symmetry and asymmetrical patterns are forms of breaking and affirming structure in music. Music of the original violin (Figure 2 & 3) aesthetically subscribes to the balance and proportion of regular geometrical spaces. Asymmetrical presence is a form of geometrical reinvention; their difference in translated patterns is presented from the piano transcription at (bars 118-125){ Figure 4}. Compared to the violin, the emergence of more asymmetries in the piano informs of the contrast in irregularities, thus changing the rigid forms of old compositions. The weight of the (LH) and (RH) from piano extends its ability to interplay between both forms of symmetry and asymmetry. The basis of 2-dimensional drawings prepares the foundation for musical ornamentation by voicing SATB (Soprano, Alto, Tenor, Bass)

in the different register by the piano. Table (2) explains the positions at the different layering of expression in Soprano, Alto, and Tenor. The deep registral change in vertical landscapes is shown in (Figure 5). Properties of invariance create great potential for methods in composition; their beauty is essentially important to pedagogical and performing pursuits.

Transferring the same idiom from violin into the piano, Busoni's compositional skills in maneuvering texture became complicated transformational droplets of sound. Busoni built this tension with more depth using stronger foundations in the bass (LH Piano), and the product resulted in greater accomplishments with immeasurable aesthetics (Figure 5). Musical abstraction (Figure 6) is a landscape of musical depth, highlighting deeper structures in sounds (Figure 5).

Discussion

Graphing music has unlimited applications when applied to composition whereby topology of better layering of sound spaces can be done in recompositions using the same mathematical derivation from graphical tables. By recomposing old works, we have an area of hybridized creativity that offers limitless performative editions. In particular, the idealized violin Chaconne is transformed to deeper sounds in Bach-Busoni piano transcription.

This work stresses the importance of reinterpreting music transcriptions, particularly when comparisons are made through analysis of musical structure as transforms of mathematical order.

Busoni's recreation of more asymmetries informs of the contrast in irregularity, thus changing rigid forms of past composition. Its significance in pre-recital practice stressing structural verticalities prepare pianists for effective execution of difficult large leaps. The imageries of form in transformed transcriptions offer inspiration in performing practices and post-performative analysis of combined sound and art (architectonics). This study was delimited to the investigation of violin

Bars 113-120
Violin Chaconne

Symmetry with Fibonacci sequences

BACH, Johann Sebastian

Figure 3. Bariolage (Bars113-120),Violin: Pitch distances in semitones

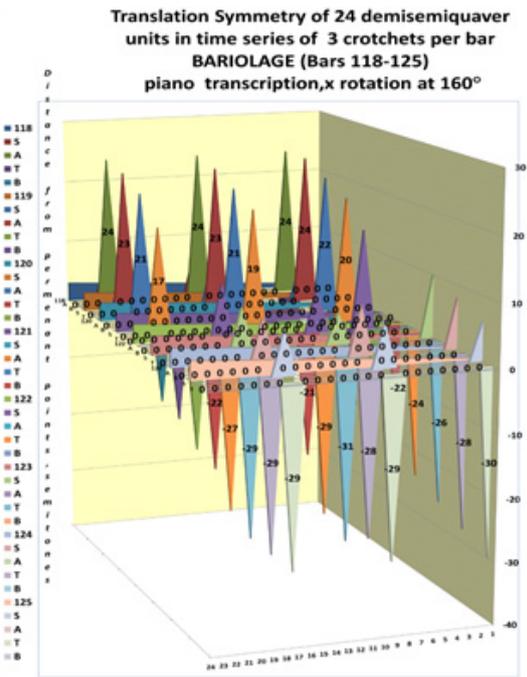


Figure 4. The signature of depth from Bariolage (bars 118-125, piano transcription)

Bars 118-125
Abstraction, piano transcription

BUSONI, Ferruccio

Abstraction, piano transcription (continued)

Figure 5. Abstraction from bars (118-125):Soprano, Alto, Tenor, Bass: SATB Chaconne piano transcription, Busoni

to piano transformations which capture the aesthetic of the beautiful from original score of the violin Chaconne at bars (113-120) to bars (118-125) in the Bach-Busoni piano transcription. Further, there are recommendations for future studies to explore vertical spaces and mathematical sequences embedded in the music in other sections. The findings of this study were implied through new music analytical formats to be applied in composition, pedagogy and performance practice.

CONCLUSION

This article contributes to new knowledge from traditional music analysis with mathematical acoustic graphing, just as conceptualized by Bach, the composer Busoni applied them to structural landscapes of depth in his transcription. The aesthetics of transcriptions are musical transforms of symmetry-asymmetry essentially for the beauty and chaos it creates in the musical world.

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