

PERMUTATIS:
TWENTY-FIVE PIECES FOR
PIANO FOR TWO HANDS
BASED ON THE
THOMPSON SYSTEM OF THEMATIC FUSION
A CREATIVE PROJECT
SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE
MASTER OF MUSIC
BY
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I. Introduction

I have developed a procedure that allows me to merge two or more musical themes into one by averaging them. This procedure and complex of operations, which I call the *Thompson System of Thematic Fusion* and that I will refer to as *Thematic Fusion* for short, can be utilized by the composer or arranger in a variety of ways. It can be combined with traditional devices of melodic manipulation, such as augmentation, diminution, inversion and retrograde, as well as used independently. *Thematic Fusion* furthermore allows the composer to use it either to create new thematic material which he or she can treat as an independent dramatic event or to create a gradual transition between two or more themes by providing a stepwise transformation of one theme into another. The system and the procedures involved will be described on the following pages in great detail. In order to not only demonstrate, but also explore my procedure I have decided to compose a set of 25 pieces for piano in all major and minor keys. The pieces span a wide spectrum of genres and employ *thematic fusion* in a variety of ways. Since the result of applying *thematic fusion* is always a permutation of the original material I decided to name the collection of pieces *Permutatis*.

II. Historic concept based collections for keyboards instruments

Since my collection is a conceptual composition, and furthermore a set of piano pieces, I do want to mention some of the better-known collections to which it is comparable in one way or another. The best-known collection of such piano works must be Johann Sebastian Bach's *Das Wohltemperierte Klavier*, composed in 1722. Bach's masterpiece was intended to be an instructional work for the beginning as well as the advanced player,¹ yet proved to be so much more for generations of performers, theorists and historians alike. *Permutatis* is comparable to the WTC in terms of its organization with the pieces being presented in chromatic order and furthermore in all keys. *Permutatis* however, unlike the WTC explores the dimensions of one concept throughout different keys and styles, whereas Bach's work explores the newfound possibility of playing in all keys by means of equal temperament. Another aspect is that Bach utilizes the traditional late renaissance/baroque concept of the pairing of prelude and fugue, eg. establishing intonation and then a succeeding piece displaying contrapuntal artistry. While *Permutatis* does contain many pieces with contrapuntal textures, some rather

¹ The title page of Bach's autograph reads "Zum Nutzen und Gebrauch der Lehrbegierigen Musicalischen Jugend, als auch derer in diesem Studio schon habil seyenden besonderen Zeitvertreib aufgesetzt..."

complex in nature, I chose not to use the prelude/fugue concept for the following reasons: Twenty-four fugues would have shifted the focus of the work too strongly towards the concept of fugue and furthermore would have caused to use *thematic fusion* predominantly in a contrapuntal fashion, whereas I conceived it as a melodic device that I wanted to explore and test in a wide spectrum of textures and styles.

Since *Permutatis*, as mentioned above, explores one concept or technique through different styles, *Die Kunst der Fuge*, another work by J.S. Bach is likely to seem similar. In *Die Kunst der Fuge*, dating from 1751 - about a year after Bach's death, he thoroughly explores the concept of fugue in all possible fashions. Bach here combines the fugal concept with all conceivable stylistic and contrapuntal devices. *Die Kunst der Fuge* does in contrary to *Permutatis* or the WTC not leave its starting key signature, and each fugue is furthermore derivative of one theme. While *Die Kunst der Fuge* is certainly not comparable to *Permutatis* in terms of the spectrum of keys that are being explored, it is definitely similar in the consequent exploitation and expression of one concept through different pieces.

In terms of the stylistic range of pieces, I feel that *Permutatis* is quite comparable to Johannes Brahms's collections of piano pieces, not unlike his opus 76, 116 or 118. While he entitled the majority of pieces here *Intermezzi*, the *Intermezzo* is by no means a clearly defined form, as the only defining aspect that can be derived from its name is that it may be intended for performance between works, whereas the different *Intermezzi* could easily be named preludes, interludes, Walzer, dances and so on. Brahms's collections thus provide a great stylistic spectrum despite their limited range of nominal definition.

I would like to conclude this section on comparable works by advancing to contemporary compositions and briefly mention two collections for keyboard instruments by twentieth century composers. The first one, in its concept almost identical to the WTC, with the pairing of prelude and fugue, Dimitri Shostakovich's Op. 87 *24 Preludes and Fugues*, written in 1951 deserves mention here. Shostakovich adapted the prelude/fugue concept but expanded it harmonically and melodically to fit his tonal language. We can find his extended tertian harmonies and conscious willingness towards dissonance paired with contrapuntal sensitivity and inspired fugal writing, while his preludes stylistically and texturally could fit many forms. Shostakovich explores the prelude/fugue concept and blends it with his aesthetic understanding. *24 preludes and fugues* is furthermore organized in the circle of fifths rather than chromatically.

The second work is *Ludus Tonalis* by Paul Hindemith from 1943. *Ludus Tonalis* may be the most similar work to *Permutatis*, in terms of exploring a concept through different keys. *Ludus Tonalis* is a collection of 12 fugues with 11 interludes preceded and concluded by a prelude and postlude. Several qualities make this work quite comparable to *Permutatis*: First, *Ludus Tonalis* showcases Hindemith's tonal concepts as described in his instructional work *Craft of Musical Composition*. He utilizes the key concepts of his writing and blends them with the fugal scheme. Second he takes these concepts through all keys; Lastly Hindemith's cycle has an opening and closing work. He begins with a Prelude and closes with the Postlude. *Permutatis* opens with no. 1, the *Intrada* and closes with no. 25, the *Conclusio*. Unlike the WTC or Shostakovich's work, *Ludus Tonalis* is intended to be performed in sequence. Hindemith ordered the pieces according to his system of dissonance from the least to the highest degree dissonance and

felt that each piece and key should be considered a new actor in a dramatic play of keys. *Permutatis* and *Ludus Tonalis* differ in terms of the commitment to tonalities. While the works in *Ludus Tonalis* have a clear tonal center, by design the pieces do not conform to minor or major, but rather a key center. *Permutatis* deliberately explores major and minor keys and feeds of the colorations and moods that each of the tonalities provide.

III. Purpose and Application of *Thematic Fusion*

Thematic Fusion was conceived by posing the question: what if the exact middle between two musical themes was the exact average of those very themes. By design and concept, *Thematic Fusion* therefore lends itself to be applied as what could be called a transitional device, with the goal being whatever theme or thematic event this transition leads to. Since, as will be demonstrated in detail in the next section, *Thematic Fusion* by design allows for a bias towards one theme or the other, various hybrid versions can be created, each of them a step closer or further from the origin or goal. With this functional aspect in mind, *Thematic Fusion* therefore can be utilized to create smooth thematic transformation as well as what I like to refer to as *morphing transitions*. These transitions allow for one theme to gradually become the second theme rather than having related or unrelated material interweaved between them. The transition becomes a thematic event, the journey becomes the destination. We can find this thematic transformation in *Permutatis* in no. 3, the *Romanze* and especially no. 8, the *Minimaluett*. With each reiteration theme A becomes one step closer in sound and contour to theme B.

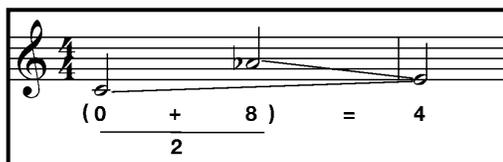
As mentioned above, by using *Thematic Fusion*, the transition becomes thematic material in its own right that is related to both themes, yet new in sound and character. Keeping this in mind, *Thematic Fusion* can be furthermore used to create thematic events in their own right. The hybrid of two themes can be the climactic event of a piece, full of rhythmic and melodic activity, as it may govern all aspects of activity of both themes. If this is taken into consideration while using the system, the *Thematic Fusion* does not need to be used to create a transition, nor does the hybridized material need to be placed between themes. The fused theme may appear at any time in the piece, either in the beginning, the middle or the end. Since the new theme is a hybrid of both themes it will be a fusion of both themes characteristics. If both themes are bubbling with activity, the activity will likely be increased in the hybrid. If the composer chose to have two contrasting themes, for instance an active theme with a high density of melodic events and a legato theme with sustained notes, the hybrid of the two will obviously be a tamed version of the first or an intensified version of the second.

IV. Procedure

At its core *Thematic Fusion* uses averaging to create hybridized themes. For demonstrative purposes it may be as basically expressed as “ $H=(T1+T2)/2$ ”, thus creating the average of T1 and T2. If one were to replace the variables T1 and T2 with musical themes then H, the hybrid would be the exact average of the two. In mathematical terms this could be expressed as “ $(6+4)/2=5$.” In musical and compositional praxis the procedure however is a bit more complex and certain steps along the way have to be taken into account. Not considering the artistic and aesthetic aspects that must ultimately outweigh mathematical consideration, a melody is mechanically put a combination of pitch and rhythm events in succession over a period of time.

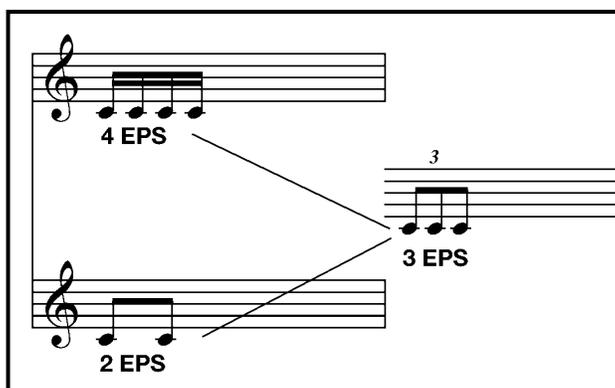
Each pitch can be assigned a pitch class number, with the pitch C equaling zero and the pitch B equaling eleven. The average of the pitches C and Ab for instance then would be 4, if the pitch class numbers of C and Ab were inserted into the formula introduced above. The mathematical expression then would be $(0+8)/2=4$. In order for *Thematic Fusion* to work however, the true registral position of a pitch has to be

considered. In order to achieve this, the pitch that equals zero is the middle C. The Cs below or above will have 12 either added or subtracted from them. This is best demonstrated in Figure 1:



As mentioned above, a melody is not only pitch events but also rhythmic events.

These rhythmic events need to be averaged as well to create a true hybrid of two themes which incorporates all aspects of both themes. For the purpose of this paper, I will use the term *events per sections* or EPS. The events per sections are the attacks that occur over a section within a theme. Should the rhythms of our themes be for instance the ones shown below in Figure 2:



Then, as we focus on the first beat of theme A we can find four sixteenth notes on the first beat, while the second theme B has two eighth-notes on the first beat. We thus have $(4EPS+2EPS)/2=3EPS$. These 3EPS

occurring in a section of similar length, in our case one beat, will become three eight note triplets. Whether this holds true to each individual case however depends on the melodic contour of both themes, since the procedure works with a combination of both pitch and rhythm, as the following will explain.

Since the focus of *Thematic Fusion* is a musical one, all dimensions of music and melody have to be considered. While melodies can obviously be reduced to pitch class numbers and rhythmic attacks over time, the aesthetic aspects of melodic material can

hardly be expressed in mere numbers. And, as I will write later, I have found that a purely mathematical approach, an absolute one, if one so will leads to rather abstract and detached results with both limited musical qualities and a limited range of usability. Only two of the pieces in *Permutatis* use this absolute approach, nos. 1 and 16. I will elaborate on this aspect later in the section on limitations and problems.

I found it necessary to create a set of rules as well as liberties, since an uncompromising strictness leads at times to rather unpleasant and abstract results. The first rule or guideline I established is one concerning melodic fluidity: Always decide in favor of the melodic line. This means in practice to avoid repeated pitches over a short period of time. If the hybrid should for instance yield two or more repeated pitches in direct succession, then one of them may be altered by half step towards what the contour of one of the original themes dictates. Example 3 visualizes this:

Application of melodic considerations:

The diagram illustrates the process of refining a hybrid melody. It shows two original themes, Theme 1 and Theme 2, with their respective note sequences. Theme 1's sequence is 0 2 3 5 2 5 7 8 10 7, and Theme 2's is 0 2 8 7 8 7. An 'Initial raw hybrid' combines these, resulting in a sequence of 0 2 2 7 5 7 7 7 8 7 7, where the repeated '2' and '7' notes are highlighted. 'After melodic considerations', the first '2' is altered to '3' (marked with a '+1') and the second '7' is tied to the next note (marked 'Tied for continuity'), resulting in the final sequence: 0 2 3 7 5 7 7 8 8 7.

Should repeated pitches however be a characteristic aspect of either theme A or B, then those should be kept intact. The rule in favor of the melodic line exists solemnly to avoid melodically static lines. As a consequence of Rule I, Rule II was established, which allows for chromatic alteration by one step up or down, as long as the contour of the lines

is not significantly distorted. Another possibility to help melodic fluidity and confronted with repeated pitches is to tie those pitches and create a longer rhythmic note value.

These alterations become necessary when working in the diatonic system or even a pan-diatonic system, since the hybridized theme has to conform to one distinctive tonality, which can be challenging in the absolute approach. Should one wish to work in an atonal aesthetic environment then these alterations may of course be omitted.

Permutatis however, is a deliberately tonal approach to explore the system of *Thematic Fusion*.

Another question that appeared was that of how to handle rests. When thus faced with the situation of silence versus event, the rest and therefore silence is handled like a melodic event, which it really is. As figure 4 shows, rests are handled by fully incorporating the rhythmic value of the rest into the hybrid.

The image shows three staves of musical notation. The top staff is labeled 'Theme 1' and contains a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5. The middle staff is labeled 'Theme 2' and contains a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5. The bottom staff shows a hybridized version of these two themes. Vertical lines connect the notes in the hybrid to their corresponding notes in the original themes. A half-note rest in Theme 1 is shown to be hybridized with the notes of Theme 2.

Only considering the EPS of theme 1 and 2 on beat 2 and 3, we obtain 0 events (half note rest) versus 5 events. Averaging here will not quite lead to obvious results as the average would be 2.5. At this point the composer must make melodic considerations. First off, the rest in the hybrid occurs on the same beat as in theme 1, since this is somewhat characteristic of theme 1 and the hybrid should contain this. Second, the 2.5 events are rounded into 3 events: The **F** on the last sixteenth of beat 2 and the two **G** eighth notes on beat three. The **F** on the second beat of theme 2 is omitted, since the pitch **F** is derived in direct succession. The remaining pitches of theme 2 which are juxtaposed to the half-note rest in theme 1 are hybridized against the pitch

Eb, the last sounding pitch of theme 1 before the rest. The rest versus event situation could obviously also be handled in an absolute manner, but as mentioned before, melodic fluidity should be of the utmost importance, which calls for musical considerations whenever necessary.

In order to be hybridized, themes do not have to be in the same key, the same meter or the same register, it is completely up to the composer to either appropriate the themes first or to use them in their given state. It should however be said, that it can contribute to the melodic usability of the hybrid theme if the two themes are octave transposed into similar registers. If the two themes are not in the same time signature then the smallest common denominator has to be found. If this is not possible either, then one of the themes has to be transformed into a sequence of events and then either be augmented or diminished until the two themes are seamless in length:

The diagram illustrates the process of hybridizing two musical themes. On the left, Theme 1 is shown in 4/4 time and Theme 2 in 3/4 time. On the right, Theme 1 remains in 4/4 time, while Theme 2 is augmented to fit the 4/4 time signature. The copyright notice (C) 2011 Christoph Nils Thompson is located at the bottom right of the diagram.

That being said, the composer may also choose to use only a fragment of one of the themes and hybridize it with the other after manipulating it rhythmically. *Thematic Fusion* is then used as a purely artistic melodic device and not to create gradually morphing transitions.

The effect of gradual transformation of one theme into another is created by re-hybridizing the hybrid theme with either theme A or B, depending on which of the

themes the transformation should go towards. The resolution, and thus number of steps that are possible until theme A has completely morphed into theme B depends on registral differences and very much on whether a chromatic/atonal approach or a diatonic approach is chosen. If the composer chooses to stay within one tonal system, then the resolution is reduced considerably as the hybridized material has to fit into the tonal grid that the tonal environment of choice dictates. In a strictly diatonic system for example, the resolution would be 7 steps as opposed to the 12 steps of a chromatic system.

Mathematically a hybrid theme that is closer related to theme A than to theme B would be achieved by using the following formula: $(A + H):2 = HA$. The next step closer would be achieved by using the same formula and replacing H with HA. As mentioned above, the number of possible transformation steps depends on the tonal system used as well as the complexity of the themes. Figure 6 shows the right hand themes A and B of the 8th piece in *Permutatis*, the *Minimaluett*. As one can observe here, theme A gradually transforms into theme B, the resolution being two steps in between hybrid and original, which amounts to a total of five steps of transformation from theme A to B. The number of possible steps of transformation is limited by the diatonic nature of the piece, which is written in Eb minor.

As mentioned earlier, *Thematic Fusion* may be combined with existing methods of melodic manipulation such as retrograde, augmentation and diminution. In *Permutatis* I combined *Thematic Fusion* with retrograde and different methods of rhythmic manipulation in several pieces. I found that especially in combination with retrograde quite interesting results were obtained.

Figure 6:

Figure 6 displays seven musical staves, each representing a different theme or hybrid variation. The staves are labeled as follows:

- Theme A
- Hybrid A'
- Hybrid A''
- Hybrid Theme A + B
- Hybrid B''
- Hybrid B'
- Theme B

The music is written in a single system on a grand staff (treble clef). The key signature is three flats (B-flat, E-flat, A-flat), and the time signature is 13/8. The notation includes various rhythmic patterns, including eighth and sixteenth notes, and rests. The staves are arranged vertically, with Theme A at the top and Theme B at the bottom. The copyright notice (C)2011 Christoph Nils Thompson is located at the bottom right of the page.

V. Problems and Limitations

While some of the challenges I encountered piece-specifically will be discussed in the following section, which will provide an in-depth analysis of *Permutatis*, I would like to point out some general limitations to the procedure. By design, *Thematic Fusion* has a limited applicability for inversion. This results from the simple fact, that the hybrid of a theme and its direct inversion is a static line. This can easily be expressed like this: $[5+(-5)]/2=0$. This however by no means implies that it is not possible to apply *Thematic Fusion* to inverted themes. One will just have to use one of the semi-hybrid stages of transformation, which will have some melodic qualities, while the absolute hybrid is a static line. Example 7 shows this problem:

The diagram illustrates the concept of thematic fusion. It shows two themes, Theme 1 and Theme 2, each with a set of notes and corresponding pitch classes. Theme 1 has notes at pitch classes 0, 2, 4, 5, 7, 9, 11, and 12. Theme 2 has notes at pitch classes 0, -1, -3, -5, -7, -8, -10, and -12. The hybrid of these two themes is shown as a single melodic line with notes at pitch classes 0, #1, 2, #3, 4, #5, 6, #7, 8, #9, 10, #11, and 12. The copyright notice (C) 2011 Christoph Nils Thompson is located in the bottom right corner of the diagram.

As mentioned earlier, the raw hybrid can at times be of a melodic quality that can create some challenges in terms of integrating it into an otherwise tonally simple

constructed piece. The appropriation of harmony in order to aesthetically pleasingly integrate the hybrid theme into the piece can then require considerable manipulation of the existing harmonies. This can however be avoided by following the guidelines for melodic fluidity.

Another aspect that may be of problematic nature is that the gradual morphing takes place by continued restatement of the theme in one of its hybridized forms either leading to or from one of the source themes. This repetition, while of new material, may be unsuitable for some musical styles. The composer is thus required to keep the piece lively by providing interesting harmonies or rhythms to bed the hybrid themes on, so that the interest is not diminished by a sensation of repeated material. Some musical styles have however the repeat of thematic material as a core aesthetic aspect, for which *Thematic Fusion* can be a possible stylistic device. Minimalism, with its restatements of simple, often short thematic material works quite well in combination with the thematic morphing aspect of *Thematic Fusion*.

VI. Benefits

The benefits of *Thematic Fusion* lie within its function. The technique not only creates morphing transitions, but furthermore creates new musical themes. The composer is able to generate themes that are highly related to the source material but offer new melodic traits which both relate and differ them. In the way that the source material prescribes the consequent melodic events, *Thematic Fusion* is not unlike fugato technique, which restates the source material, where as *Thematic Fusion* leads to a re-statement that is transformed rather than transposed. This also means that a large segment of thematic material can be generated without the need to compose new transitional or thematic material. The reason for the composer or arranger to use thematic fusion thus becomes the wish to add to the integrity of a piece in terms of its structural logic.

The flexibility in the way *Thematic Fusion* can be used makes it a valuable tool for melodic manipulation. As *Permutatis* will show, *Thematic Fusion* was successfully applied within a great number of textures and styles both poly- and homophonic and all spectrums of harmonic complexity. Especially in polyphonic settings *Thematic Fusion* lead to interesting results. No. 12, the *Contrapunctus* from *Permutatis*, is a fugue constructed with *Thematic Fusion*, a piece that will be discussed in detail in the following

Section. My technique thus expands the palette of traditional canonic devices such as augmentation, diminution, retrograde and inversion, as it can either be used on its own or add a second degree of complexity when combined with the afore mentioned devices.

The hybridized section furthermore has an aspect of unpredictability, which can be refreshing in a number of compositional situations. When used with two themes of moderate melodic activity, *Thematic Fusion* will likely generate a hybrid that will be more intense and active as it will combine the level of activity of both themes. *Thematic Fusion* can therefore successfully be used to generate climactic highpoints of pieces.

VII. Permutatis

As stated earlier, *Permutatis* was written to thoroughly explore and test the concept of *Thematic Fusion*. I chose the piano setting as this would keep the focus on thoroughly composed transitions and melodic turns, rather than relying on instrumental coloration and arrangement, which would be possible in a chamber music setting. Being a pianist myself I furthermore felt that it would be interesting to implement a pianistically challenging and interesting aspect into each piece. With each piece being quite different in meter, rhythm, texture and harmonic spectrum a great variety of pianistic techniques is demanded, be it top note projection, rhythmic independence or contrapuntal understanding.

I. C Major: Intrada

The opening piece of *Permutatis*, the *Intrada* in C major is monothematic. Merging the main theme of the piece with its retrograde generates the hybrid themes. The *Intrada* begins with an initial statement of the main theme in a chordal texture. After this initial exposition the theme is in to top voice in m. 9 through 16, this time placed in a

more dense texture which demands a certain degree of top projection. The them is still in its original state, it is melodically untouched.

Measures 17 through 24 contain the hybrid. As mentioned above, the 8 bar theme has been hybridized with its own retrograde and the resulting theme features a high amount of activity, due to containing more smaller subdivisions than before. The sixteenth note runs that were to be found in the original theme and its retrograde are combined in one theme now and we receive a texture that has an abundance of melodic activity. Measures 25 through 32 contain the retrograde of the theme, in a homophonic texture, quite similar to the one it was presented in initially.

A sensitivity to the dynamic nuances is very important in this piece as the pianist has to create a clear change of mood with one and the same theme. The opening statement of the theme takes place in a celebratory mezzo forte, while its consequent restatement has to be presented rather conemplative in character.

II. C Minor: Passacaglia

The *Passacaglia* in general, is by design based on a repeating ostinato bass. The *Permutatis Passacaglia* however has two bass patterns. One which it originates from and another one it will arrive at eventually. The metamorphosis of one ground bass into the

next yields for interesting harmonic turns and creates an further sense of urgency and forward momentum, as the steady movement of the bass is maintained yet harmonically intensified as it progresses.

The bass theme of the *Passacaglia* is seven bars long and is stated seven times until it transforms towards the destination theme. The seventh statement of the theme is the hybrid of the two, which occurs in m. 43, the middle section of the piece. The destination theme in an unaltered form is presented for the first time in m. 64. In order to get the stepwise transformation each theme was re-hybridized with the hybrid to create versions that are biased to either theme 1 or 2. The resolution for this piece is two steps of transformation. While this seems like a rather low number of steps in transformation, one has to consider that each statement of the theme provides new harmonic possibilities which in consequence provide a greater spectrum of harmonic color for the thematic events occurring in the right hand. We must thus keep in mind that in the *Passacaglia*, by design, the ground bass serves as the foundation for the melodic events occurring above it.

We can find the first hybrid theme, H2A in mm. 29 - 35, and HA in mm. 36 - 42. The realizations of the ground bass with a bias towards its destination theme begin in m.50 with H2B followed by HB in m. 57.

Pianistically, the virtuoso runs, especially in the climactic section from mm. 64 to 70 are quite challenging, as is the meter of 7/8, which may throw off the pianist who is less experienced in the performance of compound meters.

III. Db Major: Romance

The Romance in Db uses thematic fusion in combination with diminution. The voice in the middle register represents an exact diminution of the melodic line found in the top voice. The process of thematic fusion is here used to one hand, create a hybrid theme and on the other hand to provide a gradual transition of original into diminution. The hybrid theme in this case is a combination of the original theme and its diminution. The Romance can be divided into four sections: A, B, C, A'. Section A (mm. 1 - 8) represents the original theme and its diminution simultaneously in the inner voice while section B (mm. 9 - 12) is the hybrid combined with the original and the diminution placed in the left and right hand respectively. This section functions as a transition into section C (13-20), which is the hybrid. Measures 21 through 28 represent a recapitulation of section A, whereas the diminution now is in the top voice, while the original theme is in the inner voice. A registral transformation has thus taken place. In combining the thematic fusion with the device of diminution a high degree of structural integrity is created.

The pianist needs to play the *Romance* with a high degree of contrapuntal sensitivity and focus on projection of inner voices. The original theme and its diminution stand on the same level in the hierarchy of voices.

IV. C# Minor: Capriccio

The fourth piece in *Permutatis*, the *Capriccio* in C# minor, has two themes which are hybridized with each other. The first theme is presented in mm. 1 - 4, directly followed by the second theme in mm. 4 - 8. The hybrid of the two themes is found in mm. 21 - 24.

The hybridization of the two themes created a rather interesting result, as the contour of the second theme is clearly to be observed while the rhythmic activity of the first theme is clearly maintained. The fact that both themes are dominated by a melodic arch form aides as a somewhat limiting factor, keeping the registral range of the hybrid theme similar to the two original themes.

The *Capriccio* is an unusual piece in a number of ways. First off, the texture of the *Capriccio* is monophonic, the single melodic line dominates here. This however does not mean that harmony was not taken into the highest account when composing the piece. Each theme has a clear harmonic determination and the features of baroque compound melody writing. Another rather unusual feature of the piece may be its meter of 17/8. This compound meter is broken up into groups of threes and fours. The grouping of the first theme therefore is: 3+4+3+4+3+4+4+3+3+3. The direct succession of the two groups of four at the tip of the arch, carries the concept of arch from into the dimension of rhythmic grouping as the moment at which the melody changes direction occurs simultaneous to the change of rhythmic pattern.

The piece is most likely one of the more difficult pieces in *Permutatis*, as it is technically quite challenging due to the tempo marking of allegro and the small rhythmic

subdivisions. The piece is however a great exercise for melodic fluidity and fast arpeggios.

V. D Major: Fantasie

The *Fantasie*, the fifth piece in *Permutatis* is monothematic. I combined Augmentation with *Thematic Fusion* to derive the hybrid theme connecting the two statements of the original theme. The hybrid is placed in mm. 9 through 16.

The texture of the *Fantasie* is quite interesting, as it alternates chordal sections with florid, virtuosic runs to create a quite balanced atmosphere of activity and calmness. The pianist will find him or herself more challenged by finding a way to interestingly perform the chordal sections rather than playing the fast runs which are mostly diatonic in nature.

As a consequence of combining the theme with its augmentation, the melodic range of the theme was somewhat compressed, which is a logical result as the rate of attacks is halved and fast melodic motion is then juxtaposed with a slower one. Another feature that the hybridization provides to the generated theme is that the new theme contains both the fast 16th note subdivision and the calmer 8th note subdivision that its augmentation creates. These work quite well together and add a sense of balance to the middle section.

The hybrid in this case does not necessarily work as a transitional section: The target theme, the augmentation of the original, is not presented in the piece, therefore

Thematic Fusion is utilized to create new thematic material which is used as thematic vent in its own right. The *Fantasia*, as a consequence has a ternary form, made up of original theme, hybrid and restatement of the original theme.

VI. D Minor: Barcarole

The *Barcarole* in D minor, the sixth piece in *Permutatis* combines two themes of different meters. The first theme is presented in mm. 3 - 15 and written in 9/8, while the second theme is in the meter of 4/4, spanning measures 16 - 24. Motivically, the two themes are quite different as well, with the first themes angular leaps and eight note subdivisions and the second themes folkloresque dotted rhythms.

The first theme furthermore has some structural intricacies at the micro level: The interval at which it leaps upwards is expanding symmetrically from a fifth to a ninth. This gives the melody a very angular mannerism, and combination with the irregularly placed accents and its motion across the bar-lines, the first theme is very sparkling as it reaches high into to the top registers of the piano. In contrast to the complex first theme, the second theme is very simple and chordal in nature, creating a well-balanced counterpart.

The quadruplets in the left hand help to give the first theme a very light feel, since it never quite interlocks with its accompaniment. It seems to float effortlessly over the homophonic structure.

The Hybrid theme is presented in m. 27. Upon closer examination is can be observed, that the angular contour of the first theme is intact, while in a somewhat tamer

form, spanning nowhere near the range of its original form. The three against four effect that we can find in the initial exposition of the theme is here transformed into a two against three effect: The even and odd rhythmic groups have traded places. This helps to maintain an interesting structure in the piece while creating forward momentum.

The two themes were rhythmically appropriated by turning both into sequences of events and augmenting the second theme until its length was congruent with the first theme. The choice of 3/4 as the meter was made simply based upon the rhythmic feel that the hybrid created.

The challenge to the pianist here is not a technical one, while the three against four and two against three may be difficult for some to execute. The difficulty in the *Barcarole* comes from the complexity of the first theme and its phrases across the bar-line. The angular melody wants rise and fall with great leaps unhindered, while the slurs stress the need to keep it connected and smooth.

VII. Eb Major: Bagatelle

The *Bagatelle*, utilizes *Thematic Fusion* to create a smooth transition between the first and second theme. The first spans mm. 1 - 13, while the second theme comes in at m. 15, lasting until m. 27. The hybrid is placed in mm. 27 through 38 to help retransition back into the first theme.

The first theme undergoes an interesting registral change as it wanders from the left hand in to the right hand and back, while the triplet accompanying figure is maintained throughout those registral changes. This provides the pianist with the task to

make the transition of the theme inaudible, while maintaining its projection. This goes true especially in m.8 into m.9 where the first registral change occurs.

The second theme abandons the triplet feel and has a rhythmically more active texture with sixteenth and eight notes.

The Hybrid maintains an accompaniment similar to the second theme with an active inner texture, while ending with a chordal accompaniment. After the hybrid theme is stated the first theme is recapitulated. The form that is thus generated is AABHA.

The *Bagatelle* lives of the strong contrast between the themes and this has to be expressed accordingly by the pianist. Another aspect of performance is the drastic change in dynamics which is encountered in the second theme, mm. 18 and 22, where a *subito pp* is demanded.

VIII. Eb Minor: Minimaluett

The *Minimaluett*, introduces a stylistic change in *Permutatis*, as the piece is clearly from the genre of minimalism. The aspect of restatement in order to created gradually morphing transitions lends itself to the genre of minimalism, in which repetition is a vital stylistic device.

The *Minimaluett*, has two themes, both equal in length and meter. The first theme is found in mm. 1-2, the second theme in m.13. Since the right and left hand in this piece were both incorporated into the process of *Thematic Fusion*, one could speak of four

themes; however, for simplicity I want to regard the right and left hand of each theme as a thematic unit. The resolution of transformation is two steps, which makes the changes gradual enough to keep the minimalist aspect.

The hybrid theme is placed in the exact middle of the piece in mm. 7-9. Of the pieces in *Permutatis*, the *Minimaluett* might show the gradual morphing the most practically and visually discernable since the themes are so short.

The meter of 13/8 was chosen to create unsymmetrical rhythmic groupings to aid to keeping interest throughout the repetitions. Each thematic phase is to be repeated at will until the first theme has morphed completely into the second theme. The player can then choose to end the piece or reverse the form and morph back to the first piece.

The pianistic challenge is here no doubt the balance and precision between hands, while realizing calmly the rising and falling dynamics of each phrase.

IX. E Major: Interludium

The *Interludium* in E Major has two themes that are merged to create third theme, which is used in a number of ways. The first theme, which can be found in mm. 1 - 8 is blended with the second theme, spanning m. 9 through 16. The hybrid in its basic form is place in mm. 17 - 24. In m. 25 a second hybridized theme, with a bias towards the first theme experiences some rhythmic manipulation: Measures 25 -26 contain said hybrid (HA), rhythmically diminished by half, while m. 27 contains the rest of the theme

diminished by third. This section which now functions as a transition leads us to a final statement of the original first theme, diminished to a fourth of its original length.

These rhythmic manipulations create a climactic section with fast runs, and especially the diminution of the first theme, which creates a thirty second note run helps to give the closing cadence in m.30 a greater sense of finality.

At the micro level, the themes are rather simple in their design. It could be pointed out, that the first theme harmonically moves in thirds, which helps to create some interesting harmonies.

The *Interludium* certainly provides some technical hurdles. First off, the ostinato, which has to be maintained through much of the piece and over which the thematic material has to be projected. Second the runs in the end of the piece which call for a careful study of fingerings and imagination in the area of tempo changes.

X. E Minor: Nocturne

The tenth piece in *Permutatis*, the *Nocturne*, can be divided into four sections. The first section, spanning mm. 1 - 14 is the initial statement of the first theme. One should note the nesting chords, over which the top note has to be projected, while letting each chord smoothly blend into the next, by means of smart pedal work and strong legato playing with the hands.

The second section is a re-statement of the first theme, this time in a homophonic texture, with a small sixteenth note gimmick placed in the left hand accompaniment figure. The sixteenth note figure is to be executed precise but subdued, which demands considerable control, while focusing on phrasing the melody of the first theme.

The third section of the *Nocturne* features a hybrid theme that is created out of merging the first theme with the retrograde of the left hand. This section spans mm. 29 - 42. The resulting hybrid has the melodic contour of the first theme, while featuring the smaller subdivision of the left hand accompaniment figure from the second section. This newly generated theme is placed over an accompaniment of broken chords.

The final section of the *Nocturne* is a transposed recapitulation of the first theme, this time transposed to the subdominant. The short cadence from 57 to 61 is not part of the theme but is rather in place to smoothly end the piece in the original key.

The *Nocturne* needs to be performed in a highly controlled manner, which allows for a clear separation of accompaniment and thematic material, as well as a rhythmic confidence that is not thrown off by the compound meter of 5/8.

XI. F Major: Valse

The *Valse* in F major uses the classical *Walzer* as a model, with some added intricacies that are intended to increase the interest and of the piece as well as transporting the concept to the 21st century.

First, the *Valse* is not written in 3/4 time, but in 9/8 which was not a deliberate attempt to break with convention, but to ease the notation and aid to visual logic. The left

hands accompaniment however has some rhythmic anticipation, which offsets the traditional *Walzer* feel and gives it a more modern touch. The extended tertian harmonies throughout the piece add to this modernization.

Thematic Fusion is used in this piece to create a re-transition from the second theme, starting in m. 23 back to the first themes recapitulation in m. 45. The hybrid is therefore installed in mm. 35 - 44. The hybrid theme interestingly features the duplet motives of the second theme along with the runs and 16th note triplet embellishments of the first theme. These features work together quite nicely and help to keep the hybrid section quite interesting.

The *Valse* needs to be performed with a light, effortless touch. The embellishments must be taken with a technical proficiency that will not draw the listeners ear to the embellishments, but keeps the focus on the line. As the hands change, this light touch must be maintained. The player furthermore needs to bring out the contrast of duplet versus triplet feel between the two themes. Since the *Valse* traditionally is a dance, keeping the main pulse and momentum of the piece alive is paramount.

XII. F Minor: Contrapunctus

The *Contrapunctus* in F minor, the eleventh piece of *Permutatis* explores the concept of *Thematic Fusion* in a fugal setting. The *Contrapunctus* is essentially a crab canon, utilizing *Thematic Fusion* to create the link between the first half of the piece and the retrograde thereof. The hybrid thus acts as transitional element, smoothly transitioning into the retrograde.

The piece was purposely titled *Contrapunctus* and not Fuga, since the focus was to present the concept of *Thematic Fusion* in a contrapuntal setting. While the piece features some of the contrapuntal intricacies of fugal writing, the focus here should be the hybridization. In order to create the hybrid, which is found in mm. 26 - 35, every single line of the three part fugue was hybridized with its respective retrograde. The section that was chosen for hybridization was the episode and exposition from mm. 16 to 25. The structural aspects of the fugue are best observed in figure 8, a formal outline of the fugue:

Figure 9:

M	1	6	11	16	20	26	36	46	51	56
S		A	CS	E	S	H	SR	CSR	SR	
T	S	CS		E	S-Str.	H	SR		CSR	SR
B			S	E	S-Aug+Inv.	H	SR-Aug+Inv	SR		

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The challenge in writing the *Contrapunctus* was to feature interesting contrapuntal writing on the one hand, but to keep the piece brief enough so that the hybridized section would not seem proportionally insignificant to the rest of the piece. It was furthermore important to create a working palindrome in order to be able to maintain structural and thematic logic until the very end of the piece.

The performance aspects of the *Contrapunctus* are those of any other fugue. Contrapuntal understanding has to be exercised and all voices must project with with same intensity, as every polyphonic setting would prescribe.

XIII. F# Major: Compitum

The piece *Compitum* is the only piece in *Permutatis* to not actively feature *Thematic Fusion* within the piece. This is because the theme of the *Compitum* is a hybrid itself. The theme of this piece was created by hybridizing the two pieces in C major: The first piece *Intrada* and the last piece, the *Conclusio*. Since F# is the exact middle of the keys and thus the exact middle of *Permutatis*, I found it suitable to let the middle piece be a hybrid of the two outermost pieces.

The first theme of the *Compitum*, ranging from mm. 3 - 10 is very simple and diatonic, while featuring characteristics of both themes that were hybridized. We can find the steady eight-note lines of the *Conclusio* in combination with the sixteenth note runs of the *Intrada*.

The piece is very carefree in character and should be performed in such a fashion. It is certainly one of the technically least challenging pieces in *Permutatis*, but the pianist may choose to focus on expressing the variety of rhythms in the main melody smoothly and with good legato technique.

XIV. F# Minor: Reflektion

The expressive, elegie-esque *Reflektion* features *Thematic Fusion* as a thematic generator. A hybrid of the main theme, mm. 1-9 and the subordinate theme, mm. 12 - 21 was used to create a variety of the first theme. The hybrid can be found in the soprano line in mm. 22 through 28, followed by a recapitulation of the original theme.

The main contrast between the two themes lays within the textural differences: The first theme's accompaniment is dense and characterized by the pulsing sixteenth note triplets in the inner voice, while the second theme has an airy, spacious quality to it, seeming less urgent than the former. The hybrid was simply implanted to the unaltered accompaniment for the first theme, to great effect. I received a slightly altered version of the first theme, similar enough to work within the same accompaniment, different enough to not sound repetitive.

Clearly, the difficulty for the performer will lie within keeping the inner voice ostinato steady while projecting the melodic notes in the top line. The *Reflektion* calls for neat pedaling and good phrasing. The dramatic, ominous atmosphere of the piece will be best expressed by not letting any temptation for virtuoso performance take over and maintaining a conservative tempo.

XV. G Major: Intermezzo

The *Intermezzo* in G major is monothematic and combines *Thematic Fusion* with traditional thematic devices. I used retrograde, rhythmic augmentation and inversion. As mentioned earlier, in the section of problems in combination with using inversion, I sidestepped those by adding retrograde to the inversion.

The main theme of the piece is exposed in mm. 1 - 10 and repeats once. This is followed by a first hybrid theme, which combines the first theme with its retrograde-inversion from mm. 11 - 16. These five bars serve as a transition into the next section, spanning mm. 16 - 20, which feature the main theme in retrograde inversion.

The next section from mm. 21 - 35 is thematically quite dense. In the right hand in mm. 21 - 25 we can find another hybrid version of our theme, this time blended with its augmentation. This is followed by the theme rhythmically augmented in mm. 26 - 35 in the right hand and the retrograde inversion of the theme in the left hand as accompanying figure. To close the piece the original theme finds its recapitulation in m 36.

The *Intermezzo* is joyful and up-tempo. The piece features asymmetrical rhythmic groupings of 3 and 2, which are more or less defining the character of the piece. Throughout these rhythmic intricacies however, the piece should be performed in a joyful, folk-dance like fashion.

XVI. G Minor: Pastorale

The *Pastorale* is a piece that features *Thematic Fusion*, not only as a transitional device, but furthermore without the melodic considerations discussed in the former chapters. The exact melodic material that was generated by merging the themes was used in its unaltered state with all chromatic features intact.

The piece basically is based on two main themes, the first one ranging from mm. 1 - 9 and the second one, spanning mm. 27 through 34. The first hybrid theme is found in mm. 11 - 18 and is the exact hybrid of theme 1 and two. The second hybrid theme, placed in mm. 19 - 26 is a product of re-merging the aforementioned hybrid with the second theme two create a bias towards the latter.

The results of the hybridization were highly chromatic and it took considerable harmonic manipulation and flexibility to create an aesthetically unified piece. Especially the chromatic runs that were created, which were at some points almost completely made up of half-steps yielded some rather exotic sounding potential. The chromaticism thus sped up the harmonic rhythm considerably. The hybrid themes in the piece are nonetheless material that is, and sounds related to both themes, and would not have been conceived without using thematic fusion. Since the chromatic sections featuring the hybrid are rather defining for the piece thematic fusion does play a considerable role in the structure of the *Pastorale*.

The *Pastorale's* main challenge to the player may be to properly execute the thick chords of the left hand and thus finding the right level of balance between harmony and melodic playing.

XVII. Ab Major: Scherzo

The *Scherzo* employs *Thematic Fusion* as a transitional device, to create a link between the two themes. The first and second themes are located in mm. 1 - 11, and 16 - 23. The hybrid is placed in bars 12 - 15. In this piece, I chose to use only half of the

hybrid as it seemed to support the formal structure of the piece better. The hybrid thus functions as a four bar transition between named themes.

The contrast between the themes is definitely a textural one. The first theme is quite chordal in nature while the second theme is a rapid, virtuoso succession of attacks with both hands, creating a very active texture.

The main challenge to the player in the *Scherzo*, might be a rhythmical one, as the meter of 11/8 could require some acquainting. The introductory phrases in the beginning call for well balanced chords and a steady crescendo, which climaxes into fast sixteenth note runs in the left hand. These runs must be executed in strict time so that no momentum is lost and the pulse of the 11/8 time signature is maintained.

XVIII. G# Minor: Contemplation

The *Contemplation* in G# minor has three themes and thus two different hybrid themes functioning as transitions within the piece. The first theme ranges from mm. 3 - 11 and is followed by a hybrid of itself and the second theme. The hybrid section ranges from mm. 12 - 20, and as transitions into the next theme, found in mm. 21 - 33. The third theme is placed in mm. 42 - 47. Since this theme, which was hybridized with the first theme is shorter than the latter, only the first six bars of theme 1 were actually used. This is followed by final statement of the first theme in m. 54.

One of the aspects that makes this piece rather interesting is it is the only piece in *Permutatis* with more than two themes. But looking at the first theme one can find some

interesting features on the micro level. The rhythmic grouping of our 7/8 compound meter is 3+2+2, or 3+4. Theme one begins with an 8th note triplet motive which is tied to a long note. Comparing the accompanying unit and the thematic unit we can therefore see that they both connect a shorter event with a longer one: 3+4 and Triplet set followed by longer note. The theme therefore mimics the feel of the rhythm, but does so in a compressed form. We then receive two units in a slightly out of focus reflection of each other.

What will make the *Contemplation* challenging for the pianist is no doubt the rhythm and the demands for rhythmic independence that the piece makes. Another aspect that might create some technical issues is the virtuoso run in the climactic section from mm. 45 - 47. Despite all the possible display of technique that this piece provides, the player must not be tempted to raise the tempo of the piece, as it has to be performed in a contemplative, calm manner.

XIX. A Major: Consolation

The *Consolation* in A Major is written in the rather exotic meter of 15/16. The meter was mainly chosen because of notational aspects since I wanted to avoid having to constantly give the reader changing tuplets. The meter, for the first theme is divided in to

five sets of three 16th notes. The theme ranges from mm. 1 - 12. For the second theme, which can be found in mm. 13 - 17, the 15/16 were divided into three sets of five. This contrast keeps the piece fresh and interesting.

The hybrid was implemented into the piece in a rather interesting way. In the *Consolation*, the hybrid is neither transition nor stand-alone thematic event. I decided to weave the hybrid into the restatement of the first theme as a contrapuntal line, meandering between top and inner voice. Measures 18 through 29 feature the hybrid, starting on the 4th sixteenth note of measure 18. The hybrid which in contour bears some resemblance to the first theme, therefore serves as some modified imitation, echoing the original theme in close succession, just a dotted 8th note away.

The hybrid itself was generated by merging the first theme with the second theme. Since the second theme is only half as long as the first theme, two sets of the second theme were connected and then hybridized with the first theme.

As with all romantic pieces, that feature a considerable amount of inner voice movement, the pianist has to be very sensitive to which voice he chooses to project.

XX. A Minor: Percusetta

The *Percusetta*, the twentieth piece in *Permutatis*, takes a percussive approach to the piano. The texture of the piece is dominated by a number of ostinati which are

juxtaposed and need to be performed simultaneously. The melodic part of the piece takes place completely in the inner voices.

The *Percusetta* is monothematic and uses retrograde to create the second theme to generate the hybrid, which can be found in mm. 17 - 24, and again in mm. 25 - 32, then with a bias toward the retrograde, which follows in m. 33.

Since the melodic range is very limited due to technical restrictions the main challenge was to find a somewhat interesting theme. Creative harmonic thinking was as important as resourcefulness in terms of ostinato placement.

The challenge of the piece clearly lies within independence of the hands and even fingers. This independence surpasses the rhythmic dimension, since the pianist must further balance the volume of each of the ostinati, to not cover up the theme taking place in the inner voice. The rhythms were somewhat inspired by what popular music features and the patterns are organized not unlike what a drum-set player would do.

To clarify the analogy, one should consider the left hand bass-drum and snare, while the higher cluster ostinato in the right hand should assume the role of the hi-hat or ride-cymbal.

XXI. Bb Major: Lullaby

The *Lullaby* is one of the pieces in *Permutatis* that uses *Thematic Fusion* to blend two themes that are written in different meters. The first theme is in 4/4, spanning mm. 3

- 10, while the secondary theme, mm. 11 - 18 is written in 3/4 time. The second theme therefore experienced some rhythmic permutation, as can be observed in its re-statement in m. 27, where it has been transformed to fit the meter of 4/4.

The hybrid can be found in mm. 19 - 26 and is an interesting blend of the fast runs of the second theme with the smooth contour of the first. The hybridized theme works well over the accompaniment scheme used for the first theme with the sixteenth notes in the inner voices outlining the harmony.

The pianistic challenge of the *Lullaby* is certainly the sixteenth note accompaniment in the inner voice versus the long lines of the first theme. The pianist needs to play the inner voice with the utmost care to maintain clarity and stabilize the harmonic structure of the piece. The fast runs over the Lydian harmonies of the second theme will furthermore be an opportunity to hone arpeggiation skills.

XXII. Bb Minor: Tango

The *Tango*, along with the earlier *Valse* is one of the dances in *Permutatis*. It draws its momentum and energy from its rhythms. The first theme (mm. 5 - 12) is placed over a left hand ostinato pattern and is then repeated with embellishments. The second theme which is entirely chordal follows in mm. 21 - 31. The hybrid can be found in mm. 48 - 55; preceded another hybrid with a bias towards the first theme in mm. 40 - 47.

Thematic Fusion was used in the *Tango* to create two stand alone thematic versions. The hybridized section, mm. 40 - 55 features characteristics of both themes and

is accompanied in a suiting manner. We can find the chordal accents of the second theme as well as a steady left hand ostinato as used to accompany the first theme.

The *Tango* demands strong rhythmic playing, with a confident left hand that will create the necessary momentum and steady pulse for a dance movement.

The conflict within the piece obviously lies within the texture of the two themes, with the second theme further more being harmonized entirely in parallel harmony, versus the florid lines of the first theme. Interestingly, this conflict finds resolution in the hybrid themes, where the two themes, which really are at the opposite sides of the spectrum, form a lively symbiosis.

XXIII. B Major: Choral

The *Choral* in B Major was modeled after the German Hymns of the late renaissance and early baroque. It features a simple four-part texture. The harmonic spectrum obviously has been greatly expanded compared to the Lutheran hymns and it contains several voice leading liberties and melodic turns which place it firmly in the twenty-first century.

The *Choral* is monothematic and the hybrid was generated by blending the each line with its direct retrograde. The hybrid is to be found in mm. 8 - 13, followed by the retrograde of the first seven bars in mm. 14 - 20.

In this piece *Thematic Fusion* obviously serves to link two retrograded themes together. This has been demonstrated earlier in the *Contrapunctus*. In the *Choral*,

however we do not have a contrapuntal but purely chordal texture and we essentially created four hybrid melodies by merging each individual voice.

The *Choral* as a genre certainly offered itself as a simple form to demonstrate *Thematic Fusion* in a purely chordal setting, without dealing with expressing the conflict of contrasting textures as in the preceding pieces.

The piece certainly does not offer any technical challenges to the experienced player, but does demand focus on phrasing and an even projection of all four parts, without overpowering the top voice.

Against my expectations, the hybrid needed very little editing and I was pleasantly surprised by the fact that I did not end up with a sequence of harsh clusters and dis-chords. While the hybrid does not feature the most beautiful harmonies in the piece, it was without doubt a very interesting and unexpected outcome of the procedure.

XXIV. Canon

The penultimate piece of *Permutatis*, the *Canon* features my system once again in an imitative setting. For the *Canon*, I took the German term *Permutationsfuge* quite literally and decided to write a canon that would morph into a different canon with different meter and themes. The result is what one might call a morphing double-fugue.

The greatest challenge was to use *Thematic Fusion* in the piece to an extent where it did not seem trivial, but to not write a fugue of so generous proportions that it would seem out of place within the collection.

First off, the primary theme or subject of our fugue, which can be observed in mm 1 - 3 is in a different meter than the secondary theme (mm. 16 - 19, bass). The secondary theme, when turned into a sequence of events, free of metric categorization, is congruent in length with the first theme. The hybrid sections, which can be found in mm. 10 - 12 and 13 - 15 were thus generated by merging soprano, alto and bass with their respective counterpart in the other theme. The hybrid section from 13 -15 has a bias toward the second theme, to make the transition yet smoother.

The effect of the transition is quite interesting and it takes place so subdued, that the listener might be well within the second fugue before he or she grasps the aural difference. *Thematic Fusion*, is here a very successful transitional device.

What goes for the earlier fugue, the *Contrapunctus*, goes just as much for this one: contrapuntal understanding and a patient approach to working out the different voices is paramount.

XXV. C Major: Conclusio

The final piece in *Permutatis*, the *Conclusio* closes the cycle, by returning to the key of C major. In the *Conclusio*, the hybrid theme (mm. 25 - 32,) serves as a variation on the first theme and transition into the restatement of the second theme.

The form of the piece is rather simple: AABAHB. The contrast between the two themes is a textural one: The first theme (mm. 1 - 8) finds itself in a dense web of continuously flowing 8th notes, while the second theme has a solemn quality to it. The major/minor contrast of the two themes further intensifies this effect.

The first theme of the *Conclusio*, not only serves as part of the hybrid but also as part of the 13th piece in *Permutatis*. Together with the *Intrada*, the *Conclusio* generates the theme for the *Compitum* in F# major.

As mentioned before, I found it necessary to have a 25th piece that closes the cycle of works. While the *Conclusio* does not feature *Thematic Fusion* in a new way, it represents the final closure as it ends the piece on the major chord it began on. I furthermore felt it was favorable to end the collection in a major key and with a piece less complex than the permutation-fugue that preceded it.

For the experienced performer, the *Conclusio* will not represent a technically difficult piece, but it might be its very simplicity that might create difficulty as most often the simplest pieces demand a high degree of musicality to create an interesting performance.

IX. Conclusion

Permutatis was a valuable experience and necessary practical test for my device. I felt it was vital to thoroughly examine *Thematic Fusion* in all possible scenarios and only the practical application of this theoretical concept in a number of compositional approaches would provide reliable results.

Permutatis by all means is an artistic application of *Thematic Fusion*, not a theoretical display of a mathematics applied to music. The final point of judgment in the creation of the pieces was my personal aesthetic preference as well as a determination to strive for a high degree of compositional integrity.

This project however demonstrates *Thematic Fusion* as a valid addition to the existing methods of melodic manipulation - be it in combination with the traditional ones or by itself. The hybrid themes, which in some of the pieces created the most vital section, and ended up defining the piece stylistically and aesthetically in a positive way, would not have been written had I not applied the concept of *Thematic Fusion*.

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