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MUTH 5370 – Analytical Techniques III
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Structural organization in Kaija Saariaho's *Sept Papillons*, for solo cello

Kaija Saariaho's *Sept Papillons* is set for solo cello and composed in, as the title suggests, seven movements (or miniatures as would be more accurate). The papillon in French, translates to butterfly, and perhaps is Saariaho's inspiration for the composition. Each miniature could be centered on imagery of butterflies or a single butterfly, but Saariaho makes no direct implication of this other than the title. Clearly evident in the "sound" of the piece is a move toward textures and away from true serialism. Possibly useful to the performance of the work in emulation of the butterfly, would be consideration for the multitude of "effect" techniques throughout the work. In a listening of the work it would be easy to hear moments where texture, dynamics, and effect aid in suggesting physical manifestation of the butterfly. Attention here will be focused on the uses of the techniques and organization of the movements. Saariaho's organization of ethereal sounds and segments creates a compelling texture in line with concepts of spectral music.

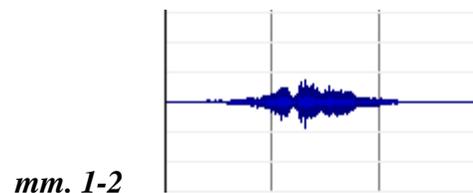
The entirety of this work lasts just under twelve minutes with each miniature lasting approximately over a minute and a half. This recognition should give way to a sense of minimal development in the traditional sense at least within each miniature. Careful attention should also be placed in adhering to the composer's instructions considering notation. Unconventional uses of crescendos and decrescendos and even more importantly, concerning bow placement and pressure are noted. The cellist's ability to accurately move from normal finger pressure to a softer touch thereby producing harmonics is also paramount in conveying the desired textures.

I would like to focus on elements in the first, second, and third Papillon's of the piece. In a close look at the work, each miniature begins and ends similarly. I hear each movement beginning and ending with no distinctive start or finish. The cello somewhat "sneaks" in on each miniature and simply fades away at the end. I hear the first Papillon in five distinct sections or textures with each texture adding from the previous. I found it helpful to look at each of the five sections using "Sonic Visualiser," a sonic visual aid program that displays sound in various forms. The example(s) wave form is taken from a professional recording of the work by Anssi Karttunen, cello. I have labeled each segment I.-V. for ease of reference.

Example 1: Papillon I, mm. (I.) 1-2, (II.) 3-6, (III.) 7-8, (IV.) 9-11, (V.) 12-15, notation and corresponding wave form, in Kaija Saariaho's *Sept Papillons*, for solo cello

I.

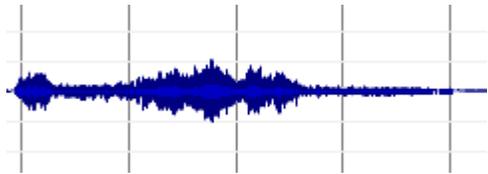
Dolce, leggiero, libero



II.

Musical score for section II, measures 3-6. The score is written in bass clef. Measure 3 starts with a dynamic of *mp* and includes fingerings IV, III, II, I, II. A large slur covers measures 3 through 6. Above the staff, there are markings for S.P. (Sustained Pedal) and a trill (tr) in measure 4. Glissando markings (gliss.) are present in measures 4 and 5. In measure 6, there is a marking for S.P. → S.T. (Sustained Pedal to Sustained Tremolo) and a trill (tr). The dynamic changes to *PPP* at the end of measure 6.

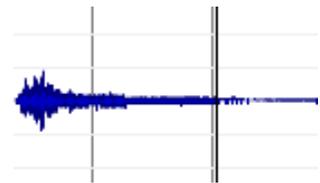
mm. 3-6



III.

Musical score for section III, measures 7-8. The score is written in bass clef. Measure 7 starts with a dynamic of *mp* and includes a trill (tr) marking. A slur covers measures 7 and 8. Above the staff, there are markings for S.P. and S.P. → N (Sustained Pedal to Noise). A trill (tr) marking is also present in measure 8. The dynamic changes to *PPP* at the end of measure 8.

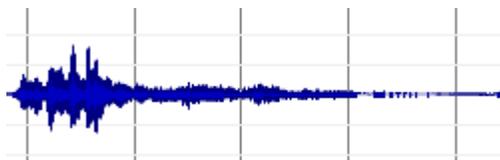
mm. 7-8



IV.

Musical score for section IV, measures 9-11. The score is written in bass clef. Measure 9 starts with a dynamic of *mp* and includes a slur over measures 9 and 10. Above the staff, there are markings for S.P. and S.P. → S.T. (Sustained Pedal to Sustained Tremolo). Trill (tr) markings are present in measures 10 and 11. The dynamic changes to *PPP* at the end of measure 11.

mm. 9-11



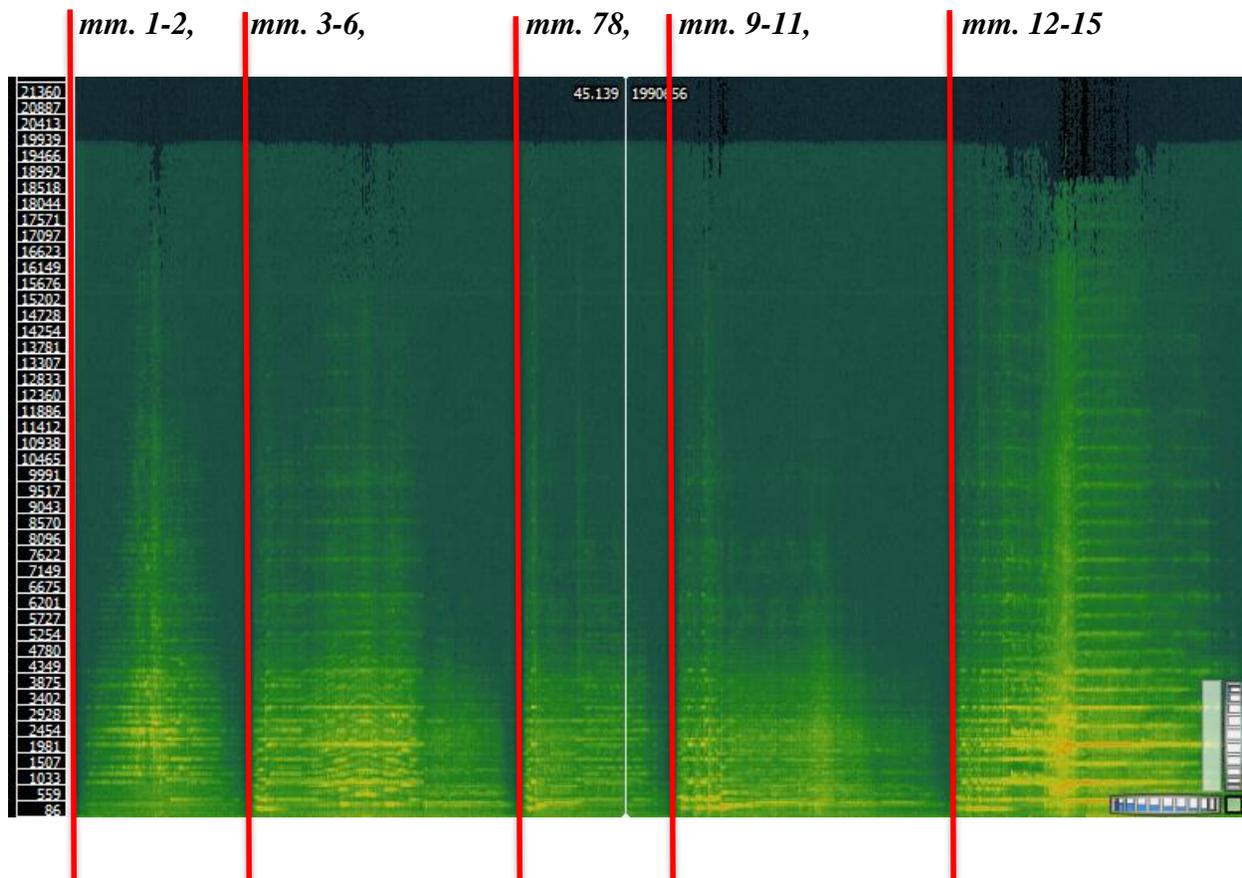
V.

The image displays a musical score for measures 12-15. The score is written on two staves: a bass staff (left) and a treble staff (right). The tempo is marked as **Leggiero** for measures 12-13 and **Lento** for measures 14-15. The key signature is one sharp (F#). Measure 12 features a trill (tr) on a sharp note, marked **S.P.**. Measures 13-15 show a glissando (gliss.) and a trill (tr) on a sharp note, marked **S.P. → S.T.**. The dynamic marking **mf** is present in measure 14. The score includes fingering instructions: **I** and **II 15**. Below the score is a blue waveform visualization on a grid, showing the amplitude of the sound over time. The waveform is labeled **mm. 12-15**.

I find it likely these examples illustrate a simple yet helpful idea in performance. Though the written dynamics do not vary to extremes through the miniature, great care should be taken to show a great deal of steady volume increase and decrease. I would hesitate to search for form or a concrete motive, rather I would think of of the Papillon as two varied (not variations) gestures. Furthermore, as textures the gestures show a growth from I. to II, and III. to IV. to V. Concerning any imagery implied here, I would argue one can easily see a birth of a butterfly from a cocoon. There are some very nice tonal sustains in open fifths as well a feeling of refined struggle illustrated by the trills. Even the last word to describe the style by Saariaho indicates this: **libero**, meaning, “free.”

Also taken from the Sonic Visualiser, is a visual layer that I find useful in obtaining a sense on the texture. This layer is that of a spectrogram and illustrates Hertz levels throughout a sample. I have placed red vertical lines to delimitate the sections. The white vertical line is simply a mid-point in the example.

Example 2: Papillon I, mm. 1-2, 3-6, 7-8, 9-11, 12-15, Spectrogram visualization, in Kaija Saariaho's *Sept Papillons*, for solo cello

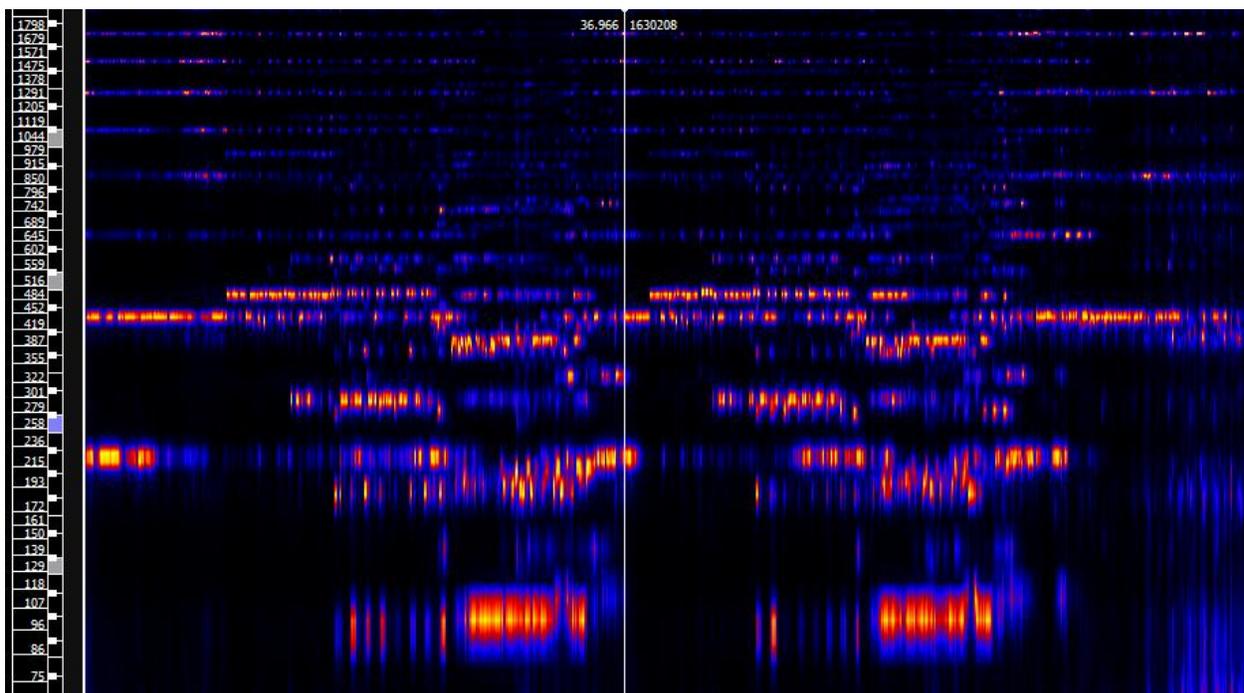


I think the most interesting aspect of this example is the relative evenness in growth and decay in each section. The growth and decay is also even in volume (indicated by intensity in color) and in rise and fall of pitch. The fifth section is clearly the height of the Papillon and perhaps where the butterfly takes flight!

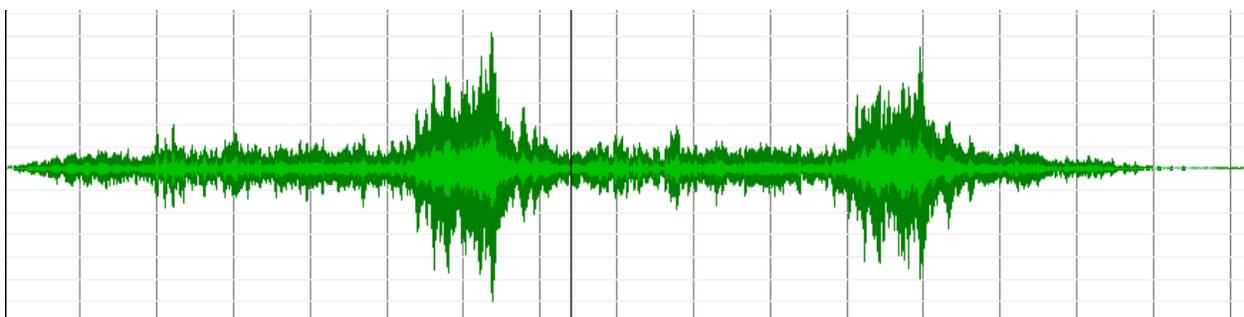
Papillon II can perhaps be described as minimalist in nature as there is much repetition throughout the movement. I would not necessarily describe it as tonal music in the traditional sense, but it has a pleasant sonority to it utilizing many sonorous intervals (fourths and fifths) and only uses the following pitches: A, E, D, F#, C#, G, and F. Often times only open fourths

and fifths are the only intervals played moving across octaves. The resultant of this open sense can be illustrated again using the Sonic Visualiser's Peak Frequency Spectrogram layer tool. It will also be helpful to see the wave form alongside the frequency layer included immediately after the frequency example.

Example 3.1: Papillon II, Peak Frequency Visualization, in Kaija Saariaho's *Sept Papillons*, for solo cello



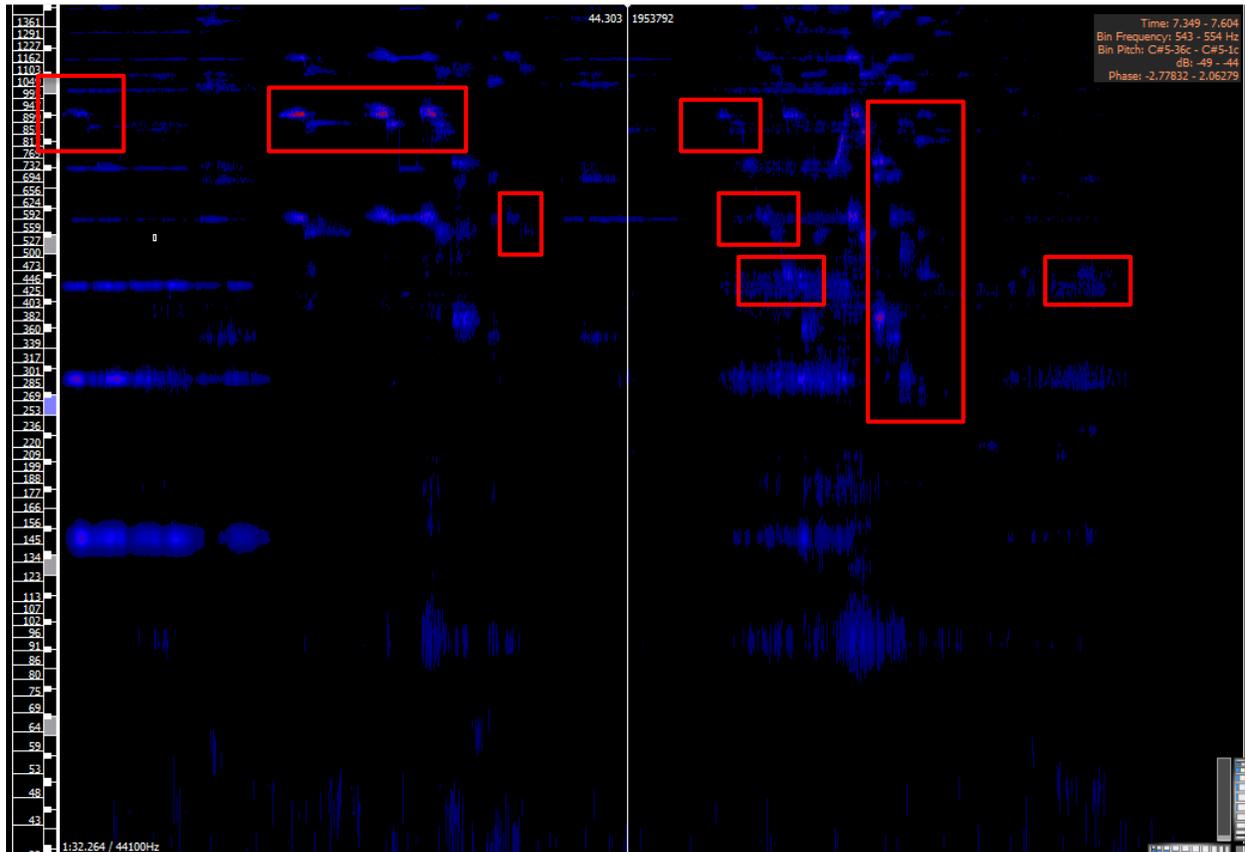
Example 3.2: Papillon II, Full Wave Form, in Kaija Saariaho's *Sept Papillons*, for solo cello



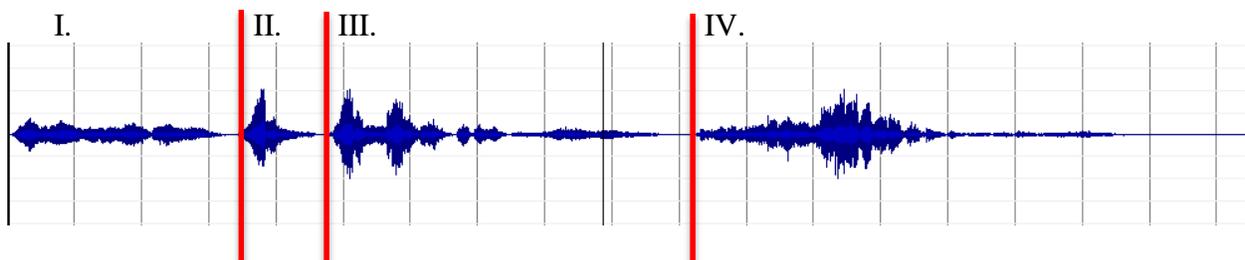
This beautiful illustration in example 3.1 of frequency (Hz) (again Hertz on the left column), supports the regular and open intervals being played by the cello. The “hotter” or louder tones indicated by a brighter coloring illustrate both intensity and the minimalistic sound of the miniature. The illustration even gives a three-dimensional look as if the overtones continue to infinity. In performance of this Papillon, intonation on the fourth and fifth intervals would be crucial to effective overtones being produced. That along with impeccable technique as the part is littered with higher harmonics indicated to be played on the string. Example 3.2 of the wave form was included here to further solidify the minimalistic stance as there is somewhat of a continual minimum constant wave at all times (minus the beginning and ending). The loudest sections are where the lowest tones are being produced and the fewest upper harmonics are played on the string. Finally, in terms of imagery, I would suggest this is the butterfly in flight.

The final miniature I would like to explore is Papillon III. It is the first Papillon that employs a clean three-note melodic or gestural element. I would not consider it a melody but rather a simple gesture. It consists of a falling minor second followed by a minor third with an underlying element or pedal point of a “D.” The following three examples work well together in illustrating the gestural contour. I find it better to view them all together as breaking them up might actually be more cumbersome.

**Example 4.1: Papillon III, Melodic Range Spectrogram, in Kaija Saariaho's
Sept Papillons, for solo cello**



**Example 4.2: Papillon III, Melodic Range Spectrogram, in Kaija Saariaho's
Sept Papillons, for solo cello**



Example 4.3: Papillon III, mm. (I.) 1-3, (II.) 4-5, (III.) 6-10, (IV.) 11-16, Melodic Gestures, in Kaija Saariaho's *Sept Papillons*, for solo cello

I.

Calmo, con tristezza ♩=c.48

II.

III.

A tempo

IV.

A tempo

5. 3 6. 3

S.T. S.T. → S.P.

(tr) gliss.

11 12

pp

Meno mosso

7. 8. rit. 9. 3 10. 3 11. 3

S.P. S.T. → S.T.

13 14 15 16

mf *p* niente

Sonic Visualizer has another useful tool entitled the melodic range spectrogram. I did not utilize this tool in the previous Papillon's because they lack any melodic material. It is interesting to view this Papillon with the melodic range spectrogram (example 4.1) because, while somewhat subtle, it displays the repetitive falling m2 to m3 interval. In the upper levels of pitch it is more difficult to discern but illustrated nonetheless. The wave form (example 4.2) is useful to observe here, similarly to Papillon I in breaking up the miniature in sections. I hear four distinct sections in Papillon III where the cellist should make critical musical decisions to encourage the listening ear to hear it this way. The wave also illustrates the evenly paced decay after the gesture is played. The musical example (example 4.3) illustrates numbered instances of the musical gesture discussed. In performance of the work this should clearly be brought to the foreground. The interesting thing to note about the gesture is not only the exact repetition and the transpositions, but the times when it does not complete sequence to the third pitch. The cellist might consider lingering a bit more after the minor second interval to create more tension.

I chose the first three Papillons to focus discussion on because they largely possess features apparent in each of the following Papillons. Especially in Papillons IV and V are these techniques used and elements of all of the first three implemented. If the cellist can master the first three miniatures in execution and textural feel, the following four should be more readily accessible. The textures and post-serial feel Saariaho has written for can be made very effective if care is taken on all of these elements.