Image Schemata and Transmedia Improvisation

by

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ABSTRACT

I am interested in performance that includes multiple artistic media. I am looking for a way to communicate with other artists that can clearly express the meaning of an artistic gesture that they can interpret for their medium. I wish to make transmedia performance art with a meaning that is clear to an audience. That meaning can be abstract. Sometimes we call art "abstract" to imply that it has no perceivable meaning. However, everything has meaning. Even if a piece of art does not have narrative meaning, we can still perceive a structure. That is thanks to our imagination. Imagination is our way of making sense of our experience. I believe that if I can identify some of the imaginative structures through which I perceive and understand my own work, I can use those structures to annotate or organize scores for improvised performance pieces.

I am interested in how we understand art. One theory of understanding, which comes from Mark Johnson, involves "image schemata." Image schemata (sing. schema) are basic, abstract structures that we develop based on what we perceive from our physical interactions with the environment. We project these structures that come from a physical domain onto the mental domain. Johnson calls this process "metaphorical projection," and he calls our ability to do this "imagination." By metaphorically projecting image schemata from one domain to another, we form meaning of our experiences, and thus contribute to our understanding of the world. I believe that I can use image schemata to explain the meanings inherent in the art I make and to explain the connections in meaning between one artistic medium to another.

I wish to apply this in a transmedia performance setting. First, I will analyze previous transmedia works in terms of image schemata. Second, I will make a score using

image schemata for an improvised performance. Third, I will reflect on the results of attempting to rehearse that score.

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CHAPTER 1: BACKGROUND

1.1 Research

The question that has fueled my research throughout the duration of my master's

degree program is: how can I approach content-creation and collaborative communication

in a performing arts setting? Last year I encountered some writings that addressed a need

for a conceptual framework with which to make a transmedia performance.

First, there was Stan Wijnans, who combined the somatic theory of Rudolph von

Laban and the psycho-acoustic theory of Jens Blauert to compose a piece of dance and

interactive sound. In the 1920's Laban described the "kinesphere" as the "space that a

dancer can reach (while standing still)" (Wijnans 3). The kinesphere has six movement

directions in three planes: median, frontal, and horizontal, or in other words, a three-

dimensional space. Wijnans applied Blauert's description of sound in three-dimensional

space to Laban's "kinesphere" to map her "ChoreoSonic Arena." She also used Laban's

division of the body as a pentagonal structure to determine the placing of electronic

sensors on the dancer that were used to capture the dancer's movement. The resulting

data from that motion capture was used in real-time to trigger sound that was assigned to

specified regions of the ChoreoSonic Arena and to each sensor by using Max/MSP/Jitter

software.

Next, there was Frank Millward, who made video art to accompany music by

improvising with software. He recalled perceiving the sound and moving image as a

conversation. He related the music to the voice, the moving image to facial expressions,

and the composite rhythms created by the combination of music and moving image to

body language. This is an example of what Mark Johnson calls metaphorical projection.

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Millward used Max/MSP/Jitter software to create 3D spectrographic moving images that were paired with several tracks of music recorded by the Delta Saxophone Quartet. He manipulated the shape, color, direction, and speed of the images in response to the change in musical material. His manipulation was improvised. Millward wrote of his experience:

> I was aware that I was organizing and structuring my approach towards practices I was very familiar with as a studio musician and composer. As an improviser I was building my database of 'licks'. Instead of relying on an intuitive physically based response, I was thinking the playing of the instrument – numerating my actions – the visual rhythm became calculated – a digital reading. I was using both kinesthetic and cognitive means in tandem. (9)

It was last year that I first encountered the cognitive-linguistic concept of image schemata applied to performing arts. Geoffrey Edwards and Marie Louise Bourbeau collaborated with choreographer Lina Cruz to analyze the Monteverdi Aria, *Lamento d' Arianna* in terms of the image schemata present and applied that knowledge to choreograph a dance for it. In this example, image schemata were used in the context of a composed and choreographed performance. Edwards and Bourbeau used Johnson's list to analyze each line of the lyrics of Monteverdi's *Lamento d'Arianna* as well as each phrase of vocal melody, and the harmonic structure. Then, Cruz applied their analysis to costume design and a choreography that was performed with the aria. The use of image schemata facilitated the integration between music and dance as well as the meaning

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conveyed by the performers to the audience. I have followed their example of analyzing existing works for image schemata that can be used in a new score for improvisation.

I recently learned about Transmedia Knowledge Base, a project started by Carla Fernandes of the New University of Lisbon. In her writings, she mentions that researchers were inspired by the concept of image schemata in the creation of their rehearsal annotation software in conjunction with dance research. Bertha Bermúdez and Carla Fernandes wrote in an article for RTRSRCH:

> …the creation of such interactive glossaries based on the artist's discourse can reveal the innermost experience and mechanism of dance practice. This can be of help, in a complementary way to other documentation methods, for a broader range of people to access and understand this evolving art form. (30)

This statement emphasizes the importance of analyzing one's artistic process in order to understand the art form and communicate with other artists and researchers.

John Cage has had a strong influence on me because of his impact on several realms of artistic practice including "Happening," performance with interactive electronics, and his study and use of indeterminacy.

The piece of his that has the most similarity to my work for this thesis is "Theater Piece No. 1." In a residency at Black Mountain College in the 1940's and 50's, Cage, along with David Tudor, Merce Cunningham, Robert Rauschenberg, and others, developed a series of performance pieces culminating with "Theater Piece No. 1" in 1952. It was transmedia: it featured spoken word, displays of paintings, projections of slides and video, improvised dance, and music. The artists performed these activities

utilizing Cage's concept of indeterminacy; the piece was performed without a score, although Cage made an *a posteriori* score in 1965.

Cage directly influenced the artists of the Fluxus movement through his teachings at The New School and his transmedia work through pieces like "Theater Piece No. 1" and more. The Fluxus artists applied the idea of indeterminacy to any mode of performance and defined art as virtually any activity. Allan Kaprow sought to find an artistic practice that was removed from all traditional forms of art by composing "Happenings" that were instructions for activity that could emanate from any domain of life.

Cage expanded on Edgar Varese's definition of music as "organized sound" by considering all sounds to be musical material. If you consider that sound is simply vibration of matter, then almost any physical phenomenon that you can experience can be considered music and so music is no longer a disciplinary practice requiring knowledge of a tradition and becomes a practice of art at large. If you consider, like Allan Kaprow, that any activity of life can be considered art, then life and art and music lose all boundaries and art is reduced to a system.

I first encountered the term "systems esthetics" in Jack Burnham's 1968 article "Systems Esthetics." He described how, as a culture, we were shifting from an object-oriented to a systems-oriented culture. The focus shifted from *things* to the way things are done or made. Burnham went on to describe the works of artists that focused more on the process than on the product, including Kaprow's "Happenings." He concluded with saying that man's role has shifted from *homo faber*, man the maker, to *homo arbiter formae*, man the maker of esthetic decisions.

Although it was not my goal for this particular project to find a way to make new music, I could not escape the interest I have had in experimental music and indeterminacy since before reading Cage. I believe that a piece may be indeterminate at any stage of its composition or performance for either the composer or the performers. I see "indeterminacy" as a potential means to remove the intention of the composer or performer from the performance. This idea is important to me because I wish to structure a transmedia improvisational performance in which the performers have complete control of over the content they produce while ensuring that what is produced is connected by a strong concept.

Indeterminacy has found a new form in the practice of digital artists. The Max/MSP/Jitter software provides a graphical, object-based programming language that can be used with digital data represented as numbers, audio signals, and image matrices. Max itself is a composition in which the function of its objects is determinate while the combination of the objects and even the creation of new objects are indeterminate. It is a system capable of creating infinite numbers of new systems that can be used to create indeterminate compositions. A Max patch may use input to control changeable arguments that control any number of output options. It is a widely used tool for making interactive works. An interactive work is indeterminate in its performance because a user may "perform" the "instrument" in any way, but the system that was designed by the composer determines its possible outcomes. Any programming language is a system and programming requires composers and artists not to be manipulators of sound or any other medium, but of data, and relationships between mediums, as well as mediators between man and machine.

Though Max is not an essential part of this project, it has been essential to my studies and I have used a small patch to aid in the rehearsals of the thesis piece that I will describe later. My work for this thesis may contribute to my understanding of the relationships between artistic mediums which may be applied to an interactive work using Max.

Stuart Saunders Smith is a composer who has written scores for transmedia performance pieces. *Return and Recall* was published with *Initiatives and Reactions* in 1978 and *Transitions and Leaps* was published in 1993. Smith used symbolic notation to create scores for any group of performers to use. The actions are to be determined and classified by the performers while following temporal and other qualitative guidelines set in the score. Smith wrote that he considered these pieces to be exercises in group composition rather than guides for improvisation. He recommended at least one month of preparation and composition before rehearsing. These scores produce pieces that are indeterminate in content but determinate in certain qualities. An excerpt from the score for *Transitions and Leaps* is on the following page.

I have chosen to delve deeper into the idea of image schemata because it attempts to explain our thought processes in a more basic way than Wijnans did when she combined two disciplinary theories, or Millward who likened his improvisatory approach to conversation in a very general way. I wish to create a guide for improvisation rather than for collaborative composition, as Smith did. I think that in order to communicate effectively with artists who were trained in different disciplines I need to avoid language that may suggest a particular artistic paradigm and find language that is basic and specific enough for anyone to understand.

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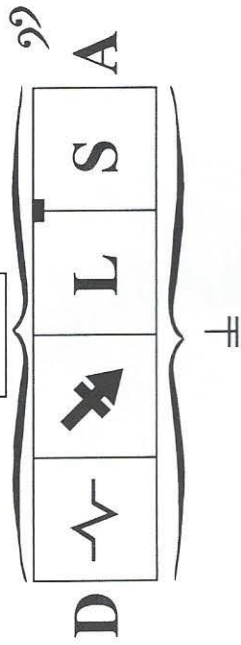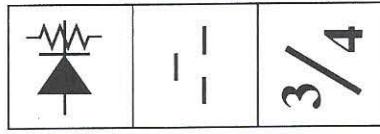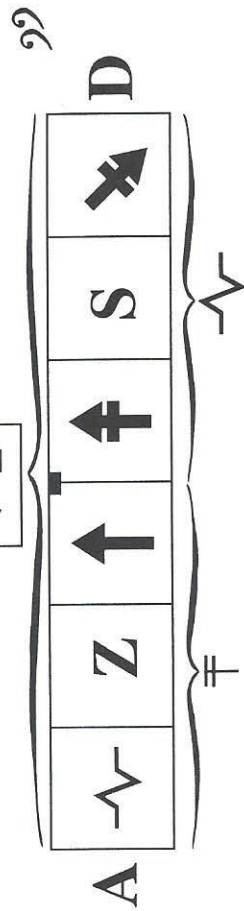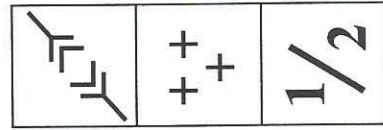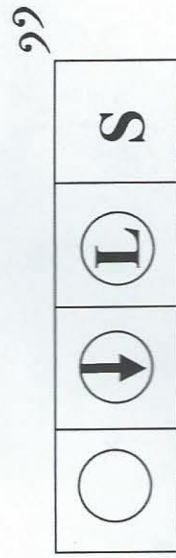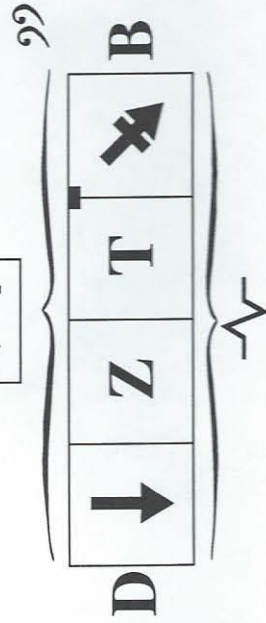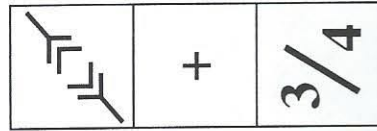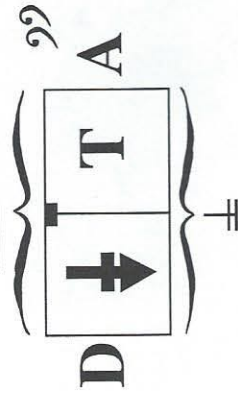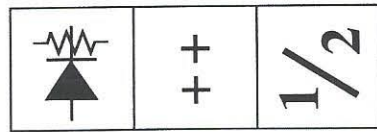
1.2 *The Body in the Mind*

1.2.1 Overview

        In *The Body in the Mind*, Mark Johnson uses certain words to mean more than they commonly do. We commonly use *imagination* to mean a capricious, artistic exploration using mental pictures, or what Johnson calls *rich images*. Johnson considers imagination to be our capacity to understand new experiences in terms of previous experiences. While we commonly define *metaphor* as a literary device in which we compare something to something else, Johnson uses the word metaphor to mean an organizational activity of the imagination. We organize our experiences with abstract, repeating, non-propositional, and dynamic cognitive structures that Johnson calls *image schemata*. One example of an image schema is PATH, or the distance from one point to another. Johnson calls these structures non-propositional because they do not contain truth statements, but are basic representations based on our perceptions.

        In order to understand a new experience, we "metaphorically project" image schemata from one domain to another (e.g. spatial, sonic). For example, we understand "up" to mean "more" in some situations, perhaps because some real-life objects like leaves can pile up when they increase in number (spatial). Therefore, we might call an increase in frequency (pitch) to be going up (sonic), or cause a slider object in the Max/MSP programming language to move up (spatial) to increase volume (sonic). Johnson provided the following list of example image schemata in his book:

                CONTAINER, BLOCKAGE, ENABLEMENT, PATH, CYCLE, PART-WHOLE, FULL-EMPTY, ITERATION, SURFACE, BALANCE, COUNTERFORCE, ATTRACTION, LINK, NEAR-FAR, MERGING,

MATCHING, CONTACT, OBJECT, COMPULSION, RESTRAINT

REMOVAL, MASS-COUNT, CENTER-PERIPHERY, SCALE,

SPLITTING, SUPERIMPOSITION, PROCESS, and COLLECTION.

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If a transmedia artwork is interactive, then we must recognize that different

artistic media focus on particular modes of perception such as hearing or sight. So, in

order to understand the relationships between the different media, we need to understand

how we perceive and understand. If a multimedia artwork is interactive, then the

interaction must be informed by our understanding and our perception. For example, we

must be able to understand why *this* gesture triggers *that* sound. Interactive relationships

may be obvious, such as if an increase in movement resulted in an increase in the number

of sounds or if a light became brighter when a sound became louder, but the arts are

understood in more complex ways than image schemata are able to explain. We

understand art by making complex connections between schemata, and art can also make

propositional statements. Nonetheless, a basic understanding of image schemata can

provide a means to discuss how we understand art.

1.2.1 Examples

The concept of time is an example of metaphorical projection. Time is understood

spatially. It is measured in the same way we might measure anything, by understanding

the interval between points or events. Space is measured in intervals of distance – it is the

distance between objects or points, the space an object occupies is a distance. A day is a

measurement of time, but it is also a measurement of distance traveled: the distance from

a point in space to that same point after the Earth has rotated on its axis. Time is marked

by the seasons and the change in weather they bring, but this is a product of the Earth's distance from the Sun. Time is perceived with physical changes. Our heart beats regularly, we move, animals move, the Earth moves, and all matter and energy moves, otherwise existence would not occur. Movement provides us a way to perceive time and our experience is such that we never have the same exact experience more than once and so we perceive time as moving. There are cycles in many domains of life, but there is no stopping change, there is no regression to an earlier state, and so we refer to time as moving "forward." The word "forward" is a representation of a spatial change. So is the word "backward," but we perceive moving backward as a regression to an earlier point in space, and thus in time, and this cannot occur. Therefore, we consider that time can only move forward. We represent motion forward with a line from one point to another. We use lines to represent time going forward, hence the concept of a timeline. The Earth's natural cycles also provide us a way to visualize time, and so it is only natural that we would represent time visually with our own means.

Music is represented as points on lines thanks to our convention of representing time with lines, but we still needed a way to measure time. The heartbeat is a naturally occurring physical phenomenon that allows us to perceive intervals in time. It creates our sense of internal pulse and these pulses can be counted. Thus, we have another way to represent time: counting numbers. Music is considered to be sound organized over time and it is organized with symbols that represent amounts of time as well as frequency. Music is measured into small groups of beats, or numbers of counts of two and three, and different divisions or multiples of the same pulse (or beats per minute).

Music is understood spatially, therefore, because of its visual representations, of its temporal qualities, and also because of its aural qualities. Timbre, duration, articulation, and rhythm are all attributes of music that can be associated with our sonic and spatial experiences. Some musical gestures can be onomatopoeias, whether intentional or not. This can be done with a combination of musical attributes and depend upon how well they imitate our past experiences. Some connections are made metaphorically, such as how an increase in frequency is represented as movement up, or with complex systems of metaphors as in the following example.

We use complex metaphors on abstract levels to create art. In 2010 I composed a piano piece called *Ostinato* which was inspired by the sound of rain. The piece consists of a repeated, four-note ostinato that partially develops, and a sixteenth-note motif that is repeated at a low dynamic level while counter-melodies are introduced and developed throughout the piece at a higher dynamic level. Without realizing, I metaphorically projected spatial relationships, created by the sound of the rain, into music. I could hear that some rain drops fell closer to me while other rain drops fell farther. Each of the musical voices played by the piano echoed the different proximities of rain drops with their rhythms. I imagined that sonic events took on physical form as I associated the rhythms and dynamic levels with raindrops at varying distances. I could understand the notes to be rain drops. I increased the occurrence of notes to symbolize the increasing intensity of the rain and decreased the occurrence of notes to give the impression that the rain was slowing to a stop. A further association was made between the cleansing effects of rain and the emotional affects of music. As I changed the harmony, forming new relationships with the initial harmony, I felt emotional tensions and resolutions with the

sonic tensions and resolutions. By the metaphorical projections I made, I felt that I was responding emotionally to the sound of the rain.

By coincidence, artist Janel Spencer had written a poem about this subject titled "The Sound of the Rain Will Heal You" in 2012, and we decided to combine our pieces into a single transmedia piece. She could understand the sonic, spatial, and emotional connections I had made between the music and the rain and was able to take cues from the music to read her poem aloud, in order, and time her phrases naturally and effectively with the musical development. The poem itself had made its own associations with the therapeutic effects of the sound of rain and of poetry.

This coincidental collaboration was made successful because all people share many of the same image schemata and metaphorical projections. It does vary from experience to experience, but with something as universal as rain, it was very likely that two people could have similar understandings. I will explore the connections between *Ostinato* and "The Sound of the Rain Will Heal You" in more depth in chapter two.

CHAPTER 2: ANALYSES OF PREVIOUS WORKS

2.1. *The Sound of the Rain Will Heal You*

2.1.1 Overview

The Sound of the Rain Will Heal You is a transmedia piece in which two pre-composed pieces were combined after the fact through improvisation. The following is an analysis of the image schemata, metaphors, and other concepts present in this piece that are a result of the musical and poetic devices used but that enable us to understand this piece as more than music and poetry. This analysis is based on a recording that I believe had a particularly successful outcome because of how our collaboration combined image schemata to form more complex understandings.

I composed the piano music as a solo called *Ostinato* and Spencer wrote "The Sound of the Rain Will Heal You" separately. After hearing her poem, I suggested we experiment with combining our pieces. Considering it a success, we titled the new piece for her poem. Beyond the fact that we both composed these pieces inspired by the rain and that they happen to have similar lengths when the piano is performed and the poem read, the two pieces together emphasize certain image schemata found in each one. I hope that this analysis and further analyses will aid me in attempting to compose transmedia performance scores. I have included conceptual and possible schemata explanations in parentheses after the description of each section of the recording. An explanation of the schemata, metaphors, and concepts follows the analysis. See APPENDIX A for the score. The recording can be listened to at the following web address:

https://www.youtube.com/watch?v=F1AUhBKziGg

2.1.2 Analysis of "The Sound of the Rain Will Heal You"

Measures 1-5:

The piano begins with one note; from stillness begins motion, slowly increasing in motion and voices. (STILLNESS to MOTION; QUANTITY CHANGE; SINGULARITY to PLURALITY)

Measures 6-9:

The piano confirms the motif and establishes perpetual motion. The voice intones the poem, confirming that the piece has begun and introduces the healing theme and rain imagery with the phrase, "The sound of the rain will heal you." The sixteenth note rhythms symbolize rain and the harmony symbolizes emotion. Further associations are made that rain is cleansing and music is healing. It is a common practice for pianists to call a piano sound with damper pedal "wet" and piano without damper "dry." Perhaps this is due to the experience of hearing dripping water echo. Therefore, using the piano damper pedal is associated with the presence of water. The piano continues the ostinato and so the rain continues. (PERPETUAL MOTION; WATER CLEANSES; SOUND IS TANGIBLE; SOUND IS EMOTIONAL)

Measures 10-11:

The voice begins reciting the main text of the poem, which starts with the question "Tired of feeling?" as the piano begins a series of musical questions and answers. The piano acts as a second voice in a conversation. (SOUND IS VERBAL, SOUND IS EMOTIONAL)

Measures 12-15:

The phrase, "Let the music feel for you" confirms the music's role as symbol of emotion. This phrase is followed by increasingly complex melodic piano phrases which evoke the complexity of our emotions. (SOUND IS EMOTIONAL)

Measures 16-17:

At measure 16, we encounter a descending melody as the voice asks, "Tired of words?" Historically, a descending melodic resolution has been called a "sigh" and a chromatic descending line has been called a "lament." These verbal, musical, and emotional correlations resonate with the word "tired." (SOUND IS VERBAL; SOUND IS EMOTIONAL)

Measures 18:

The voice commands us to "breathe instead," and this phrase falls at a musical resolution at which both ostinato bass and melody arrive at the tonic, reminiscent of the act of exhaling. This is followed by a break from the resolution on the following beat, reminiscent of inhaling. (SOUND IS VERBAL; EXHALE and INHALE)

Measures 19-21:

Measure nineteen begins a new phrase of music with sixteenth notes that wind down and up. This general path from high to low foreshadows the poetic phrase that is to come, "Let the sounds melt into drops of rain." The action of melting takes an object from one point to a lower point. The piano then answers with an octave displacement of the ostinato in the left hand that echoes the poet's "drops of rain." (PATH; SOUND IS VISUAL; SOUND IS VERBAL; SOUND IS TANGIBLE)

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Measures 22-23:

Measure twenty-two marks a major change in harmony that creates a sensation of instability and anticipation. The harmonic change is not a complete departure from the tonal area, but rather a pivot chord leading to another chord still in the key signature. It is this not-so-distant chord relation that creates a sensation of anticipation rather than a new arrival. At that moment, the listener is following the speaker's previous instruction to interpret the sounds as drops of rain as they are performed by the piano. (SOUND IS EMOTIONAL; SOUND IS VISUAL)

Measures 24-26

As the piano develops the new harmonic area, the speaker bids the listener to "let the liquid drip from the page into not meaning but imprints of truth." Because of the distinction made between the words "meaning" and "truth," the listener is invited to look for not literal propositions, but basic cognitive structures. (SOUND IS VERBAL; MEANING IS NON-PROPOSITIONAL)

Measures 27-28

The piano finally resolves the harmonic suspension, arriving at the largest range of pitches yet. The harmony has made the journey from minor to major tonality. From the fourth beat of measure twenty-seven to the first beat of measure twenty-eight, the piano introduces a non-tonal note and resolution in time with the speakers words, "Let go." A logical continuation of the poet's words may be to "let go and move on to something better." This concept is enforced by the piano's resolution on the major chord introduced in measure twenty-seven. (SOUND IS EMOTIONAL; SOUND IS VISUAL; SOUND IS VERBAL)

Measures 29-30

The rhythmic complexity and length of the spoken phrase correlates to the developing piano melody. This piano development enforces the speaker's invitation to "hear the sound hit the floor with imprecise rhythm" by surrounding the listener with counter melodies and harmonies. (SURROUNDED; COMPLEXITY)

Measures 30-31

The words "and be okay with it" come with the interval of a major-seventh, giving the resolution of the melody from the previous measures a hint of uncertainty. The words "be okay with it" implies that there is tension, which is echoed by the piano harmony. (SOUND IS EMOTIONAL; INSTABILITY)

Measures 32-33

Measure thirty-two brings a harmonic change to another tonal chord which provides a new level of uncertainty that foreshadows the poet's command to "be okay with yourself," which arrives with a musical resolution in measure thirty-three. In that same measure, the piano melody begins to augment, implying that the rain is slowing down. (SOUND IS EMOTIONAL; SOUND IS SPATIAL)

Measures 34-36

The word "falling" in measure thirty-four foreshadows a change in the music to an anticipatory chord in measure thirty-five, which is followed by a fall in the piano left hand from an octave to a major-seventh in measure thirty-six. Here the poet speaks, "With the rain," reiterating the continuation of the sixteenth-note motif. (SOUND IS VERBAL; SOUND IS VISUAL)

Beat four of measure thirty-six presents the same non-tonal pitch and resolution to measure thirty-seven as in measures twenty-seven to twenty-eight. That resolution is met with the word "falling." (SOUND IS EMOTIONAL; REITERATION)

Measures 38-40

The piano continues the "rain" sixteenth-note motif in the right hand as the left hand makes one-note transitions to the original ostinato. (SOUND IS VISUAL; QUANTITY CHANGE; decrease in MOTION)

Measures 41-44

By measure forty-one, the music is winding to an end and the poet prepares us for the impending end with the words "And when it stops…" The piano texture continues to thin and slow down until the final notes resolve as a major triad with the word "stop" spoken by the poet. The piece has completed the harmonic shift from minor to major; the narrative has completed the journey and it has come to a conclusion as implied by the brighter harmony. (PLURALITY TO SINGULARITY; QUANTITY CHANGE; SOUND IS EMOTIONAL; SOUND IS VISUAL; MOTION to STILLNESS)

Concepts used:

STILLNESS, MOTION (increase and decrease), SINGULARITY, PLURALITY, QUANTITY CHANGE, PERPETUAL MOTION, WATER CLEANSES, SOUND IS TANGIBLE, SOUND IS EMOTIONAL, SOUND IS VERBAL, SOUND IS VISUAL, SOUND IS SPATIAL, INHALE, EXHALE, PATH, MEANING IS NON-PROPOSITIONAL, SURROUNDED, COMPLEXITY, INSTABILITY, REITERATION

2.1.3 Explanation of Concepts

Artists use metaphors from many domains of experience (e.g. spatial, sonic) to describe their art. The following concepts explain how music combines several schemata simultaneously to create metaphors.

SOUND IS EMOTIONAL

We know that music can have complex emotional affects, but it begins at a basic level. Pitches are perceived in relation to a tonal center or tonic. Some pitches seem more distant to the tonic based on its harmonic series and whether the pitch in question has any coincidental partials with the tonic's harmonic spectrum. The relations between pitches can evoke feelings of stability or instability, comfort or discomfort, and in combination are capable of complex emotional associations. The dissonances and consonances found in timbre and harmony extend to rhythm.

Beating and difference tones are two phenomena in which we perceive rhythm in harmony. Beating is a pulse that occurs when two sound waves fluctuate in and out of phase with each other. A difference tone is the difference between two frequencies and can be perceived as a pitch or beating. Rhythm extends from harmony to articulated rhythms and techniques. We associate the harmonies, rhythms, and timbres of music to our past experiences with music and sound in general. A more direct correlation of rhythm to experience is found in the verbal patterns of melody.

SOUND IS VERBAL

Breath and cadence are two characteristics of speech that music imitates. For example, when we finish speaking a declarative statement, we typically end our final words with a lower frequency than we used in the words preceding. After we have

spoken a phrase, we breathe. Patterns of frequency and breath are realized in music as melody and rests. There are instances in the analyzed piece in which the poet asks a question and immediately after, a piano melody is heard. Because melody can fit into our schemata for speech, we can understand the melody to be an answer to the poet's question. Musical patterns that do not fall into schemata for speech can be understood in terms of visual schemata.

SOUND IS VISUAL

We associate changes in pitch (increases and decreases in frequency) with vertical direction. We refer to timbre with visual qualities of light such as brightness and darkness. Quantity of musical voices is referred to as texture and can be described as dense or thin. Music is sound organized over time and its temporal quality can be understood spatially, as I discussed in chapter one.

SOUND IS SPATIAL

Sound events spread out through time can give the impression of objects spread out in space. An example from the analyzed piece is how the increase in motion that comes with the increased repetitions of the sixteenth-note pattern is reminiscent of the increase in motion that comes with increased amount of rain drops. Sound events can be spatialized as objects and can also be interpreted to have a physical form.

SOUND IS TANGIBLE

Because of the words in the poem and the imitative sound of the piano, the motion of the sixteenth-note motif reminds the listener of the motion of raindrops. The notes themselves remind the listener of rain, and the melody of raindrops that are closer in

proximity. When we place music in spatial context, it can become tangible in our imaginations.

2.2 Analysis of *Dialogue*

Dialogue is a transmedia piece for two dancers and two musicians. The dance was choreographed by Fumihiro Kikuchi and performed by Kikuchi and Shelby Keefe. The music was improvised, within parameters, by Bobby Avstreih, playing the shakuhachi, and myself, performing on the piano and laptop. The shakuhachi has a limited range of notes and is traditionally played within a few scales and rhythmic patterns. The piano used a more chromatic tonal language and was unrestricted rhythmically. I used the laptop to trigger samples intermittently while playing the piano. The samples included field recordings of wind, water, crumbling leaves, singing bowls, and synthesized, rhythmic textures. The performers were united in their artistic philosophy by the Zen Buddhist concept of *Ma*, which, to explain it simply, refers to negative space.

The musicians alternated between timing musical events with dance events, and playing independently. The cumulative harmonic language created by the shakuhachi, piano, and electronic sounds was matched well with the quality of movements made by the dancers. The choreography consisted of very smooth gestures of varying speeds, but nothing very "sharp." It also had a hesitant or mysterious quality due to the smooth, slow gestures and sudden stops in motion. The harmonies varied between consonances and dissonances that flowed into each other, propelling the movement forward while forming a sense of space and stillness.

The challenge in rehearsing this piece was deciding on musical material and timing, because other than being aware of space, we did not have a cognitive framework

to guide our improvisation. The musicians were able to react to certain universal gestures within choreographic phrases. One example of this is when the dancers fell to the ground and followed each other by rolling in a circular path. I reacted to this gesture by playing a repeating, descending, musical pattern on the piano. The repetition matched the circular path created by the dancers with its cyclical pattern and descending path. As an improvising musician, I would have benefited from the identification of more metaphors, beyond those based on the idea of space, to help guide my interaction with the dancers. A video of the piece can be viewed at the following web address:

https://www.youtube.com/watch?v=rEQ3N-Jb94E&feature=youtu.be

CHAPTER 3: EXPERIMENTATION AND RESULTS

3.1 Composing a New Score

3.1.1 Overview

Johnson, Cage and Smith were the main influences in making *Composition I*. I wished to expand on Cage's idea of indeterminacy by developing a system that is based on Johnson's model of understanding. I also wished to express this system as a score like Smith's transmedia scores that can be interpreted by any performer of any art. My focus was on the process of rehearsing and collaborating with a transmedia system rather than making a composition. My system entailed creating symbols for image schemata and finding several possibilities for representing each one with artistic gestures.

The first step was identifying a list of image schemata and more general concepts from the Johnson text and my analysis, and from them generating new schemata and concepts. Below is a list of the schemata that were considered for the score. I chose to stay away from general concepts and focus on basic schemata to keep the form of the score easily mobile. Of these, the starred were not used: ATTRACTION, BALANCE*, CHAOS, COMPULSION, CONTAINED, COUNTERPOINT, CYCLE*, DECREASE, DEVIATION, DISBALANCE, DISTANCE, ENABLE*, EXHALE*, FLOWING*, FORMING ORDER, INCREASE, INHALE*, INTERSECTION, LINKED, MATCHING, MERGE*, MOTION*, OPPOSING FORCES, PATH*, PLURALITY*, PULSE, RELEASE, REPEAT*, SHIFT, SINGULARITY*, STILLNESS, SYNCHRONIZATION, and VARIATION. My definitions for the image schemata used in the composition can be found in APPENDIX B.

The second step was to choose an order for the schemata. I found that this process was like a distillation of the composition process for a piece of music. I gave the piece shape by organizing the symbols linearly. Without intending to, I gave the piece a form analogous to musical ternary form with a coda (A – B – A' – C). I say this because of the energetic cycle that it forms due to redundancies of schemata, as I will discuss later. The third step was to make symbols for each of the schemata. The resulting score appears in APPENDIX B. Using these, a possible interpretation of the score may be as follows.

3.1.2 Analysis of "Composition I"

The performers form an internal pulse which may manifest as a performed, audible or visible pulse. They are then compelled to create a phrase and vary that phrase until they are compelled to introduce another phrase in counterpoint with the first phrase. Various qualities are increased, such as volume, energy, or activity in general. Then there is a major shift which results in disbalance. The concept of SURROUNDED OPPOSING FORCES connotes the image of two or more dancers interacting in a way that seems like they are contained in a space that causes them to oppose each other. But the quality of this interaction changes from opposition to attraction. ATTRACTION implies that there is still distance while INTERSECTION implies potential contact or crossing of paths. The idea of connection continues as a link is formed between the performers. The link manifests as matching gestures, perhaps imitation. Activity decreases and gestures become contained within limited parameters. Gestures continue to be contained and decreased until the performers become still. Then the piece follows a similar shape as it did when it began. Out of stillness the performers are compelled to move and eventually are released. They perform freely as their gestures eventually become flowing and

smooth. Activity increases and the connections between performers are lost; the independent activity appears chaotic. The performers find patterns in the chaos and emphasize those patterns to form order. Activity then begins to decrease and the performers begin to synchronize their gestures and timing. After some time, they start to deviate and become independent again. Activity continues to decrease as the performers increase the distance between themselves or their gestures and begin to focus on a pulse until the piece ends.

3.2 Results

Once the score was complete, we were able to start rehearsing. First, I had to select my ensemble. I wished to have at least three artistic mediums represented. I played piano, as it is the instrument I am the most comfortable improvising with. Fumihiro Kikuchi danced, and Janel Spencer improvised spoken word. I wanted to have the visual arts represented with live video synthesis, but the sort of control that would be required is more than is possible for video improvisation as opposed to composition.

The first thing we did at our rehearsal was discuss how to use the score. The most natural way of reading the score for us was the way we read English: left to right, top to bottom. I hoped for the performers to, eventually, smoothly progress through the score without the need for any sort of direction, but for the first rehearsal we performed each image schema at steady intervals with cues.

Next, I gave a brief summary of what I considered the schemata to mean and we discussed as a group any more possibilities or ways to clarify the symbols. We then took a few minutes to briefly plan what we might do for each step independently. Finally, we tried performing the piece. I hoped for the performer to, eventually, smoothly progress

through the score without the need for any sort of direction, but for the first rehearsal we performed each image schema at steady intervals with cues. It was important to have a method of being synchronized together as we progressed through the score. It was much more natural for the poet to integrate the names of the schemata into her spoken word every thirty seconds, which was a more appropriate length of time to settle into each new mode.

We performed the score three times, finding that we were able to produce completely different content that fit within the schemata each time. The material was different, but each rendition had the same "feel." By changing schemata every thirty seconds, the piece took about fifteen minutes to perform.

At the second rehearsal, we varied the way we read the score. First, we read through the score vertically: top to bottom and right to left, like a retrograde-inversion in a twelve-tone matrix. Next, we read it in retrograde: horizontally, bottom to top, right to left. In this read, we focused on non-traditional techniques: I emphasized playing inside the piano, the poet focused on speaking nonsense phrases and noises, and the dancer focused on pedestrian movements and exploring space. Having a non-predictable order and using extended techniques helped us to vary our results.

We performed the score a third time in standard order with a theme. We decided to give the score a theme because we tended to produce similar gestures following the schemata alone. We chose the theme "transformation" which we thought might include evocative sub-themes like life and death or creation and destruction. The more of a context we gave the image schemata, the more we could connect with the material we

were creating, and thus have a greater feeling of continuity in the piece as well as more varied results.

I consider the third and final rehearsal to be the most successful. We used a Max patch and projector to project a random image schematic symbol every thirty seconds with repeats allowed. The poet was then able to speak freely without trying to integrate the symbol names into her performance and the three performers could follow the projection without issue. There was no predictability to the form so the content was spontaneous. We used only the simplest schemata from *Composition I* and performed without a theme so that only instantaneous association guided our improvisation. I eliminated redundant schemata (e.g. MATCHING), schemata that implied the physical domain above all others (INTERSECTION), schemata that implied the need for multiple performers per medium (COUNTERPOINT), and complex schemata (SURROUNDED OPPOSING FORCES). The schemata we used for the final rehearsal were: ATTRACTION, BALANCE, CHAOS, COMPULSION, CONTAINED, DECREASE, DISBALANCE, DISTANCE, FLOWING, FORMING ORDER, INCREASE, PULSE, RELEASE, REPEAT, SHIFT, STILLNES, SYNCHRONIZATION, and VARIATION.

3.3 Discussion

I consider the third rehearsal to be the most successful because we were able to use symbols derived from our experience and understanding to shape a coherent performance. Using image schemata provided stable guiding principles for a system that could be used to make indeterminate transmedia performance. We can connect to these schemata because they come from our experience. In this way it is the opposite of the

intention of Cage and Kaprow who used systems to create art that attempted to be removed from artistic tradition and experience.

If we had continued to rehearse *Composition I* in prime order, and decided on the actions we would take, we could have created a successful composition. However, my intention was not to compose, but to improvise. Smith provided an excellent example of symbolic notation for transmedia performance. Edwards, Bourbeau, and Cruz showed that image schemata could be used to analyze music and guide choreography. Fernandes and others confirmed the effectiveness of image schemata as a tool for annotation in their research. These researchers and artists have collectively shown that it is useful to consider image schemata when composing, so I have focused on using such schemata to guide an improvisation.

A next step in this research would be to experiment using different schemata, as the list of possibilities is endless. The selection of schemata used in a performance could be determined collaboratively. It would be important to vary the ensemble to include more performers from diverse disciplines. Each artist's contributions would bring a whole world of experience and greatly enrich possible outcomes. Image schemata can be used beyond the realms of improvisation and composition and could be considered in installations and interactive artworks, as well.

Image schemata cover one level of understanding. Art works on much more complex levels, combining several simpler schemata to create schemata for many experiences and not just moments in time. Art makes propositions and it is not enough to focus on the non-propositional structures of image schemata. Art makes complex associations and elicits emotions, memories, and new ideas. Studying image schemata is

just a place to start. I will continue my research in cognitive studies in order to learn more

about perception and how we understand and create art, as this understanding in turn

helps the artist create arts with intention.

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APPENDIX A

SCORE OF *THE SOUND OF THE RAIN WILL HEAL YOU*

The Sound of the Rain Will Heal You

(2012)

poem by Janel Spencer

music by Alex Levy
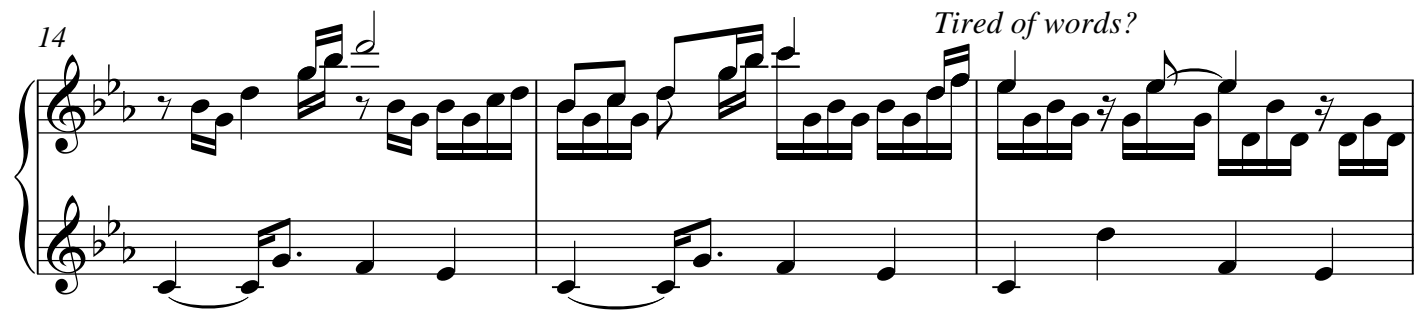
14

Tired of words?

17

Breathe instead.

Let the...

20

...sounds melt into drops of rain.

Let the liquid drip from the page

into not meaning

but imprints of truth.

23

APPENDIX B

DOCUMENTATION OF *COMPOSITION I*

Definitions of Image Schemata in *Composition I*

PULSE – The sensation of a steady beat regardless if there is a musical beat present.

COMPULSION – An impulse from within to perform an action.

VARIATION – A subtle change to an action or to material that came before it.

COUNTERPOINT – A perceived connection between two or more "voices" or performers that may complement or contrast one another.

QUANTITY CHANGE – Any quality that may be modified – whether it is a concept of the temporal, spatial, or some other domain – may be understood as undergoing an INCREASE or DECREASE of that quality. Such qualities include velocity, amplitude, luminosity, and force.

SHIFT – A major change. For example, this can be understood in the physical domain as moving to a different space, or in music as a change of tonality or rhythm.

DISBALANCE – This schema comes from the physical experience of losing balance but it is often used to describe unfavorable psychological states.

SURROUNDED OPPOSING FORCES – This schema is a combination of two schemata: OPPOSING FORCES and CONTAINED. The force of the container interacts with the reactions of the opposing forces.

ATTRACTION – The sensation that two or more performers are coming together physically, or in some other way.

INTERSECTION – The point at which two performers connect physically or in some other way.

LINK – Two or more people are working together.

MATCHING – Two or more different things fit together.

CONTAINED – One of the schemata from the Johnson text. It is the idea that anything can be understood to be within or surrounded by something else.

STILLNESS – Lack of motion.

RELEASE – This is a resolution to the CONTAINED schema and can be understood as a resolution of being CONTAINED and feeling COMPULSION.

FLOWING – This schema calls to mind the image of water and might produce smoother artistic gestures.

CHAOS – Activity with seemingly no relation.

FORMING ORDER – This symbol combines the symbol for CHAOS and a winding path, implying that patterns are being formed as we are prone to do in life.

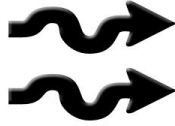SYNCHRONIZATION – Executing like gestures with like timing.

DEVIATION – Similar to VARIATION but implies separation.

DISTANCE – Similar to QUANTITY CHANGE but specifying the spatial domain.
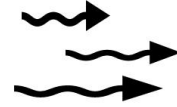
Composition I

Pulse

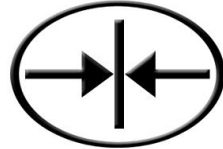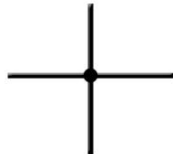Compulsion

Variation

Counterpoint

Increase

Shift

Disbalance

Surrounded Opposing Forces

Attraction
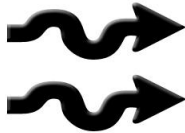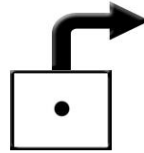
Intersecting

Link
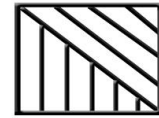
Matching

Stillness

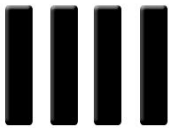Compulsion

Release

Flowing

Increase

Chaos

Forming Order

Decrease

Synchronization

Deviation

Decrease

Distance

Pulse