The Expanding Solo Multi-Percussionist:

The Performing Body Within Music and Beyond

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Abstract

Solo multi-percussion is conventionally defined as a single person playing two or more percussion instruments. It was established as a specialized discipline at the end of the 1950s. In this paper, I argue that it has since developed into a hybrid discipline as composers and performers alike have pushed the technical and expressive boundaries to embrace the acoustic and the electronic, as well as the potential of dance and the dramatic or conceptual. The complex challenges posed by the repertoire are explored under three headings: sonic and physical organization, gesture, and rapid mastery.

The paper then presents the results of three contrasting case studies that document how I have pushed the boundaries of performance practice in my work through different composer collaborations. The case studies are:

1. *Aphasia-Dialogue* (2014) by M. Applebaum (chor. by D. Espinosa)
2. *150pF for body capacitance* (2014) by H. Morales and D. Espinosa
3. *Six Drawings by Randall* (2012) by D. Adamcyk and D. Espinosa

These works expand the solo multi-percussion repertoire. Through the creation of new instruments and techniques, the works also heighten the possibilities of the *performing body* as a multi-faceted instrument that cuts across different artistic disciplines—music, the visual arts, and dance.

Abrègè

La multi-percussion soliste est définie traditionnellement comme une seule personne jouant de deux ou plusieurs instruments à percussion, et c'est à la fin des années 1950 que cette pratique s'est établie en tant que discipline spécifique. Le présent document soutien que la multi-percussion soliste s'est développée comme une discipline hybride sous l'impulsion des compositeurs et interprètes, qui ont fait éclater les frontières techniques et expressives habituelles pour incorporer le medium électronique, tout comme des éléments provenant de la danse, du drame ou de l'art conceptuel.

Le mémoire présent les résultats de trois études de cas qui documentent la manière dont j'ai repoussé les limites de mes propres pratiques d'interprète, grâce à plusieurs collaborations. Ces études de cas sont:

1. *Aphasia-Dialogue* (2014) par M. Applebaum (cor. par D. Espinosa)
2. *150pF for body capacitance* (2014) par H. Morales et D. Espinosa
3. *Six Drawings by Randall* (2012) par D. Adamcyk et D. Espinosa

Ces œuvres élargissent le répertoire de la multi-percussion soliste. Par la création de nouveaux instruments et de nouvelles techniques, elles amplifient les possibilités que présente le *corps performant* à devenir un instrument polyvalent, à la croisée de différentes disciplines artistiques: la musique, les arts visuels et la danse.

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1.1. Definitions of Multi-Percussion

Etymologically, the word percussion derives from the Latin *percutere* (*per* +*quatere*), which means *per* "through" and *quatere* "to strike, shake." [1] Therefore, percussion is conventionally defined as the act of hitting or shaking. Most synonyms of percussion in other languages seem to share the same general meaning. The construction of the Dutch word *slagwerk*[2] however, points more specifically to artistic performance through its compound structure: *slag* meaning "to hit," and "werk" meaning both "to perform" and "an artistic, intellectual, or technical production." [3] In this larger performance context, multi-percussion is typically understood as a sub-discipline in which two or more percussion instruments are played at the same time.

What this definition actually means, however, is constantly evolving as a result of the complex interactions of several factors: an immense instrumental family that continues to grow; diverse problems and challenges posed by composers' ideas and sound explorations; and changes in performance practice resulting from performers' creative contributions as they respond to the vast number of skills, techniques, and compositional developments required to perform multi-percussion repertoire. Today, the actions associated with the traditional conception of percussion have been expanded to include other skills derived from the performing body.

As a performer, I have been actively engaged in the latter, working with composers and through my own performance training to respond to what I consider to be

[1] Douglas Harper, "Online Etymology Dictionary" accessed September 1, 2014. http://www.etymonline.com/index.php?allowed_in_frame=0&search=percussion&searchmode=none
[2] *slagwerk* is a synonym of the Dutch word *percussie*, also used to refer to percussion instruments.
[3] "Translation Dictionary." Accessed September 1, 2014. http://m.interglot.com/nl/en/?q=werk

a characteristic trait of my time: to push the boundaries expanding them for artistic creation. I see this as a way to question myself (physically and intellectually) and the significance of my practice in the environment where I live by performing the resulting pieces in public. Sometimes, this exploration has been motivated by my own technical challenges; other times by the technical and musical challenges of a work. My intuition is what has primarily guided my work in order to understand the new possibilities of solo multi-percussion performance and to question this discipline's limits and bounds.

This paper documents my work through case studies of three compositions: *Aphasia*, *150pf*, and *Six Drawings by Randall*. The paper does not aim to provide a single comprehensive definition of multi-percussion, but to extend the definition to embrace the role of the *performing body* as a multi-faceted instrument that cuts across different artistic disciplines.

1.2. Methodology

The research investigated the expansion of the *performing body* within multi-percussion through the following three-stage process:

First Stage: Developing a New Work

1. Concept: I approached three composers with different backgrounds (Mark Applebaum, Hugo Morales, and David Adamcyk) to share and discuss three different ideas I had to create three contrasting works (e.g., alternative choreography of an existing piece, using my teeth as an instrument, and creating a crossover work between visual art and music performance.
2. Collaboration: My interaction with each composer was approached differently in each case: indirectly with Applebaum (only through an existing score and email correspondence); directly and at a distance with Morales; and exclusively through face-to-face meetings and rehearsals with Adamcyk.
3. Improvisation: In all cases the compositional material was developed through improvisation sessions.

4. Sketches: In each process, radically different kind of sketches were developed (memorized choreographical sketches, musically notated sketches, and video recorded sketches from previous sessions).
5. New Instruments and techniques: The creative research process in each case also involved the development of new instruments, performing techniques, and expressive capabilities.

Second Stage: Performance

1. Evaluation: All works were presented informally to third parties (other composers, advisors, and performers) in order to make improvements.
2. Concerts: All pieces were presented in professional and international festivals.

Third Stage: Evaluation

1. Coaching: After the concerts there was external feedback for each work (advisors, composers, and other performers).
2. Recording: Audio and video recordings of the three works made at the Multimedia Room, Schulich School of Music.
3. Critique: This recorded material was analyzed by myself, each composer, and my colleagues to further improve the arch of the works, and their subsequent performance.

1.3. History

While percussion is amongst the oldest forms of musical expression in history, it has mainly played a supporting role in Western Music, either through rhythmical accompaniment or as a reinforcement of harmonic structures (e.g. rock/pop drum beats, cadence points in Classical Music). Multi-percussion has a long history in non-Western contexts. Two examples that remain relevant today include African "dunun" drumming in Mali and the use of latin timbales in Afro-Cuban music. In "dunun" drumming" a single person plays a drum and a metal percussion instrument at the same time;[4] the two

[4] Eric S. Charry, *Mande Music: Traditional and Modern Music of the Maninka and Mandinka of Western Africa* (University of Chicago Press, 2000), 229.

drums of the latin timbales are played in combination with different cowbells, cymbals, and woodblocks.[5]

Multi-percussion in Western contexts was nurtured and developed in two different ways: for practical reasons (cost-efficiency) and aesthetic reasons (primarily timbral). For practical reasons, percussionists were challenged to execute the job of two or more players when classical and popular orchestras faced financial problems and could only afford paying one percussionist.[6] This issue had an impact on the development of both the classical and popular music domains. Aesthetic reasons related to the role of percussion as a timbral element that provided 'exoticness' in the form of sporadic sound effects, as well as textures built out of the juxtaposition of several percussive rhythmic layers.

In Western Music, Igor Stravinsky's *L'Histoire du Soldat* (1917) is considered a landmark in multi-percussion repertoire. The piece, written for narrator, two actors, and a small orchestra consisting of four different families of instruments grouped in pairs of performers: wood winds (clarinet, fagot), brass (trumpet, trombone), percussion, and strings (violin, double bass). The percussion part requires a single percussionist to play several instruments at the same time: snare drum, bass drum, cymbal, three tuned drums, tambourine, and triangle. This economic use of the single musician was a consequence of the financial difficulties caused by the First World War when traveling with a full musical orchestra was not affordable. The influence of jazz music also played a role,

[5] Daniel Hahnfeld, "Timbales in Cuban Music" (Rotterdam: Codarts University of the Arts, 2009). http://www.oscarvandillen.com/timbales-in-cuban-music/

[6] Benjamin N. Reimer, "Redefining the Role of Drumset Performance in Contemporary Music" (DMus dissertation, McGill University, 2013), 11-12.

according to Stravinsky.[7] This innovative multi-percussion setup also had musical or aesthetic impact: *L'Histoire du Soldat* highlights the percussionist as a "soloist with equal role"[8] to the rest of the ensemble, exploring different timbral combinations across the setup that require playing with different sticks, and displacing repeating rhythmic cells of thematic material over different time signatures. This is most notable in the last movement *Triumphal March of the Devil* where recurrent violin and percussion passages increase in length and material complexity to become the most prominent part of the movement such that the percussionist finishes the whole piece alone. Over the last fourteen bars the percussionist still elaborates solo material previously played by the trumpet at the beginning of the movement (sixteenth triplet rhythms).[9]

The aesthetic impact of this work, including the non-pitched instruments with a relevant musical role, influenced the creation of other pioneering orchestral works written for solo percussionist (playing a multi-percussion setup): Darius Milhaud's *La Creation du Monde* (1923) and *Concerto pour Batterie et Petit Orchestre* (1929).[10]

During the same decade, a seminal chamber music work was conceived: Georges Antheil's *Ballet Mechanique* (1924).[11] Originally written for sixteen player pianos (pianolas), two normal pianos, and a percussion section including such devices as electric bells, propellers, and siren, as well as ordinary percussion like timpani, xylophones, and glockenspiel. The synchronization of the player pianos was impossible to achieve for

[7] Eric W. White, *Stravinsky: The Composer and his Works* (Berkeley, Los Angeles: University of California, 1966), 226-227.
[8] Benjamin N. Reimer, "Redefining the Role of Drumset Performance in Contemporary Music" (DMus dissertation, McGill University, 2013), 11-12.
[9] Igor Stravinsky, "Marche Triomphal du Diable" 1918. In *L'Histoire du Soldat*. (New York: International Music Co. 1960s).
[10] Benjamin N. Reimer, "Redefining the Role of Drumset Performance in Contemporary Music" (DMus dissertation, McGill University, 2013), 11-12.
[11] Paul D. Lehrman, "The Ballet Mechanique Page" http://antheil.org/

many years so the composer revised the piece reducing its instrumentation in 1953. Despite of the technical problems, the conception of this piece influenced the course of percussion music opening the path for percussion ensemble to emerge.

1.3.1. Early Percussion Ensemble

The importance attached to the aesthetic value of percussion instruments and their "exotic" colours gradually gained increased importance in the early twentieth century, actually becoming the driving force of an aesthetic revolution founded, among other historical events, by the Italian Futurist movement. In particular, Luiggi Russolo's manifesto *The Art of Noises* (1913) sought to develop a musical use of noise and invented noise machines (*Intonarumori*) as a necessary alternative to Western Music traditional approaches.[12] These works constituted a historical breakthrough in Western Music because the importance of harmony and melody was overtaken by a new interest in rhythm and timbre as the main musical elements in musical composition.

The first two pieces for percussion ensemble were written between 1929 and 1930, however, in Latin America by Cuban/Spanish violinist and composer Amadeo Roldán. *Rítmicas V* and *VI* are two short works written for a number of Afro-Cuban percussion instruments (claves, cow bells, maracas, jawbone, güiro, bongo, timbales, and marímbula) and two orchestral instruments (timpani and bass drum). The pieces are essentially based on the *clave* rhythm from Afro-Cuban traditional styles, *son* and *rumba*. Even though Roldán's music is not directly identified with the futurist movement, the exclusion of pitched instruments and the focus on rhythm and timbre exploration is

[12] Luigi Russolo, "The Art of Noises" 1913. In *Audio Culture:Readings in Modern Music*. Edited by Christopher Cox and Daniel Warner (New York: Continuum, 2004), 10-14.

notable. In *Rítmicas* there is a strong sense of Western compositional treatment in the metre changes (2/4, 3/8, 2/8, 6/8, and 5/8) and the brief textural passages created through juxtaposing rhythmic polyphonies.[13] What is more, John Richard Hall notes that Roldán's innovative use of Latin American instruments in this modern Western rhythmic context influenced several composers in North America and Europe, including Henry Cowell, Lou Harrison, John Cage, Carlos Chávez, and particularly Edgar Varèse.[14]

In a letter dated February of 1931, Roldán sent Varèse a güiro, two maracas, claves, and a cowbell by post. Varèse included all of these instruments in his work *Ionisation*, premiered in November of 1933 in New York. This work is the third percussion ensemble piece and, although he does not allude to the instruments' Afro-Cuban roots, Varèse departs from the military march rhythms, in which the principal line is played by instruments originally used on the battlefield (e.g. snare drum) that one would otherwise anticipate at this time.[15] Instead, Varèse uses a wide variety of international percussion instruments and a mechanical sound device: Chinese (wood blocks), Turkish (cymbals), Afro-Cuban (güiro, bongos, maracas), European (snare drum), and siren to create a layered texture through colour and resonance alone. This sonic approach is elaborated through Varèse's new aesthetic ideal of music as simply "organized sound" and is closely aligned to the ideas in Russolo's Manifesto.[16]

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[13] Quarter-note triplets against duplet rhythms, triplet rhythms across bar lines, septuplet against duplet rhythms, and eight note quintuplet rhythms against four eight notes spanned across five eighth-note bars.
[14] Varèse described Roldán as: the preeminent composer you have at the present time. We cannot but fully trust in a musician who orchestrates with so few [foreign] influences, who handles percussion with amazing skill and who gives such proofs of temperament. Source: Zoila Gómez, *Amadeo Roldán*. Translated by John Richard Hall. La Habana: Arte y Literatura, 1977.
[15] Edgar Varèse, *Ionisation*, 1931. New York: Colfranc, 1967.
[16] Mark A. Radice, "Futurismo: Its Origins, Context, Repertory, and Influence." In *The Musical Quarterly*. 1-17. Cambridge: Oxford University Press, 1989.

The next major development was in 1937 when John Cage, in his lecture *The Future of Music: Credo*, stated that "percussion music is revolution"[17] and claimed that all sounds and silence could be conceived and treated as music. After this, any object could be considered a percussion instrument; this had serious repercussions on the development of percussion ensemble repertoire, which radically changed the course of music history. The percussion ensemble music by Cage is among the most significant early repertoire. In particular, his three *Constructions* carry out a gradual increase in the number of different instruments played by each percussionist, as opposed to previous works that were based on a single task for each player. Therefore, percussionists were gradually forced to do unprecedented fast changes between a number of different instruments, techniques, and sticks. This was later to have important implications for the birth of solo multi-percussion repertoire.

1.3.2. Solo Multi-Percussion Repertoire

In 1956, Cage conceived the first piece of solo multi-percussion repertoire – *27′ 10.554″ for a percussionist*. This work presented diverse and difficult challenges, such as integrating a setup consisting of four groups of instruments (combining acoustic percussion and devices such as radios, whistles, electromagnetic tape, etc). Another challenge was to choose between three different ways to perform the piece: acoustically, electroacoustically (including fragments of prerecorded performance of the piece or any other sound generator), or as a complete prerecorded performance played in any media available as fixed sound. [18]

[17] John Cage, *Silence*. (Middletown CT: Wesleyan University Press, 1961), 4-5.
[18] John Cage, *27′ 10.554″ for a percussionist* (New York: Henmar Press, 1960).

As the first multi-percussion solo – as well as embracing a hybrid[19] setup, and different performance possibilities – this work is a revolutionary statements that is often underestimated and has not received fair recognition yet. It is not surprising that *27′ 10.554″* was not premiered for another six years; when it was performed in 1962 by percussionist Siegfried Rockstroh (with Mauricio Kagel operating the prerecorded electromagnetic tape) it was in a reduced version where some parts of the piece were prerecorded and played live against an acoustic performance about a fourth of the work's original length. For this reason Rockstroh renamed his version: *7′ 7.614″*. The premiere of the original version of *27′ 10.554″* did not take place for another two years, eight years after its conception, when it was performed by Max Neuhaus at Carnegie Hall, in 1964.[20] So while Cage's work was the first piece composed for solo multi-percussion, the first piece to be heard by an audience was *Zyklus* written by Karlheinz Stockhausen in 1959 and premiered by German percussionist Christoph Caskel during the summer of the same year. These two works mark the point of departure for solo multi-percussion performance practice. Both of these works will be discussed in detail below.

1.4. Principles for Multi-Percussion Performance

After having studied several solo works and attended live concerts of the most significant pieces in the repertoire, I have identified three principles regarding multi-percussion performance. These principles underline the essence of what players actually

[19] In general hybrid is defined as the combination of two or more components. In this case it refers to acoustic and electronic devices.
[20] David W. Bernstein, *The Ten Thousand Things* (Micro Fest Records, 2014). http://microfestrecords.com/10000-things-notes/

do on stage and – through their highly developed *system of knowledge acquisition*[21] – while learning a piece. The three principles are: Sonic and Physical Organization, Gesture, and Rapid Mastery.

1.4.1. Sonic and Physical Organization

Sonic and physical organization refers to the critical decisions a performer makes that have direct consequences on the technical and expressive possibilities of each particular configuration of instruments. According to the needs of each musical score, the player organizes each setup as a palette of sounds based on specific characteristics of each instrument, such as timbre and dynamics. Decisions based on sonic organization are intertwined with the available combinations of mallets, sticks, beaters, and any other device or technique required for the performance of each piece. The size of each instrument and disposition in space are critical for physical organization because these parameters define how accessible the instruments are. This becomes particularly important when the dimensions of certain setups or performance spaces do not allow for all the instruments to be reached by the performer from a single position. This space determines which instruments can be combined simultaneously in easier ways and also how the performer can move or walk between instruments when it may not be possible to combine them simultaneously. Since these and other aspects are particular to each musical score in a concert program in a particular performance space, players are required to carefully plan their setups' architecture.

[21] Steven Schick, *Steven Schick: Solo*. Program Notes, Miller Theatre, NY 2014.

1.4.2. Gesture

Multi-percussion performance may be the most physically demanding of all musical instruments, given its technical and instrumental variety. Its performance involves employing various learned physical gestures over time, as dictated by the particular sound production techniques of an instrument, its location in a setup, and musical expression. Actions serving to stop a sound are also visible to the audience, e.g. holding a cymbal after hitting it until it stops sounding and the releasing it. This can be contrasted with singers or other instrumentalists, who only need only stop an action in order to create silence, e.g. bowing or blowing.

The performer must also move between instruments. Multi-percussionists, consequently, develop a series of gestures and movements to transmit the sensation of musical phrasing, unity and separation or sound articulation between the instruments they play in a given setup. This is of extreme importance given that there is no other musical discipline that involves more instruments, techniques, and therefore physical actions than multi-percussion. In other words, it is the multi-percussionists' expressive gestures that ultimately integrate the widest instrumental diversity. Even though these movements are not technically necessary, they constitute a significant part of the language by which the audience perceives the player's musicality, touch, and performance style. In short, the principle of gesture encompasses coordination, independence, musical expression, and dramatic mastery through performers' gestures. I refer to this set of abilities as *gestural mastery*.

1.4.3. Rapid Mastery

Multi-percussionists must learn to perform on different instruments and notational systems in virtually every piece. This involves quickly adapting physical actions to new notations and different instrumental assemblages without prior reference. Often this learning process involves unlearning previous notational systems since they might use the same symbols to express different sounds and techniques on the same or radically different instruments, e.g. the same X sign might be a 'slap' hand drum technique, playing a conventional cymbal, or damping a vibraphone bar with a mallet depending on the notational system.

Rapid mastery is also required because of the constant confrontation with new instruments and innovative techniques that is the by-product of composers and performers alike constantly pushing the boundaries. These confrontations imply unknown territories and situations where players develop intellectual and intuitive[22] knowledge that accumulates as experience, e.g., instinctively players extrapolate techniques from known to unknown instruments to search and produce a desired effect. Multi-percussionists, consequently, develop a particularly sophisticated sense of – and ear for – timbre and dynamics. Not only does multi-percussion performance have the widest dynamic range of all acoustic instruments, but its timbral possibilities are also virtually infinite considering all the conceivable combinations of objects, instruments, sticks, and techniques involved.

[22] Intuition is defined by the Oxford dictionary as "the ability to understand something instinctively, without the need for conscious reasoning." http://www.oxforddictionaries.com/definition/english/intuition

1.5. The Foundations of Multi-Percussion Performance Practice

1.5.1. *Zyklus* (1959) by Karlheinz Stockhausen

As mentioned before, the premiere of *Zyklus* marked the beginning of multi-percussion performance practice. Its particular significance may be defined as three-fold. First, the score set unprecedented demands, asking for specific pitches on log drums, cowbells, and tom-toms based on the same groups of notes and intervals (tri-tones and fourths). Second, the score has no page numbers. It consists of sixteen "spiral-bound" sheets of paper written in a way that the notation can be read either right-side up or up-side down. The performer can decide to start the piece on any note and on any page. He or she may also choose to turn the pages either to the right or left, with the condition that the direction must be kept for the rest of the performance. This determines the direction the player will turn within the setup during the performance. As the title indicates, the performance ends when the player reaches the starting note once again, creating a complete cycle of the score after turning 360 degrees.

The decisions the performer makes in terms of sonic and physical organization are, consequently, critical. The work was the first multi-percussion work to ever prescribe a specific setup by the composer. The diagram (Figure 1-1) showing the position of the twenty percussion instruments almost treats the instruments more like exchangeable tools than fixed instruments.[23]

[23] Steven Schick, *The Percussionist's Art: Same Bed, Different Dreams* (University of NY: Rochester Press 2009), 7.

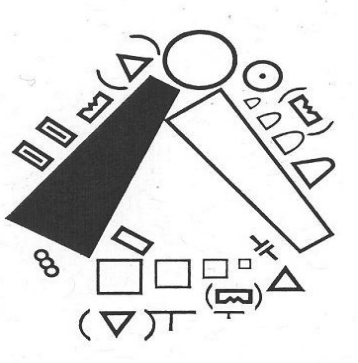


Figure 1-1: Setup diagram.
Excerpt from *Zyklus*

The circular form of the work means that the exact setup is rarely followed precisely. The decision-making is further tied to the performer's expressive decisions regarding gestures. The notation is a combination of traditional, custom graphic and proportional notations. Dynamics are expressed graphically – the thicker a dot or a line is, the louder it is played and vice versa. There is no traditional rhythmic notation; instead, the distance between each dot or line must be interpreted as the time between each event. Gestures become an important way of connecting patterns and making musical sense of the notation.

Third, the performer must play something of a compositional role before he or she can undertake the practicing and performing of the piece. In *Zyklus*, the performer organizes sections and phrases of the piece from previously-constructed material. There are eight "notated structure types expressing various degrees of indeterminacy and freedom."[24] These structures consist of different custom symbols with different loose dots or groups of notes that leave several options for the performer to consider before the performance. The first structure (Figure 1-2) is a "continuous measure stave" written

[24] Michael B. Williams, "*Stockhausen: Nr. 9 Zyklus.*" In *Percussive Notes*, vol. 39, no. 3, 2011.

mostly at the center of each page. This serves as a visual reference to interpret the placement of each sound on time.

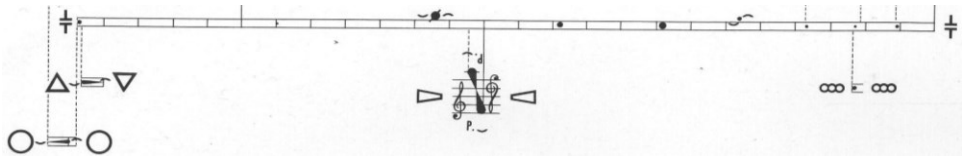


Figure 1-2: First structure: Fixed material to the *time-scale* or *continuous measure stave*. Excerpt from *Zyklus*

The other structures (some of which are shown in Figures 3a and 3b) leave gradually more freedom to the performer, e.g choosing one option among a number of bracketed boxes or choosing the order of given events.

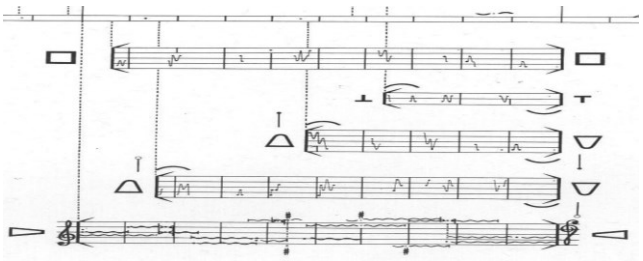


Figure 1-3 a: Second structure: Bracketed bars Excerpt from *Zyklus*

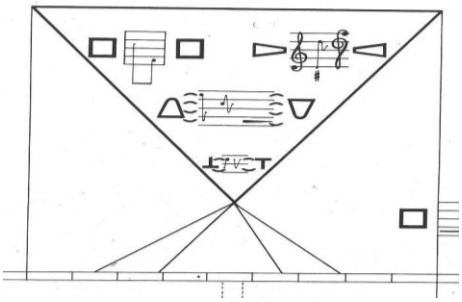


Figure 1-3 b: Third structure: Triangular structure. Excerpt from *Zyklus*

The performer's decisions affect the inner architecture of the composition by organizing sounds in time. In the same way, these choices have drastic implications on the specific gestures realized in time and space.

1.5.2. *27' 10.554"* (1956) by John Cage

This work is the last piece of Cage's 'classic' chance composition period characterized by his use of the Chinese oracle *I Ching* to generate 'non-egocentric'

compositional decisions. It is also the last part of a series of solo pieces for strings, piano, and magnetic tape called *The Ten Thousand Things*. (1953-56). These works can be played separately, superimposed on top of each other, or on top of parts of the same work.

As a multi-percussion work, the score of *27'10.554"* asks the performer to determine an "exhaustive rather than conventional"[25] choice of instruments, sticks, and effects to play according to the following classification: metal (M), wood (W), skin (S), and all others (A), referring to other types of sound source, such as whistles, radios, mechanical, electronic devices, etc. The number of instruments is left to the performer's discretion. The work can be performed in different versions: acoustic, electro-acoustic, or prerecorded tape alone. There is no electronic part provided with the score; it is the performer's task to prepare it if a version requiring it is chosen. The pre-recorded material can consist of some of the instrumental parts, the whole score, or sounds from other sources.

Before the performer can make decisions regarding sonic and physical organization, the performer must engage in considerable experimentation and exploration to understand the form and musical intent of the work. The score is divided into five sections, each of which is further divided into parts that can be removed, played separately, played simultaneously with another part of the piece, or even with another piece of the series *The Ten Thousand Things.* Like most of Cage's works of the time, each page represents one minute, with four systems per page (see Figure 1-5). One inch on a system represents one second. In the example below, there are four systems to this page and each system represents fifteen seconds of music. Each instrumental family has its

[25] John Cage, *27'10.554" for a percussionist* (New York: Henmar Press, 1960).

own horizontal line. When a note falls precisely on the line, it represents *mf*. The other dynamics are interpreted vertically (e.g. above the line meaning louder).

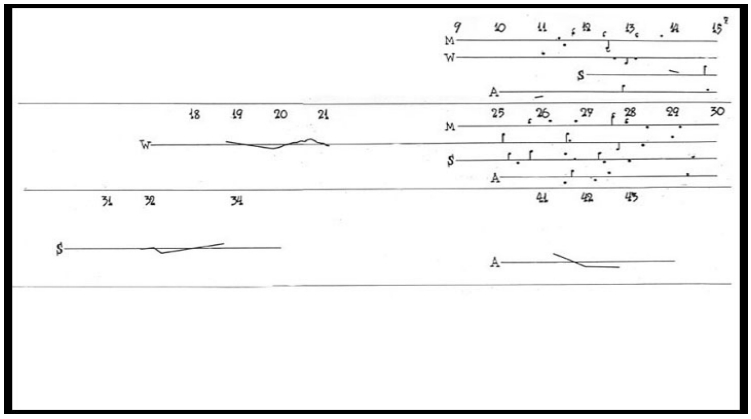


Figure 1-4: Excerpt from *27'10.554"for a percussionist*[26]

All of the possibilities and responsibilities left to the performer's discretion expand the realm of performance practice exploration even more than *Zyklus*. Each parameter and their inter-connections pose new creative, intellectual, and technical challenges for making decisions about material organization and technique development to enable building an instrumental assemblage that can be performed as a musical unity. There are infinite possibilities for the performance of this piece. Depending on the instruments used, the decision-making alone can become extremely difficult, even before one considers acquiring the performance technique to realize the result. Cage was aware of this and, for this reason, included the option of pre-recording parts of the performance to use them if necessary or desired.

27'10.554" for a percussionist was premiered as an electro-acoustic version using tape recordings for the electronic part.[27] This foreshadowed how important percussion would become to electroacoustic music in the future, in part because both electronic and

[26] John Cage, *27'10.554" for a percussionist* (New York: Henmar Press, 1960).
[27] Argentinian composer Mauricio Kagel performed the electronic part in the premiere.

percussion music contain abundant instrumental and technical possibilities for sound exploration. It also reflected the debt solo multi-percussion music had to Russolo's *Art of Noises* manifesto and Cage's earlier *Future of Music: Credo*. In the latter, Cage specifically considered percussion music to be *a contemporary transition from keyboard-influenced music to the all-sound music of the future*.[28]

It is, thus, of major historical relevance that *27' 10.554" for a percussionist* was the first composition for percussion as a stand-alone instrument to include the possibilities of acoustic, electro-acoustic, and tape versions of presentation. While often either underestimated or forgotten, the work shows that from the outset solo multi-percussion literature was conceived as a multi-optional platform that highlights the in depth later in this paper.

1.5.3. *The King of Denmark* (1964) by Morton Feldman

This work is considered to be the third notated major multi-percussion solo in history. The score prescribes that all sounds should be played at an extremely low and equal dynamic level throughout, without mallets or sticks. Instead, the 'performer may use fingers, hand, or any part of his arm.'[29] This was an unconventional use of the body within the multi-percussion field, as well as an innovative approach to instruments, such as vibraphone, timpani, cymbals, and bells. It is the first multi-percussion solo repertoire with such specifications.

The instrumentation and notation are similar to Cage's *27'10"* in the sense that the score is a graphic score for open instrumentation. However, the given parameters are

[28] John Cage, *Silence*. (Middletown CT: Wesleyan University Press, 1961), 4-5.
[29] Morton Feldman, *The King of Denmark*. (London: Peters Editions, 1962).

different. The percussionist decides which instruments to play from the following options: B (Bell like sounds), S (Skin instruments), C (Cymbal), and G (Gong). In addition, there are four specified instruments: vibraphone, triangle, timpani, and one note on glockenspiel or antique cymbal. Besides these, each group of events needs a specific timbral and physical combination of instruments in order to be reached, e.g., clusters involving sounds in low, middle, and high registers need three instruments with different registers close enough so that they can be played simultaneously with hands/arms. Since the groups of events do not repeat, this logical condition necessitates a different configuration of instruments for every part of the score. Therefore, setups tend to be quite large in order to cover all the specific necessities of the six-minute piece.

Decisions about sonic and physical organization are also complicated by the opaqueness of the score. It does not define musical materials or ideas; rather, it is designed to roughly control the amount of activity and the register of each sonic event. Register is divided vertically into very low, low, middle, high, and very high registers. The horizontal axis has a graphic time reference consisting of a grid with three parallel rows of forty-six equal squares called "time units".[30] Consequently, the player moves frequently from one instrument to the other, which makes each performance of *The King of Denmark* a unique version of the piece, for each setup and its respective physical performance might be drastically different.

There is also no traditional rhythmic notation; instead, the amount of activity and duration of sounds is used to roughly define the speed and grouping of sonic events. The amount of activity is expressed in two different ways: *Roman numerals* (I, II, III, IV, etc.) indicating simultaneous sounds and *Arabic numerals* (1, 2, 3, 4, etc.) indicating single

[30] Morton Feldman, *The King of Denmark* (London: Peters Editions, 1962).

sounds, as seen in Figure 1-6. Sometimes, *Roman* and *Arabic numerals* are written on top of each other resulting on virtuosic, dense moments.

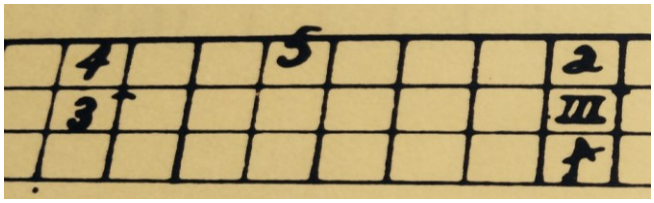


Figure 1-5: Excerpt from *The King of Denmark.* Sixth system[31]

The duration of the sounds is expressed in three ways: undefined, defined or short. Undefined duration is written with slurs indicating *laisser vibrer*, using the natural resonance of the respective instrument. Defined duration sounds are sustained according to the length of a horizontal broken line across the time units, and the sounds that have neither slur nor horizontal broken line are implicitly shorter. Tempo is specified at MM 66-92 per time unit, but no pulse is perceived throughout the performance of the piece, all sonic events can be placed at any point within the given time units.

The work opened up new possibilities for how to approach percussion technique. Traditionally, percussion performance involves a "hitting and shaking" technique and choosing the right stick for the right instrument according to the desired sonic result. In *King of Denmark*, achieving a homogeneously soft dynamic level requires constant compensation when going from one instrument to the next, and even more when playing simultaneous instruments with only hands and arms. In order to master the delicate volume balance amongst the instruments, the player must strictly plan the setup and the execution of every bar. The apparent simplicity derives into complex planning and performance, ultimately requiring a completely innovative approach and presents a novel

[31] Morton Feldman, *The King of Denmark* (London: Peters Editions, 1962).

challenge for the performer, whose own capacity for touch control and gestural articulation sustains the unity of the composition.

Chapter 2. *Aphasia*

This chapter will demonstrate which place *Aphasia*, by composer Mark Applebaum, occupies in the historical evolution of solo multi-percussion performance and the impact of this piece on my own practice and creativity.

2.1. Applebaum's Venture Into Choreography

The first time that composer Mark Applebaum ventured into choreography was when he wrote *Tlön* (1995),[32] a graphically-notated piece for three conductors and no players. This work questions the boundaries of music and gesture by challenging three performers to conduct simultaneously three soundless pieces. The performers face the audience, as if there were three different imaginary ensembles placed in the hall. Most of the performers' movements are independent, but occasionally they have to synchronize their downbeats. No sound is ever heard: only hand and arm conducting-like gestures are seen. In some sections performers are challenged to move their arms at independent speeds. After writing *Tlön* the composer stated "in sign language one apprehends that loudness is as much an emotional and physical condition as it is one measured in decibels."[33]

Applebaum's second work involving choreography was *Straitjacket* (2009), for percussion solo and percussion quartet. *Straitjacket* was commissioned by the Banff Centre for the Roots and Rhizomes Percussion Residency (dir. Steven Schick). The composer, intrigued by what to "write for a percussionist [Schick] who has done

[32] Mark Applebaum, *Tlön*, 1995.
[33] Mark Applebaum. Composer's website. Accessed, September 1, 2014. http://www.markapplebaum.com/acoustic.html

everything,"[34] focused on setting up specific performance constraints that aimed to expand the "domain of musical experience."[35] This is reflected in the second movement's title, *Isopangram*, a writing technique consisting of a phrase that uses all of the alphabet letters only once.[36] In this movement the soloist sits on a chair at the center of the stage and executes several arm and hand gestures independent of any traditional percussion instruction, but synchronized with sounds played on percussion instruments by the members of the quartet. This exploration of the "ontological pressure on the boundary conditions of the [percussion] medium itself"[37] is aligned with the nature of the current research project – to question and expand the limits of multi-percussion performance practice.

Applebaum's *Aphasia* (2010) is a direct development of *Tlön* and *Straitjacket*. A nine-minute work originally written for singer and tape, *Aphasia* is "essentially a choreographed dance work"[38] where instead of making sound, the performer executes a series of hand and arm gestures synchronized with fixed sounds while seated on a chair with an expressionless face. The main development from the previous choreographed works is the heightened rhythmic and physical complexity involved in its performance. This development builds on a variety of earlier explorations in synchronized gestures that required new ways of thinking about synchronization and musical notations. Kagel's *l'Art Bruit* (1995),[39] for example, requires the soloist to have an assistant to perform mute synchronized gestures against a recording of what the soloist had just performed. For

[34] Mark Applebaum, *Straitjacket*, 2009.
[35] Ibid.
[36] Wikipedia. "Logology," accessed, September 1, 2014. http://en.wikipedia.org/wiki/Logology
[37] Mark Applebaum, *Straitjacket*, 2009.
[38] Mark Applebaum, *Aphasia*, 2010.
[39] Mauricio Kagel, *l'Art Bruit* (Frankfurt: Peters Editions Ltd., 1998).

thirty years, Thierry de Mey has been building on new notational developments intended to give as much attention and specificity to the gestures as the sounds.[40] Works in this vein include *Hands* (1983) music for two hands and a choreography of two dancers by Wim Vandekeybus; *Musique de Tables* (1987) for three percussionists' hands; the duo version of *Silence must be!* (2002) for solo conductor and tape (in which the second percussionist plays the tape part); and *Light Music* (2004 recently revised) for hands and live video project using motion captive sensors.[41]

The early works *Tlön* and *Light Music* remind us that musical conducting consists of soundless gestures synchronized with live produced sound.[42] They demonstrate the implicit connection between music and movement in a chamber music setting, where a solo performer provides emotion and rhythmic precision through her or his silent gestures. *Aphasia* further develops that specific characteristic in a reversed with the solo performer being required to adjust to the sound.

2.2. Intention and Impact

The term *aphasia* is used to describe the condition of a person who loses his or her capacity to express thoughts orally. In the context of the piece the performer interprets the un-intelligible physical gestures synchronized with un-intelligible guttural sounds representing the communication struggle caused by the aphasia disorder. This would explain why the composer has dictated in the score that gestures should appear to

[40] Other examples include Dieter Schnebels' *Nostalgie* (1962)–based on his concept *Visual Music* and Michel van der Aa's work *Wake* (1997). The latter is essentially a "virtual cannon" between two percussionists with identical setups, where the first player produces sounds and the second only executes the playing gestures without ever producing a single sound.
[41] Forum des Compositeurs, "Thierry de Mey"
http://www.compositeurs.be/en/compositeurs/thierry_de_mey/47/
[42] Conductors also provide gestures that are not synchronized with sound like keeping tempo, stopping sound, and other cues.

be independent from the rest of the body. There is a clear intention that the hand gestures should be connected with the sounds of the tape and disconnected from the expressive gestures of other parts of the performer's body, including the face. Applebaum says that "histrionic or theatric components (beyond the admittedly stylized blankness) are unnecessary and unwelcome; the piece's expressivity resides in the very straightforwardness of the gestures themselves."[43]

The two main challenges in *Aphasia* are to achieve perfect synchrony with the tape and to memorize all gestures. First, the score specifies that "the hand gestures must be precisely synchronized with the sound, the illusion being that the gestures cause the sound or vice versa."[44] The impact of synchronization is the unification of the performing body and the sounds unify. Second, the composer asks for the piece to be played by heart because the sound-gestures should be perceived as coming out directly from the performer. In fact, the appearance of reading a score in the context of this work would unavoidably deviate from the goal of *Aphasia* – the player would not appear as a person with a disorder trying to express inner ideas, but rather as a person performing to a script.

2.3. Tape Part

The pre-recorded electronic part (a.k.a. tape part) consists of "transformed vocal samples sung by Nicholas Isherwood," [45] to whom the work is dedicated. The resulting transformation of the samples is perceived as meaningless invented words and textural sounds. The majority of the fixed part constitutes a constant interruption of the samples without the establishment of a clear or conventional narrative. There are almost no

[43] Mark Applebaum, *Aphasia*, 2010.
[44] Ibid.
[45] Ibid.

perceivable repetitions of the samples and there is no stable rhythmic pulse or accompaniment that provides an easy source of reference for the performer. Instead, a strong collage-like impression dominates most of the tape. The tape part was composed first and, even though Applebaum had most of the gestures in mind, the actual choreography was designed and written afterwards.

2.4. Music Notation

The notation of *Aphasia* is designed to make the rhythmic, tempo, and synchronization challenges between right and left hands, soloist and tape easily accessible. First, each system of the score includes five lines: left hand, both hands, right hand, the resulting rhythm of hands and tape together, and a graphic notation of the tape (Figure 1). This allows the work to be seen from multiple perspectives (tape, gestures, and the relation between the two) at any given moment. In addition, each gesture has a corresponding syllable forming a distinctive musical motive in the sound recording. For example, a sound that is synchronized with the gesture *Post-It Note* on bars 27-29 has been notated with the syllables *O BA BUM M* underneath (Figure 2-1).

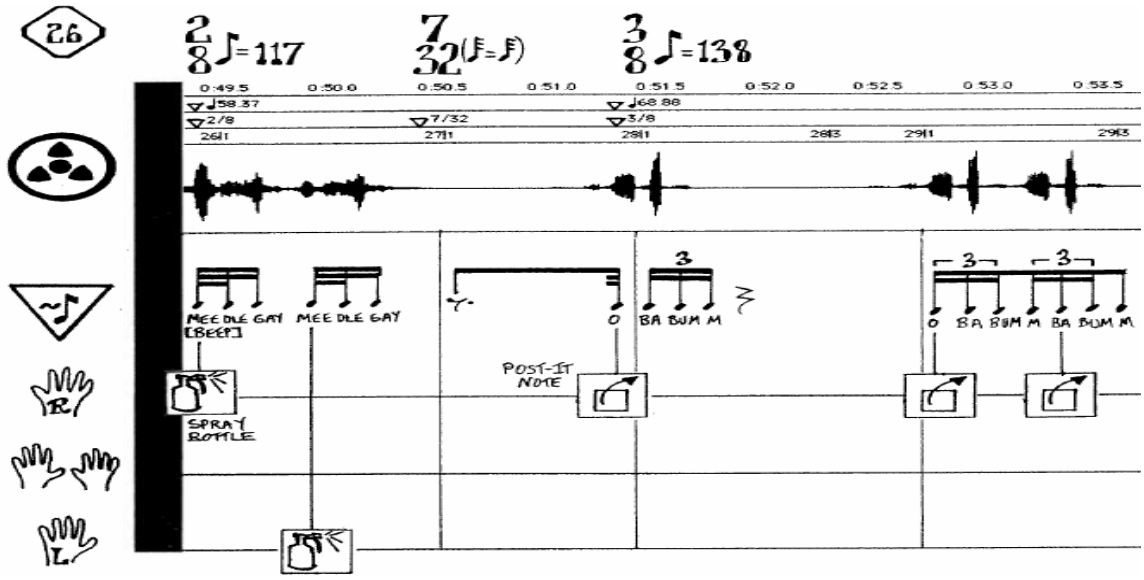


Figure 2-1: Five lines of the score: left hand, both hands, right hand, the resulting rhythm of hands and tape together, and a graphic notation of the tape. Synchronization or rhythms and syllables *O BA BUM M.* Excerpt from *Aphasia'*s score, bars 26-29

This is particularly important since the score has a total of 235 bars and 105 tempo changes spread approximately every two bars (as seen in the Figure 2-1 above). This actually makes the tempo changes more complex and challenging than the notated rhythms, which are not an exact transcription of the tape's rhythm, but a simple approximate guide to the flow of the piece. In fact, the composer made a point of notating rhythmic figures consisting only of quarter note up to sixteen-note sextuplets so that the score would look accessible since having many slight tempo changes – often reflecting only a minor variations in speed – notated with rhythmic precision would look extremely complex. Thus, the notational approach emphasizes how the piece should be performed rather than showing how it is composed. The next Figure below shows eight tempo changes within nine bars of the piece:

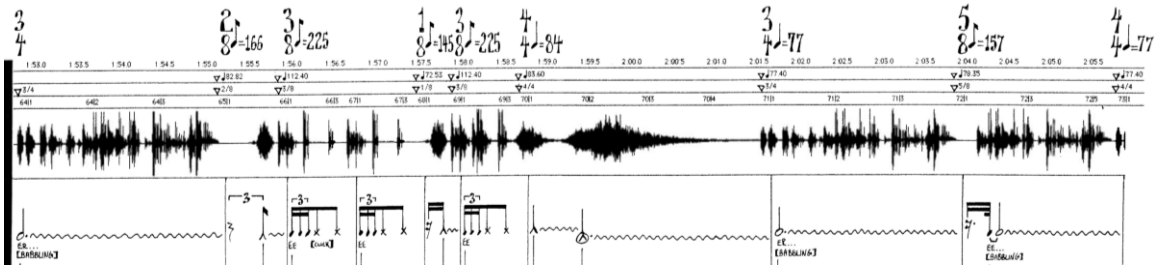


Figure 2-2: Tempo changes between bars 64-72. Excerpt from *Aphasia*'s score

In the same vein, Applebaum's notations also uses 122 invented pictographs. Accompanied by detailed explanations in an appendix at the end of the score, these signs represent a specific hand/arm action associated with everyday gestures, for example *fasten your seat belt* as shown below:

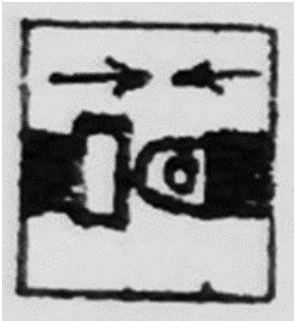


Figure 2-3: Fasten Seatbelt pictograph and its explanation: 'the two sides of an imagined airplane lap belt are held at both sides of the lower torso slightly cupped hands with palms facing the body and are then joined together by moving the hands horizontally across the gut toward one another until the index fingers and thumbs of one hand touch the index fingers and thumbs of the other.'[46] Excerpt from *Aphasia*'s score

The descriptions are provided to facilitate a visualization of each gesture. The performance should not communicate any association with the descriptions. Instead,

46 Mark Applebaum, *Aphasia*, 2010.

gestures should be perceived as "a kind of invented non-sense sign language" as the composer says.[47]

Despite Applebaum's efforts to make the score accessible, the work remains very demanding. In fact, the performance challenges become part of the intentionality–the unnatural physical and intellectual independence required to perform quick hand/arm movements while projecting an expressionless face as a neutral performance. This is what ultimately conveys the essence of the work.

2.5. Performing *Aphasia*

Nicholas Isherwood, the singer for whom the piece was written for and who sang the transformed sounds of the tape, is reported to have described the piece as impossible. He therefore performed improvised gestures against the tape part.[48] Applebaum subsequently learned the work in order to prove that it was possible and posted a video of his performance online.[49] To date, he is one of the few non-percussionists to play the piece and despite the fact that he composed *Aphasia* within a year, it took him an additional four months to practice and memorize it for performance.[50] *Aphasia* is very difficult to learn and perform even when one knows its notation system very well.

The tradition of multi-percussion performance, on any instrument, involves physical actions that produce sound. A successful performance of *Aphasia* deliberately

[47] Mark Applebaum, "Aphasia: AStanford music professor's work, with hand gestures and odd sounds, about obsessive attention to ridiculous things" *Stanford News*, 2012. Accessed on September 1, 2014. http://humanexperience.stanford.edu/aphasiaapplebaum

[48] Mark Applebaum, e-mail message to author, February 14th, 2014. The composer ultimately renamed Isherwood's version of the piece as *Aphasia- Dialect* because he did not follow the main indications of synchronization and non-expression in his performances.

[49] Mark Applebaum, "Aphasia," 2011. Composer's performance video recording, accessed September 1, 2014. https://www.youtube.com/watch?v=wWt1qh67EnA

[50] Mark Applebaum, e-mail message to author, July 25th, 2014.

challenges this convention, because the intention is for the audience to perceive the same connection between sound and physical gesture, even though none actually exists.

Upon attending performances of this work after I myself had "played" the piece and finding myself believing the illusion, I came to understand that the success of *Aphasia* is not a matter of an audience ignoring the real origin of the sounds heard; rather, the success of this work relies exclusively on the performer's ability to convincingly convey the illusion of live performance through her or his gestural abilities.[51]

Aphasia is a dramatic work in the sense that the performer, like an actor in a play, must make an audience believe an illusion. This coordinating task of independence involves a dramatic use of the body language – here the instrument is the performing body itself, rather than an extension of it.

In order to achieve perfect synchronization with the tape part, the performer must coordinate with the frequent tempo adjustments.[52] Given that the tempo markings were determined after the tape was constructed on the basis of the speed of the vocal sounds, performers must become familiar with the intricate rhythms of the fixed sounds and memorize them at the notated tempos in relationship to their own bodies. Synchronization is further challenged by the absence of clear rhythmic references or tempo cues within the tape part.

[51] This is a contrast with *Straitjacket* and *Tlön* where the success relies on chamber music precision and coordination.

[52] "These were only assessed after the tape was created for the purpose of a score, so they are notated as a guide rather than a precisely calculated." Mark Applebaum, e-mail message to author, February 14th, 2014.

2.6. Expanding Percussion Technique

> [I am] *normally much less interested in a sound than... in the significance of a sound– in the way that a sound generates impact as the sonic extension of meaningful thoughts and actions.*[53]
>
> *S. Schick*

Live performance is a medium (aural and visual) that informs the audience about what, why, and how a person is expressing meaningful thoughts through physical actions. One could argue that *Aphasia* is not a music performance piece because the player does not produce any sound during the whole work. This would automatically exclude it from the percussion music category. The performance history of *Aphasia*, however, has unmistakably demonstrated the contrary. So far the piece has only been performed by musicians and the great majority of them are multi-percussionists. The reasons why *Aphasia* has been embraced as a significant work of solo multi-percussion repertoire are:

- the temporal capacity of percussionists
- the gestural mastery (coordination, independence, musical expression, and dramatic body language)

As discussed in Chapter 1, the multi-percussion principle of *gesture* involves a variety of body movements. Some are soundless gestures between the instruments they play to transmit the sensation of musical phrasing, unity and articulation. In the same way, in *Aphasia* all soundless gestures influence the perception of what is heard and seen.

We have discussed similarities between acting and performing in *Aphasia* where the ultimate goal is to create an illusion of unifying sound and gesture.

In this chapter we have seen that previous works by Applebaum and de Mey use choreographed hand and arm gestures as their main medium. Since *Aphasia*– "essentially

[53] Steven Schick, *The Percussionist's Art: Same Bed, Different Dreams* (University of NY: Rochester Press, 2009).

a choreographed dance work"[54]– proposes a similar situation demanding more rhythmic and gestural virtuosity, it has naturally occupied a subsequent place within (but not exclusively)[55] the evolution of solo multi-percussion performance by expanding the discipline towards the category of dance.

2.7. Humor and Critical Approach

There is also an inherent aspect of healthy criticism and parody in the work of Applebaum. In my opinion *Aphasia* mocks pieces that prioritize the use of "high technology" over their aesthetic goals, performance practicality, and robustness, for example works that employ movement and light sensors that take hours to set up. In this sense, *Aphasia* is as robust as an electronic piece can be at the expense of leaving total responsibility to the performer, who must integrate the electronic and live aspect with his or her execution. *Aphasia* might as well be understood as a critique of the devaluation of music performance where some artists pretend to be singing/playing in front of an audience technically known as *playback*, and popularly called *lip-syncing*. This technique has been used extensively, and to a certain extent accepted, within the pop scene. This conception of the performer as critic is underlined by the fact that the work was written for a singer using recordings of his voice that are modified sometimes to the point where their original source is unrecognizable. *Aphasia* could be thought as a twisted and inverted case of *playback* where the singer's voice is perfectly in sync with the live gestures, although the sonic result is clearly not what a "playback music audience" would expect.

[54] Mark Applebaum, *Aphasia*, 2010.
[55] The performance of this piece is not exclusive to multi-percussionists. However, today the statistics of its performance practice situate multi-percussionists as the main performers of this work.

2.8. Creating Espinosa's Version

2.8.1. Motivation

The score indicates that ″a variant of the work –in which hand gestures are improvised to the tape–should be presented under the title *Aphasia–Dialect.*″[56] I first learned the original version of *Aphasia* for my second doctoral recital at Pollack Hall, McGill. Then I watched the video of that performance and decided to create my own fixed choreography through an improvisation-memorization process, rather than of improvising gestures live. Although the option was made possible initially by the composer because of Isherwood's initiative to improvise instead of following the written choreography, the process itself focuses attention on the essence of the work: the fixed sound and its synchronization with the respective choreography,[57] especially given that each player must adapt and discover the movements of his or her own body.

2.8.2. Improvisation

Before starting the custom choreography process I knew that I wanted my hands and arms to be able to provide the feeling of being independent from each other when necessary. The idea behind this was to use the contrast in movement, gestural quality and speed of motion of each limb to obtain the widest variety of details that would reflect the inner diversity of the fixed sounds. The independence of movement and speed was maintained throughout both the physical preparation of each gesture (that happens milliseconds before) and during its deconstruction when I returned to the initial position– sitting with the palm of each of my hands facing down on my lap. In addition to starting

[56] Mark Applebaum, *Aphasia*, 2010.
[57] Weather gestures are improvised, notated, or memorized when inventing them.

gestures in contrasting ways, I chose the size of the gesture proportionally to the dynamics – that is the louder the sound gets, the larger the gesture I perform. I broke the pattern, as will be discussed later, only near the end of the work for narrative reasons.

Gestures were developed by improvising in front of a mirror in a way that demanded memorization of what was originally a spontaneous composition. I worked both on isolated movements and on short phrases depending on the density of each section of the tape without notes or use of video. First I would hear the tape and memorize a sound sequence. This would allow me to try different options without sound and to slow down the phrase or stop at any point to try different gestural combinations. This approach forced me to focus my listening and to make choices without recourse to notation or video, while still allowing me the flexibility and time to adapt to the different complexities and tempo challenges of the tape part as necessary.

Pictographs were interpreted through a vocabulary of my own that brought out my previous training as a dancer (release and contact techniques), as well as influences from the inherent sharpness of *break dance*, *hip hop*, and *tutting* styles (Figure 2-3). This served as a platform to explore imagined gestures and discover new possibilities that would fit the fixed sounds.

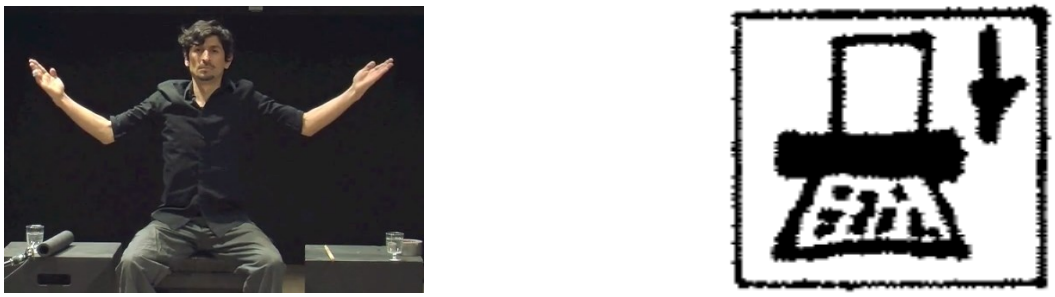
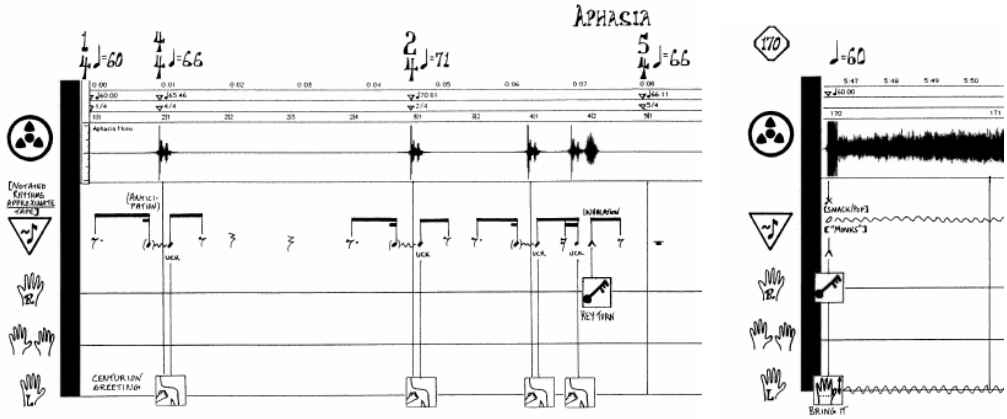


Figure 2-4: Gesture inspired by *break dance* and synchronized with *Type Writer* pictograph. Video excerpt from live performance (1'47")[58]

[58] Diego Espinosa, "Diego Espinosa performs Aphasia-Dialogue," live performance video, Tanna Schulich Hall, McGill University, May 22, 2014. https://vimeo.com/104186713

Once a gesture was defined and assigned to a specific sound at the normal speed, I proceeded to integrate it with the preceding gestures. Gestures were mostly assigned one by one in a sequential manner, following the order of the fixed sounds from beginning to the end. However, some sounds are occasionally repeated later in the tape so I repeated the gesture I had assigned to them since the first time they appear (Figures 2-4a, b).



Figures 2-5a and b: Key pictograph and its respective sound repeated of the score. Excerpts from *Aphasia*'s score, bars 4 (left) and 170 (right)

Changes were made in gestures assigned to pictographs when it was not convenient to combine them with the other immediately preceding gestures. In this sense, designing a coherent combination of gestures was like putting together a puzzle, taking technical and visual aspects of the gestures into consideration.

In general, towards the end of the piece I gradually substituted arm gestures for hand movements, and finally hands for fingers. This was to emphasize the analogy of the aphasia disorder: my movements became smaller and smaller until both limbs froze.

2.9. Impact of Applebaum's Choreography versus Espinosa's Choreography

My earlier performance of the original work (Pollack Hall, McGill University, September 2012) impacted my improvisation in significant ways. After looking at the video recording of my performance, I realized that many details of the original version's gestures were lost for two reasons: the distance between the audience and performer was too large in the first performance, and gestures happening in front of the performer's torso tended to be less present, easily confused, or even lost to the eye of the public as opposed to gestures that happened in the periphery of the performer's torso. For example, observing the composer's right hand movement at the beginning of the score, it starts on the second pictograph (*Key Turn*) at bar 4 (Figure 2-5). This involves turning the wrist in front of the torso in a position such that the detail of the fingers' position as holding a key is lost. The composer, consequently, cleverly emphasizes the gesture by preparing it and twisting the elbow as seen on the video of his performance available online (Figure 2-6).[59]

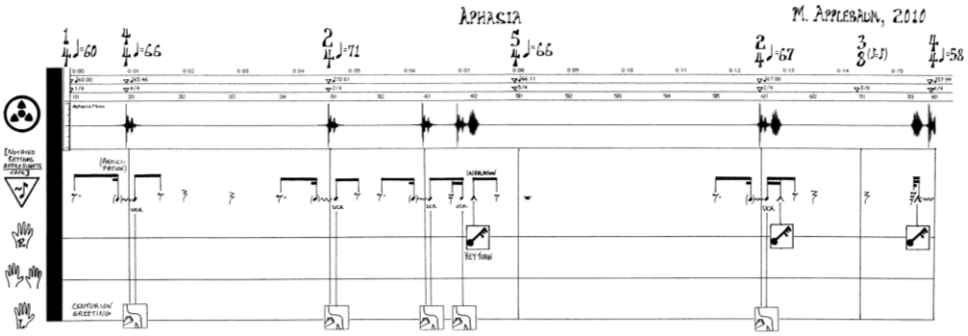


Figure 2-6: *Key Turn* in bars 4, 6, and 7. Excerpts from *Aphasia*'s score, bars 1-7

[59] Mark Applebaum, "Aphasia" video, 2011.

Figure 2-7: *Key* gesture emphasis. Applebaum's Video excerpt (0:00"-0:48")[60]

As seen in the following gestures of the right hand on the video (Figures 7b, c, d, e), the consequence is that the next three pictographs *Paper*, *Tie Shoe*, and *Row Boat* look quite similar because they happen in basically the same position (from the audience's point of view).

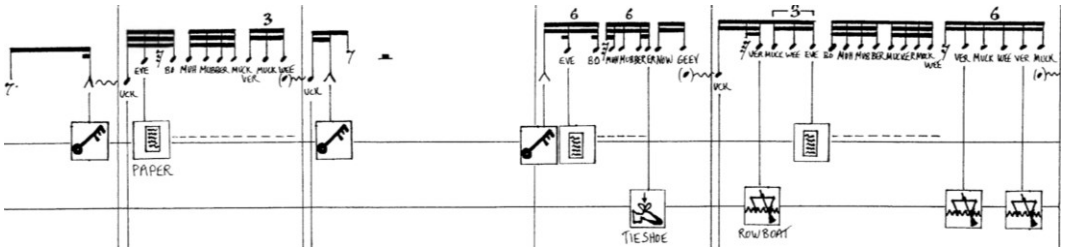


Figure 2-8a: Right hand gestures: *Key* (bar 8), *Paper* (bar 9), *Tie Shoe* (bar 11), and *Row Boat* (bar 12). Excerpt *Aphasia*'s score, bars 8-12.

Key ***Paper*** ***Tie Shoe*** ***Row Boat***

Figures 2-8b, c, d and e: Similarities between right hand gestures (appearing on the left due to mirrored image–public's point of view). Applebaum's video excerpt (0:00"-0:48")[61]

[60] Mark Applebaum, "Aphasia" video, 2011.

I subsequently decided to start with both hands in a contrasting way (large movement versus small). My left hand's first gesture quickly brings quickly the left fist next to my left ear while my right hand's first three gestures gradually separate from my right lap by using my wrist in a semi-profile position. Instead of *Key* I lift my right arm upwards while keeping the right fingertips touching my right knee (Figure 8a). Instead of *Paper* I do the same arm gesture I do for *Key* but extending my wrist aligned with my right arm about 45 degrees from the center of the stage. This gesture combines very well with the previous one, specially later when they appear next to each other (Figure 8b). Instead of *Tie Shoe* I do a backwards gesture with both fists similar to pulling the sticks for skiing. This contrasts with the following left hand gesture already defined as the starting gesture (Figure 8c). Instead of *Row Boat* I move both of my shoulders upwards to contrast with all the previous gestures and finish the first 13 bar phrase with the initial gesture again (Figure 8d).

Instead of *Key*

Instead of *Paper*

Instead of *Tie Shoe*

Instead of *Row Boat*

Figures 2-9a, b, c and d: Gestures used instead of *Key* Video excerpt (0'22"), *Paper* Video excerpt (0'34"), *Tie Shoe* Video excerpt (0'39"), and *Row Boat.* Video excerpt (0'39")[62]

2.9.1. Different Relation to the Tape Part

As previously noted, I mostly assigned a single gesture to match each sound, similar to what the composer did in the original version. However, my improvisational approach meant that I used my ears to decide which sounds to reinforce in some instances, rather than the score. As a result, I used more gestures than the original version's number of pictographs. For example, in bar 139 (Figure 2-9) I added a gesture

[61] Mark Applebaum, "Aphasia" video, 2011.
[62] Diego Espinosa, "Aphasia-Dialogue" video, 2014.

putting both of my hands in front of my mouth as if they were speaking the two sounds heard at the end of that bar.

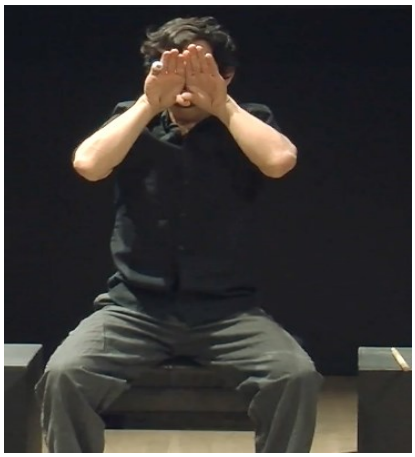


Figure 2-10: Gesture aggregated in bar 139. Video excerpt (4'54")[63]

In bar 117 the original choreography freezes on the pictograph *Vanished! (Magic)* with the palms of both hands facing towards the public. During this freezing moment the tape has many sounds that I found very interesting so I mimicked, with my fingers and wrists, the complex rhythm of the fixed sounds (Figure 2-10).

Figure 2-11: Gesture mimicking sounds instead of *Vanished! (Magic)* Video excerpt (4'05"-4'07")[64]

[63] Diego Espinosa, "Aphasia-Dialogue" video, 2014.
[64] Ibid.

Finally, I reinforced a sense of development of the performer's aphasia syndrome throughout the piece. This idea comes from my observation that at the end (from bar 179-210) of Applebaum's original version, the performer repeats the same gesture while the sonic activity increases in the tape. I consider this to be the moment of disassociation where the aphasia disorder renders the performer incapable of further movement ending in a state of paralysis and total stillness. I addressed this by gradually decreasing the size of the gestures from bar 179 until the end of the work in a similar way to Applebaum (Figure 2-11). Also, between bars 142 and 143 I re-choreographed the original – which had featured both arms slowly reaching a position resembling the State of Liberty. Specifically, I consider this the climax of the tape and decided to slowly recline my torso to the front while lifting my extended arms to the back to give the impression that the performer is making an effort to realize a different movement that never arrives, such as standing up or flying. From this bar until the end of the piece I deconstruct and decrease the amount of arm activity and assign most of the contrasting characteristics to the hands and fingers. The specific gestures are illustrated in Figures 2-12a, 2-12b, 2-12c, and 2-12d below:

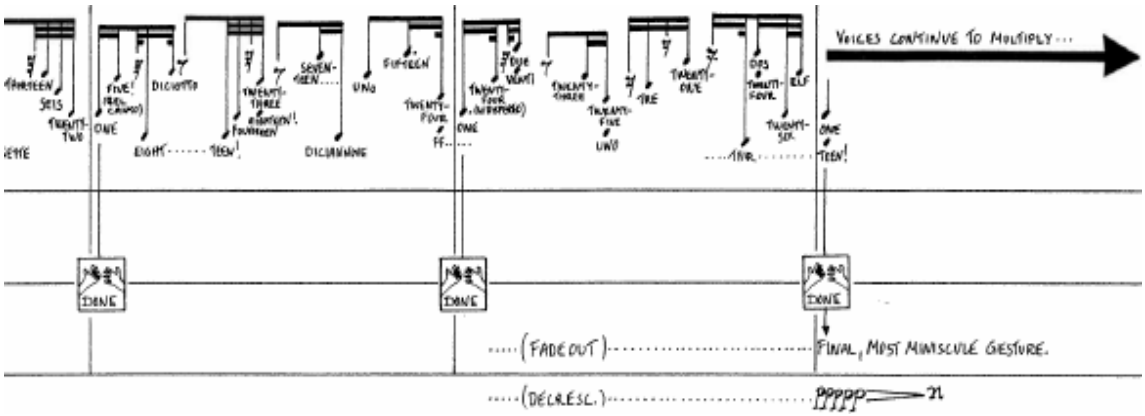


Figure 2-12: Gesture is repeated and faded out while the sonic activity increases in the tape. Excerpt from *Aphasia*'s score, bars 207-209

Figures 2-13a, b, c and d: Gesture aggregated: effort to realize a different movement that never arrives, such as standing up or flying. Video excerpt (5'00"-5'08").[65] Equivalent to bars 142 and 143

Using only my torso instead of my hands frozen from bar 178 until the end, (Figures 2-14 a, b), there is a double disassociation process between gestures and sounds on one hand; and between the physical activity and the body itself, on the other hand. The movement also looks similar to having the hiccups, which intentionally resembles a heart beating from the inside of the performer's torso (this cannot be appreciated in photos).

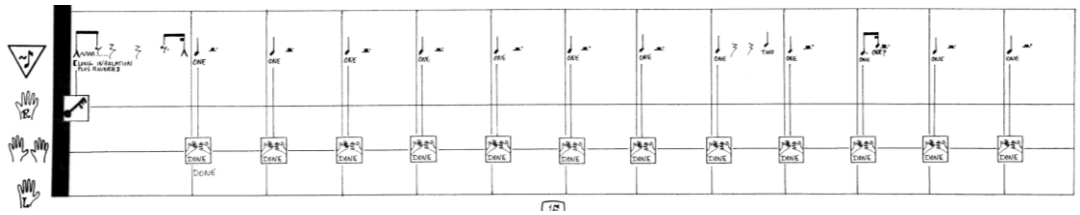


Figure 2-14: Gesture in bar 178 lasts a fraction of a second. Excerpt from *Aphasia*'s score, bars 178-189

Last position

Initial position

Figures 2-15a and b: Comparing final and initial positions.[66] Video excerpts (6'34"-end) and (0'12").[67]

[65] Diego Espinosa, "Aphasia-Dialogue" video, 2014.

2.9.2. *Aphasia-Dialogue*

Recently I uploaded a video of the premiere of my custom choreography[68] and sent it to Applebaum asking for feedback. His reaction was very positive:

> *Wow—it is really extraordinary. I can't believe that you came up with such a beautiful and elegant choreography, and that you can manage to remember it after learning mine. Very cool. Congratulations![69]*

I then asked him what would be an appropriate title for this version to which he responded:

> *I think that Aphasia-Dialogue is actually appropriate because, had I considered your version, I would have included alternate choreography (as well as improvised choreography) as part of that concept.[70]*

It is now official that the version discussed in this paper should be called and programmed as *Aphasia-Dialogue*. Within the context of this dissertation a title like this is very appropriate since it denotes a collaborative process. The experiment to create a custom choreography does not imply the consideration of the original version as a mistake, but rather as an opportunity to use the same fixed sounds as a reference to compare how a different gestural approach affects the perception of the piece. Through this process I expanded my practice across the categories of dance and choreography applying my multi-percussion abilities.

2.10. Multi-Percussion Principles Within *Aphasia-Dialogue*

There is no conventional setup in this piece, but the performer's body is the instrument. Consequently, my abilities relating to the principle of Sonic and Physical Organization informed my decisions when creating the choreography, since it implied

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[66] In my version I freeze the gesture in bar 178 until the end of the piece. This idea suggests that the performer never manages to finish the last gesture and remains suspended. Therefore, the performer does not end as he or she started.
[67] Diego Espinosa, "Aphasia-Dialogue" video, 2014.
[68] Ibid.
[69] Mark Applebaum, e-mail sent to the author, August 28, 2014.
[70] Mark Applebaum, e-mail sent to the author, August 29, 2014.

assigning a specific point in space to each sound of the tape. The sound palette was given but its spatial placement directly influences the audience's point of view to ultimately believe the illusion of sounds being produced live.

Gesture is the essential principle that this piece expands. The broad gestural variety, independence, and coordination demand virtuosic control of the performer's body.

Rapid Mastery was applied during the processes of de-learning the original choreography and learning a totally new one. The last was specially heightened since I did not make any video or written note having to remember every gesture and sequence when I was creating the choreography.

Chapter 3. *150pF for body capacitance*

3.1. Technology and Body

> [T]he *medium is the message... the personal and social consequences of any medium–that is, of any extension of ourselves–result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology.*
>
> *Marshall McLuhan*[71]

The influence or modification of our environment has always been related to the invention and manipulation of tools that ultimately serve as extensions of the human body to realize desirable actions, as well as to translate and convey meaningful thoughts and feelings. The definitions of *arm* as a part of the human body and a military tool illustrate this.

Any percussion instrument can be considered a form of technology that is used to express meaningful thoughts and actions through the sonic/dramatic medium of performance. Current multi-percussion performance practice has frequently extended the range of the body and the possibilities of the instruments themselves through the use and combination of acoustic, analog, and digital instruments. A characteristic of the current state of multi-percussion performance is the involvement of different extensions of the human body in virtually every piece in the form of acoustic, analog, and digital instruments, or any combination of them. According to McLuhan's statement, multi-percussion performance has the potential to implicitly deliver a variety of messages beyond those of the musical discourse that is being played.

[71] Marshall McLuhan, "The Medium is the Message." In *Understanding Media: The Extensions of Man*, 7-23, 1964. Electronic version: http://beforebefore.net/80f/s11/media/mcluhan.pdf

3.2. Context and Research Process

Since the beginning of my doctoral studies I began a long term collaboration through the development of six works with composer Hugo Morales revising solo pieces he had written for percussion instruments (*Enclosures* for modified cajón and digital sound process, __/ for amplified triangle); works for other instruments (*Espacios Encordados* for feedbacked piano); and creating new pieces for non-conventional instruments (*Bocina* for amplified speaker, sine wave and tactile control, *Diferenciales* for metal rod and whistling, and *150pF* for body capacitance). While the nature of our collaborative interactions varied in each of these pieces, they have all had one fundamental aim in common: to stretch the boundaries of music aesthetics and performance by challenging the performer's ability to produce music with virtually any instrument or object.

The specific research-creation process for me began when I practiced chattering my teeth in *rallentando* for Vinko Globokar's *?Corporel* [72] (Figure 3-1) I realized I had secretly developed the skill to play with my teeth virtually any rhythm I could can play with both of my hands. This was achieved by practicing unconsciously difficult passages or rhythms after each rehearsal for years as a reflex.

In this chapter I discuss the evolution of *150pF* for body capacitance, the work that was inspired by my unusual ability to play rhythms with my teeth. In particular, I will focus on how the piece evolved over time based on experimentations and my close creative collaboration with the composer.

[72] *?Corporel* is a music theatre solo work by Vinko Globokar where the performer uses his body as a percussion instrument hitting and rubbing it, as well as singing, and acting.

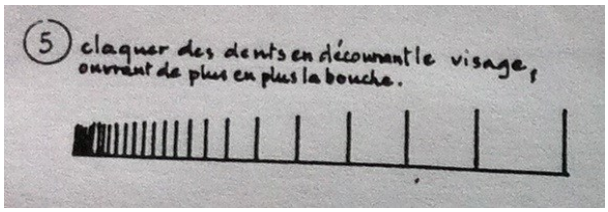

Figure 3-1: *?Corporel*,[73] top of page 2. Excerpt from the score

3.2.1. First Stage: New Sound Articulators

One of the defining aspects of the music of Morales is his clever ability to design situations where performers must learn or develop new sound articulation abilities in order to deliver a proper interpretation of his works. I subsequently asked him to create a piece around my "teeth skill." I imagined a possible polyphonic counterpoint of six layers involving my two feet, two hands, voice, and teeth. This challenge would be comparable to the demanding skills of an organist.

3.2.2. Experimenting with Amplification and Sound Control

The first challenge was that the sound produced by my teeth was not loud enough to be heard from a distance. So during the following year Hugo and I met several times in The Hague, Montreal, and Mexico City to conduct experiments on how the sound could be usefully amplified.

First we tried placing a contact microphone in different places. We went from zone to zone, one by one in order to hear the different results. We put the microphone on my cheeks, cheekbones, jaw, nose, ears, ear periphery, front head, upper head, back head, and around the lips. Then, not having found an adequate solution, we tried combining two and three microphones while I played at different dynamics. This made only the loud

[73] Vinko Globokar, *?Corporel* (Henry Litolffs Verslag: Frankfurt, 1989).

dynamics audible; a second set of experiments was prepared to explore amplification from within the mouth. The main goal was to find a way to hear a wider range of rhythmic subtleties that can only be played at softer dynamics (rolls and fast combinations) as well as timbral differences between the frontal and back teeth.

Morales came up with the idea to adapt three plastic tubes to three transistors.[74] By using a computer system with a sound card and three amplifiers he could either send different sounds through the tubes or invert their function as microphones by assigning them as input instead of output. The idea of using the tubes was to insert them in my mouth and nose cavities, to avoid damaging a microphone. The flexibility of the tubes also made it possible for me to touch them with my tongue without fear of being hurt.

However, these options still did not give the sound enough presence from which to develop a piece. Therefore, we proceeded trying other possibilities using the same tube-transistor-computer system. We started to send sound (airy sound like pink noise) through one of the tubes. This took some time for me to learn how to articulate it with my inner throat and nose muscles. It felt as if I was shaping someone else's voice in the sense that I was not blowing air to produce the airy sound, but I did perceived the resulting sound, after my articulation of it, as mine since it was going from the inside of my body towards the environment.

This allowed me to perceive my muscles in a totally different way through a sort of dissection process of my throat. I could clearly hear the consequences of moving different parts of my throat and mouth. I was surprised at how poor my control of them was, despite their everyday use in speech and in singing. I had difficulties gradually

[74] A transistor is a device that amplifies and switches electronic signals and electrical power through a semiconductor material and at least three terminals for connection to an external circuit.

opening my throat (my muscles would shake or open too fast). Instead I tried to control the sound with my mouth by putting it around a tube and closing its hole. This seemed to work better but it was difficult to make objective judgements because of the loudness of the sound through my inner ear.

Subsequently we sent two different sounds inside my mouth (one through a different tube) to find out how could I control them with my tongue, e.g., by blocking the sound of one tube. This experimentation involved sending two sine waves that had slightly different pitches through the tubes using Max/MSP (Figure 3-3).

Then, we went on combining the tubes with the contact microphones to amplify sounds played on the surface of my head, such as scratching my hair and tapping with my fingers that through the contact microphones would emit low sounds. This option was very interesting to me, both timbrally and from a performance perspective, because even though the sound of my teeth was not present, I could articulate the resulting sounds of the vibrating devices transmitted through my skull by chattering.

Figure 3-2: Transistor with integrated plastic tube

Figure 3-3: Nose and mouth with plastic tubes

Combining both functions of the transistors, input and output at the same time in two different tubes allowed me to produce feedback when putting two tubes inside my mouth and nose. The results were amazing because I could control the amount of feedback by closing and opening my throat and mouth producing fadeins and fadeouts. The only problem was that sometimes the resulting feedback would be suddenly very loud inside my body. To compensate, an extra tube was added and two volume pedals to control the dynamics of the sound sent through two tubes. (Figure 3-3). Bellow is an excerpt (Figure 3-4) from one of the first drafts of the composition showing how the mouth and two foot pedals were initially used to control the sound. (top to bottom lines). It still remained difficult to produce fadein and out effects at different dynamic levels or blocks of sound with a consistent dynamic.

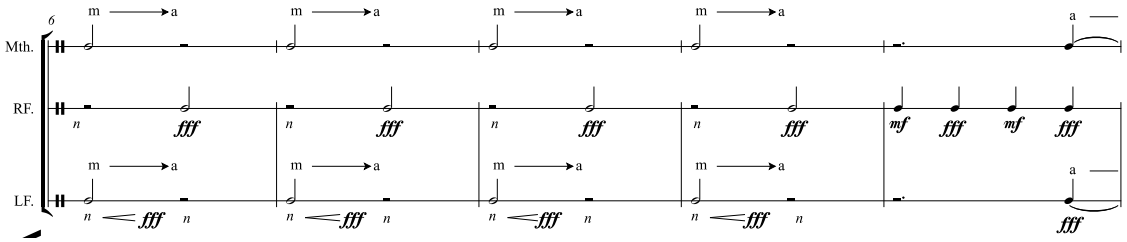

Figure 3-4: Early draft of experimentation (mouth, right foot, left foot).

Further experimentation showed that I could play with both, real simulated feedback by producing pulses at different speeds through opening my mouth or opening my throat while two sine waves with similar pitch were sent into my mouth. When I incorporated my chattering teeth as another layer of sound, however, this layer seemed too foreign to the overall sound. After a while, I also found the experience of the

feedback inside my body exhausting. We therefore decided to leave it as a project for the future.

We did try one more thing: sending a noise pulse in one tube (through my mouth), while using another tube as a microphone (placed in my nose) and a sine wave (going through my nose). I found this combination very effective since I could play pulses with my tongue, my teeth or my palate that mixed very well with the noise pulse producing interesting rhythms. The speeds of these pulses would cross the pulse that was sent through one tube creating a sort of rhythmic interference.

3.2.3. Evaluation Prompts New Directions

The experimental sessions with the tubes were very fruitful. The technological development and experimentation were intertwined with composition, producing musical ideas to be incorporated into a larger work. Video recordings taken during the sessions facilitated the interplay. These videos allowed us to keep track of the many different sounds that were produced, and to choose the ones we liked for compositional exploration and subsequent evaluation in the following sessions. One of these adventurous experiments was Hugo's idea to generate sound that would be more present as opposed to the low dynamic of the teeth. He suggested touching the unconnected end of a quarter inch cable plugged directly into a mixer. The idea was rather risky because of the potential for electrical shock, which we were not really sure was a possibility or not at that moment. There turned out to be no risk, and we liked the simplicity of the setup and the accurate and immediate response of the sound to the contact with the cables.

3.2.4. Second Stage: Finger Contact as Sound Articulator

In his Dutch studio, Morales built a system and composed a draft to try at our next session. This system, illustrated in Figure 3-5 bellow, consisted of the following:

- box with four jack cables facing upwards to facilitate performance;
- one jack cable set on a microphone stand to be reached with my tongue;
- five direct boxes [75] to balance the signal, avoid humming, and protect the performer;
- four ungrounded metal plates to be played with my bare feet;
- one submixer;
- one sound card;
- one computer;
- one main mixer (front of the house);

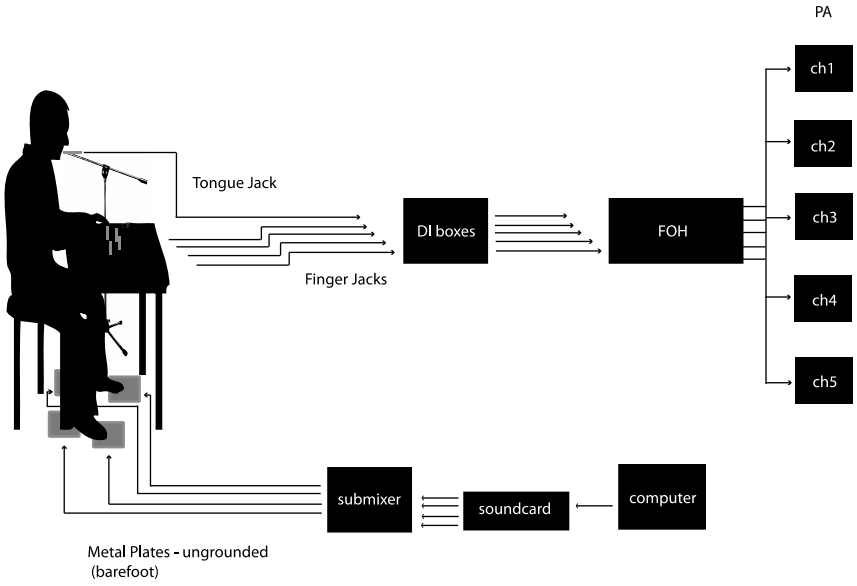

Figure 3-5: Diagram of the first tongue draft setup

[75] Device used to match level, balance impedance, as well as minimize noise, distortion, and ground loops.

The main idea of this musical study was to use human body capacitance – the property of a body to store electrical charge – in a musical way. The system allowed a small electrical charge to flow between the performer's body and the metal cables, which is amplified directly through the speakers. I could trigger sounds from the computer/sound card by touching the plates with my bared feet. The tactile manipulation of the jack cables seemed to have a rich variety of possibilities and we decided to use a similar setup for the next version of the piece.

3.2.5. First Version

The piece finally got its name: *150pF*, which stands for 150 *pico*Farads,[76] or the typical capacitance measured in the human body. The setup was reduced to a custom box with four jack cables (Figures 3-6 and 3-7), 4 direct boxes, and a PA system, shown in the previous Figure. Musically the work went from my original polyphonic counterpoint idea to a spatialized permutation of four almost identical sounds. The performance challenge stemmed from coordinating fingers and tongue as well as finger touch. These finger gestures are microscopic given the usual size of the gestures involved in conventional percussion playing, e.g., orchestral timpani. The premiere of this first version took place at the Centro de Cultura Digital (CCD) in Mexico City on August 29, 2013.

[76] Farad is the standard unit of capacitance, a *pico* Farard is equivalent to a 10^{-12} Farards.

Figure 3-6: Detail of custom box. Photo by Hugo Morales[77]

Figure 3-7: Rehearsal set up with box at CCD. Photo by Marisol Alanis[78]

3.2.6. Video-Audio Recording Generates New Versions

I recorded the first version of *150pF* as one of five collaborations I was working on.[79] This took place at the Multimedia Room of the Schulich School of Music of McGill University. Among all the pieces on the recording, *150pF* required the most concentration to perform due to the absence of rests within the long and hypnotic repetitions of the score. As seen in the first system of the work (Figure 3-8), each section is a bit shorter than the previous resulting in continually shortening rhythmic effect. The notation shows a pattern and the amount of seconds it should be repeated before moving on to the next pattern. I used a chronometer in order to achieve this with precision.

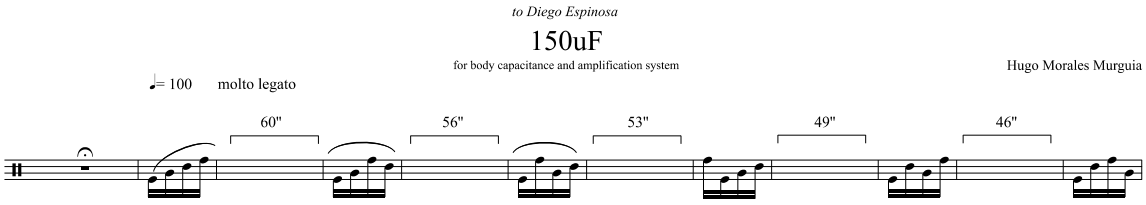

Figure 3-8: Four lines indicating the following fingers from bottom to top: left middle, left index, right index, and right middle. Showing patterns and durations of repetitions. Excerpt of first version of *150pF*.

[77] Used with permission.
[78] Used with permission.
[79] *Techua* with Felipe Waller, *sUn* with Jasna Veličković, *Guajex* with Juan Sebastián Lach, *Six Drawings by Randall* with David Adamcyk, and *150pF* with Hugo Morales. This recording was made with the support of the Nikki Yanofsky Audio-Technica Prize and the Schulich School of Music.

Since Morales was not present at the recording and we had not been able to prepare the premiere performance together, Morales and I reviewed and compared not only the completed rehearsal session video recordings but also all the recording takes, comparing them. Hugo noted that there were some parts of the recorded version that he liked better than he expected and would have explored more frequently during the composition of the piece if he had heard them before. At the same time, I felt that the original experimental aspect of the tongue as a sound source had a lot of potential that had not been realized. We subsequently decided to try new versions at the next three concerts of MUAC (Museo Universitario de Arte Contemporáneo) in Mexico City, *Gaudeamus-Innovations en Concert* in Montreal, and as part of my doctoral lecture-recital at Tanna Schulich Hall. Changes focused on the improvements that could be made were developed during the intensive sound checks for each concert. The main reason for this is that the system of *150pF* is site dependent–the objects, the cloths, the acoustics, and the electrical system of each hall have a dramatic influence on the resulting sound. The improvements included:

> 1) avoiding undesirable clipping through a virtuosic refinement of finger touch to obtain different degrees of articulation: legato, portato, accent, and ordinary;
>
> 2) adding contrasting sections that used the tongue in different ways: as an independent ostinato pulse, as a filter of the sounds produced from the fingers touch, and as an accent element involved in fast combinations with the fingers. The latter evolved from the discovery that the saliva in the tongue produces a sharper sound than the fingers due to water's higher electric conductivity, since electricity travels better through water, thus producing a "harder" sound.

3.2.7. The Tongue's New Musical Skill

150pF is a pioneering work that extends the type of tonguing technique found in woodwind performance (where the tongue articulates or stops the air that produces the sound by covering the mouthpiece of such instruments as the flute), to the use of the tongue mainly as a percussive beater to activate sound. In *150pF* it is the actual tongue's contact with the jack cable (Figure 3-9) that enables sound production with an extremely fast response.[80] This innovative technique has a lot of potential that could be further explored by assigning other tasks to the tongue such as triggering sounds or by mastering the fast fluttering tongue that is played only on the last note of the final version.

The dramatic effect of this innovative use of the tongue in combination with the finger can also be heightened by the use of live video projection that allows the audiences to see a close-up of the tongue's activity (Figures 3-10 a, b). The first time a close up was projected was during the *Gaudeamus-Innovations en Concert* (held at *Easter Bloc* gallery, Montreal May 5, 2014) as seen in Figures 3-10a and b bellow. The idea materialized as a result of our experiences recording the premiere with multi-angle cameras.

Figure 3-9: Detail of playing cable with the tongue. Concert at Ena Theater Cyprus.[81] Photo by Jim Turney[82]

Figures 3-10 a, b: Live video projection of finger and tongue details. Concert at Easter Bloc. Pictures by Christian Rivera[83]

[80] This is an improvement compared to the issue of latency of other electronic music systems.
[81] *Avaton* festival, June 6, 2014.

3.2.8. Re-composing and Score Improvements

The score of *150pF* Version 2 consists of four lines, each assigned to a specific finger. From top to bottom the fingers are middle right hand, index right hand, index left hand, and middle left hand. This follows the logic of conventional piano scores where the right hand usually is written above the left hand. The tongue is written with an X under the bottom line. Brackets indicate either a specific number of repetitions to be played or a period of time written in seconds during which a pattern must be repeated (Figure 3-11). The sound of a long note produced by letting a finger touch the cable could be filtered by touching another cable while keeping the previous one making contact. In Figure 3-11 bellow we can see how the indication *with thumb (wet fingers)* in bar 66 was meant to give time to the performer to dip the fingers in water to produce a staccato sound. After bar 66 this effect was obtained by adding a slower pulse in the tongue and keeping it for a while. The problem was that in bar 66 the filtering effect was very clear and from bar 67 it was lost. There was not enough time to hear the effect. First I suggested avoiding putting water on the fingers in order to have longer sounds per finger contact. Then I proposed trying to play the tongue simultaneously with the finger in order to mask the attacks and to play the fingers at half tempo to allow the actual filtering effect to be heard similarly to bar 66. Morales worked on my suggestions and printed a third version of the piece shown in Figure 3-12.

[82] Used with permission.
[83] Used with permission.

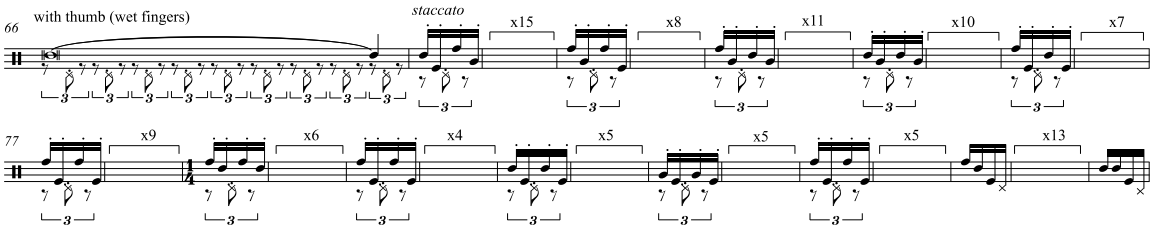

Figure 3-11: Excerpt from *150pF's* score-version 2. First attempt to use the tongue in between fast staccato rhythms played with wet fingers. Bars 66-91

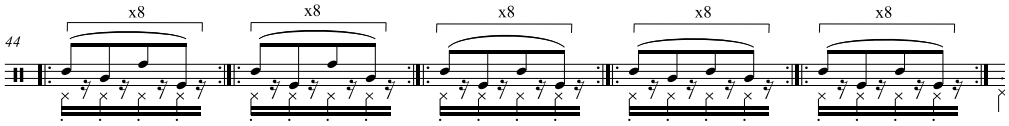

Figure 3-12: Using the tongue and fingers simultaneously to mask attacks and hear filtering effect. Excerpt of *150pF*'s score-version 3

In this improvement from version 2, the most important aspect is the timing of the silences in between the tongue strokes, because these are the moments when the filtering is heard. Depending on the size of the hall and the position of the speakers and the performer, the filtering effect might be more or less clear. Therefore, the speed and way of playing should be slightly adjusted during each sound check.

The next aspect that was improved from version 3 to version 4 had to do with making the score easier to read. In Figure 3-13 bellow we see that in version 3 the tongue w2onwards. These repeating and changing patterns are very difficult to coordinate and to maintain in a consistent way throughout the passage. On one hand they are simply difficult to repeat, but on the other, the tongue would always create a stronger attack that was perceived as an accent in each Figure. Since the fingers do not have accents, the tongue sounds rather as a downbeat than an offbeat to both, or as the main perceivable parameter to distinguish a pattern repetition in this section. Another aspect was that the bracket system indicating length of repetitions seemed to take up unnecessary space that made it difficult for the eye to connect one repeating pattern with the next. Such

transitions between two steady patterns are among the most difficult things to achieve in the piece.

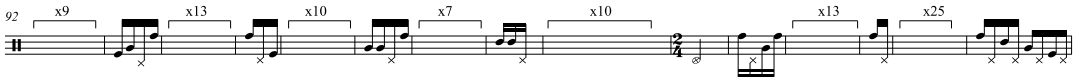

Figure 3-13: Displacement of the tongue in each repetition. Excerpt of *150pF*'s score-version 3

I thought of two ways to solve this: first, by re-writing the pattern to put the tongue on the first note of each group of repeated notes, and second, by to omitting the empty space under each bracket indicating the duration of the repetition to help me read, play, and memorize each group faster, —to ultimately achieving a smoother performance of the most demanding part of the piece (Figures 3-14 and 3-16). Another thing I proposed was to make a metric modulation matching the tempo of the sixteen notes of the previous section to that of the sixteen-note quintuplets in the section featuring tongue displacement in bar 87, as shown in Figure 3-15 below. This was a challenge I decided to assume in order to see if my skills could improve to achieve the desired degree of speed and coordination. After re-writing the second half of the piece myself (with the approval of the composer) to accommodate this development, I found while rehearsing in the Multimedia Room and Tanna Schulich Hall that the score is easier to read and the compositional change showcases more technical complexity.

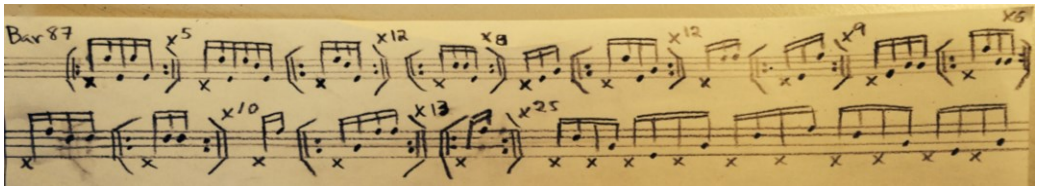

Figure 3-14: Hand written version by the author. Excerpt of *150pF*'s score-version 4

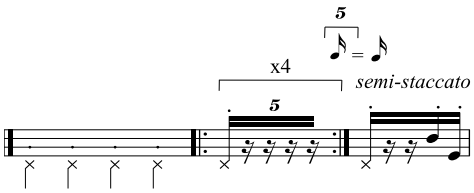

Figure 3-15: Metric modulation to speed up final section. Excerpt of *150pF*'s score-version 4, bars 49-51.

As a result of my proposition Morales was inspired to extend this section for a few bars exploring more variety on the tongue's displacement given that the short rhythmical transitions looked more accessible in the final version (Figure 3-16).

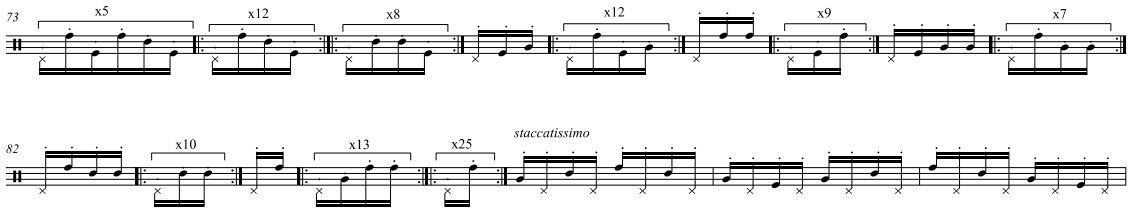

Figure 3-16: Repeating brackets on top of patterns, more tongue displacement and clear transitions. Excerpt of *150pF*'s score final-version[84]

In fact, as a consequence of my proposal, the score notates the patterns with the tongue as it is heard (e.g. as an accented downbeat) and separates the short rhythmic transitions that do not repeat making it easier to read and practice (Figure 3-16). At the same time, the less I am busy with my eyes the more I can focus on sound and how it is distributed in each of the speakers of the hall, focusing on the music rather than the notes.

[84] Hugo Morales and Diego Espinosa, *150pF for body capacitance*, 2014.

3.2.9. Endurance and Strength

A proper performance of *150pF* represents a significant challenge of mental and physical endurance. This is not because of the number of calories burnt but with respect to the precision required to produce consistency in sound quality throughout the repetitions of patterns and their sudden transitions. The fact that the sound of each of the fingers in the speaker system is extremely similar makes it very difficult to differentiate them while playing. Therefore, a proper monitor system is crucial in this piece because the performer depends on the feedback from the speakers to balance the sound levels.

It is difficult to appreciate this challenge without having attempted to perform on this instrument. We should remember that no acoustical sound is produced when the fingers touch each cable; thus, there is no vibration from the cables or acoustical feedback for the performer, just a slight tactile reference. But the continuous and fast repetitions challenge the performer to sharpen the perception of her or his own playing. Relying exclusively on the physical reference of the fingers to maintain a rhythmic consistency would inevitably produce confusion for the performer since both the long and short repeating sections have a hypnotic effect that leaves the performer uncertain of which of his or her fingers are playing and what is actually sounding. Since the sound production is extremely sensitive to the pressure applied to each jack cable, any minor hesitation or variation is perceived by the audience. In this respect the performer must adapt the physical gestures accordingly to what is heard from the speakers. Assigning one speaker per jack cable helps a lot, but the position of the performer on stage is also very relevant. The ideal place to perform this piece is right at the center between the five speakers assigned to the jack cables. This is not always possible for practical reasons.

3.2.10. Independence and Coordination

Alternating the tongue in the quick irregular groupings that repeat in the second half of the piece is extremely difficult. Having started percussion as a drummer helped a lot to play this section because the feeling was somehow similar to when I coordinate hi-hat and bass drum pedal gestures within hands and arms. However, I had the sensation of learning it with a new part of my brain that was never trained to function in this way. The movements are much smaller making it very hard to rely just on physicality. In this sense playing *150pF* expands the endurance, strength, independence and coordination of the performing body treating it as an electronic interface/instrument that uses minuscule gestures to produce legato and percussive sounds.

3.3. Control and Rhythmic Subtlety

The speed represents another challenge in the sudden rhythmic transitions that are meant to be experienced as glitches by the audience. These details distinguish the different sections of the piece. Thus, much of its architecture is dependent on its proper right execution. In particular, to perform the last section of the work (Figure 3-16) I use Indian tabla skills to achieve the fast finger repetitions in an even way. The staccato sound of this section is achieved with a short contact and release with each cable similar to percussion playing. At the same time, the high risk of clipping in this work is only avoided when all the tactile techniques are mastered and played in an absolutely relaxed manner. *150pF* is a meditative piece for the performer in this sense.

3.4. Boundaries of Percussion Performance

150pF is unique in many ways. The performance of this piece evokes non-musical meanings. Such a use of the tongue projected on a screen can be interpreted in different ways. That depends on each person, but what is true is that the tongue has never been used, heard, and seen like this ever before. That is one of the major achievements of this research collaboration.

This work extends the performing body. In fact, *150pF* is a proof that not only technology can change us, but that the body may change our perception of technology by using it in unprecedented ways.

This brings us to hybridity again which has been a characteristic of solo multi-percussion since its origins (Chapter 1). *150pF* challenges the specific skill to adapt to hybrid situations. This is the multi-percussion category of *Rapid Mastery* (Chapter1).

As in *Aphasia*, *150pF* places the performing body as the central instrument that articulates sound in musical ways. In *Aphasia* there is no acoustic sound produced by the body, in *150pF* there is no acoustic sound produced by hitting or making an object resonate but the electricity that is heard as sound travels through the *performing body* that executes minuscule physical gestures. Both works involve a lot of physical activity in different scales.

One can regard *150pF* as a revolutionary study like Frederic Chopin's *piano études*.[85] *150pF* already got international recognition: the *Performance Grand Prize* at the Tokyo Experimental Festival vol.8.

[85] Willar A. Palmer. ed. (1992). *Chopin Etudes for the Piano, Practical Performing Edition*. (USA: Alfred Publishing Co).

Ultimately, my initial idea of a 6-layers counterpoint was not addressed in the final version of *150pF*. I do hope, however, that all the research involved in this work will be a natural step towards addressing that polyrhythmic challenge in the future having developed and integrating tongue and finger skills first. Perhaps this means that the idea of a future polyrhythmic counterpoint might require extra layers (two feet, fingers, hands, voice, teeth, and tongue).

3.5. Multi-Percussion Principles Within *150pF*

Different setups were explored in the process of this piece. Several decisions were taken regarding specific sounds we wanted to obtain and a variety of physical/electrical ways to obtain them. In this sense the principle of Sonic and Physical Organization was crucial to arrive to a final to a final decision where the performer's body is part of the instrument as an electric interface.

The performance of this work addressed the principle of Gesture in the form of unusually small body movements. This requires unprecedented precision and control in a different scale compared to most of the existing multi-percussion repertoire.

Developing and mastering an unprecedented tongue skill to further coordinate it with my fingers was achieved thanks to the principle of Rapid Mastery.

Chapter 4. *Six Drawings by Randall*

This chapter addresses two specific expansions of solo multi-percussion performance as exemplified in my collaboration with composer David Adamcyk on our work *Six Drawings by Randall*. The expansions are: the performing body within new music theater and the performing body as a sound/image interface.

4.1. New Music Theater

4.1.1. Origins

There has always been a connection between music and theater in every culture, as a part of rituals, entertainment, or other cultural manifestations. However, the term *new music theater* was coined quite recently and has its roots in various origins. First, the word "*muziektheater*" – from which the English term *music theater* was intentionally derived – was originally strongly connected originally to Kurt Weill and the new chamber opera (or *Zeitopera*),[86] characterized by referencing modern technology (trains, airplanes, and telephones) during the 1920s in Germany.[87] Second, the subsequent development of the genre in the period following World War II provided a sense of development in European music. The Darmstadt school, including composers Mauricio Kagel, Luigi Nono, and Karlheinz Stockhausen, introduced works described as the *Musikalisches Theater* or 'instrumental theater' that later came to be called *music theater* afterwards.

Through these developments the term *new music theater* came to imply a combination of acting a certain character and musical live performance that is not

[86] Eric Salzman, and Thomas Desi, *The New Music Theater: Seeing the Voice, Hearing de Body* (Oxford: New York: Oxford University Press, 2008).
[87] Wikipedia. http://en.wikipedia.org/wiki/Zeitoper

exclusive to opera, singing, or any specific instrumentation or size of ensemble, from solo to massive productions. The term also includes innovative forms of music theater involving either acoustic performances alone or in combinations with analog and/or digital technologies (both audio and video).

4.1.2. From Music Theater to Performance Art

Theater music also developed in tandem with the rise of the avant garde. This had a particular impact in theater works that Cage wrote in the second half of his career (1952-1992). His consideration of all sounds as music led him to equate all actions in life as theater; this, in turn gave birth to happenings and the *Fluxus* movement where events include musical and non-musical actions executed by performers on stage and alternative settings.[88]

The following chronological look at Cage's work shows how this impacted solo multi-percussion practice:

- 1930's early percussion ensemble pieces (mentioned in chapter 1)
- 1940s wrote extensively for prepared piano–a one-man percussion orchestra[89]
- 1952 incursion in music theater with the idea of equating theater with life
  1952 *Black Mountain* event a landmark work consisting of non-narrative overlapping live performances involving music, poetry, dance, theater, visual art, and film. The designed physical disposition of the audience made it impossible for any member of the public to be able to see and hear the work in its full form. This was history's first happening[90]–later recognized as a multidisciplinary non-narrative performance format executed in alternative spaces.[91] Happenings are considered part of the performance art discipline within the visual arts field. This

[88] William Fetterman, *John Cage's Theater Pieces: Notations and Performance* (Amsterdam: OPA, 1996).
[89] By placing objects between the piano strings a variety of percussive sounds are produced when pressing the piano keys. The *Prepared Piano Sonatas* are his most representative work of this approach.
[90] William Fetterman, *John Cage's Theater Pieces: Notations and Performance* (Amsterdam: OPA, 1996).
[91] Ibid.

point marked the convergence of percussion music, theater, poetry, film, and visual arts, transforming it into a performance art.[92]

- 1952 *4′ 33″* a piece framed by the performer's soundless movements
- 1956 *27′ 10.554″* first multi-percussion solo in history
- 1959 *Water Walk* solo work integrating percussion, piano, radios, objects, and everyday actions. This piece is mostly performed by multi-percussionists

Following this evolution, it is not surprising to find multi-percussion solo repertoire that bears similarities to performance art, particularly in works where there is no conventional music score and the performer executes "non-musical" actions without playing a character (other than him or herself). This is the case in most *Fluxus* events involving sound.

A large part of this solo multi-percussion repertoire uses voice in combination with percussion playing and theatrical actions on stage. These works belong to the category of new music theater. They include works like *Toucher* and *?Corporel* by Globokar; *Le Corps à corps* by Georges Aperghis; *L'Art Bruit* by Kagel: *To the Earth* by Frederick Rzewsky and several works by Stuart Sanders Smith (*Songs I-IX*, *Tunnels*, and *...Points North*).

4.2. Collaborating with David Adamcyk

4.2.1. Initial Stage: Solo for Radio

The music of David Adamcyk is closely related to theater music. This is evident in his thirty-minute piece, *Cheval Memoire* (2011) The work is scored for solo piano, six antique radios, surround system, and electronics. Aside from playing the instrument in a

[92] That is why the *Black Mountain* event has been considered to have "the greatest impact on American art." Source: Mary Emma Harris, *The Arts at black Mountain College* (MIT Press: Cambridge, MA, 1987).

conventional way, the performer executes 'various dramatic actions around the piano, including moving the radios from on top of the instrument to the stage floor.'[93]

At the outset of our collaboration, it was decided that the piece would cross the boundaries of music performance and performance art. Our first experimental sessions focused on the idea of an antique radio that was used as a colloquial device, with actions that pointed to its function as a radio (e.g., turning it on, changing the volume, and moving from one station to another). After giving the impression that the radio had malfunctioned progressively, the performer would discover sound possibilities unusual to a normal radio, (e.g., producing feedback and controlling it by moving and pressing the knobs). At a certain point, the radio would be turned into an electroacoustic instrument by hitting the body of the instrument to trigger on and off sounds by contact microphones placed inside. The idea of using the radio as a music theater instrument was clearly connected to Cage's and David's previous works. From the beginning of our sessions we video recorded specific discoveries that we found interesting for further development. The radio was ultimately discarded after a couple of sessions because I did not find the acoustic possibilities of the instrument so attractive.

4.2.2. Second Stage: Solo for Balloon

During our discussions, though, we had imagined a multimedia piece that combined performance art and new music theater characteristics. Adamcyk had also been commissioned by the Middlesex County College to write a piece for an opening of New York's visual artist Julia Randall at the Studio Theatre Gallery in Edison, New Jersey. Her drawings depict chewing gum bubbles, saliva bubbles, disembodied mouths, and

[93] David Adamcyk, *Cheval Memoire*, 2011.

tongues. Her oeuvre has been described as "challeng[ing] assumptions about corporeality and the natural world."[94]

Randall's images inspired Adamcyk to try to develop the piece using a balloon, since the roundness and colloquial manipulation of the object (balloon) clearly connected with the mouths and saliva bubbles of her hyper-realistic drawings. On top of that, I had previously used balloons in different ways on several pieces, e.g., *Mex-toys2* by Carlos Sandoval; *Mutant Theatre I* and *76755* by Anthony Pateras; as well as *Canonic Phase* and *Canon Interrupted* by Seung-Ah-Oh. I was familiar with its possibilities and felt comfortable in further exploring them. From the beginning of our experiments with the balloon there was a constant exchange of ideas that translated into the decision to keep it as the central feature of the piece.

I stepped out of further development of the work at that time because previous commitments prevented me from being able to perform at the premiere. Therefore, Percussionist Mike Truesdell premiered the first proto-version of *Six Drawings by Randall* on September 27th (2012). Soon after that, between October and December of 2012, Adamcyk and I met weekly at the Computer Music Center of Columbia University in New York to revise the piece and further develop the techniques applied to the balloon and elaborate its use in combination with a computer and projection system.

[94] Simon Garvey, "Julia Randall: Blown," accessed September 1, 2014. http://www.julia-randall.com/garvey-simon.pdf

4.3. Entrance: Symbolism and Metaphor

The very beginning of the piece does not establish a direct integration of the performer, the balloon, and the images through musical actions. Rather, these three elements coalesce through symbolism and metaphor.

From the beginning of our sessions, Adamcyk gave me stage directions to create what we call the *entrance* of the piece where the performer walks into the stage, sits down on a bench, takes the balloon and inflates it blowing sporadically and keeping it in front of his mouth. Once the balloon's size covers the performers head, it is kept still for a while for the audience to observe it – unequivocally as the balloon seems to replace the performer's head, making him or her look like a balloon-person (Figures 4-1 a, b, c). From this moment on the balloon may symbolize a part of the body–the performer's head.

The balloon is subsequently placed between the performer's legs. By flicking on the surface of the balloon with a wet finger a present low sound coming out from the speakers is synchronized with the projection of an image–a bubble with an open mouth inside. Towards the end of the piece, in scene 5, the balloon again the performer's head (Figure 4-1 d). At the end of the piece, in scene 6, the balloon is deflated while being held in the performer's hands synchronized with the fade out of an image of a deflated balloon. (Figures 4-1 d, e).

This kind of action is similar to Cage's music theater pieces previously discussed (e.g., *Water Walk*) where the performer is not playing a specific character, but has nonetheless become an actor, playing the role of performer.

Figures 4-1a, b, c, d: Theatrical entrance: walking, sitting, inflating, balloon replaces performer's head. Balloon replaces head again in scene 6. Video excerpts, live at Eastern Bloc gallery (0:14", 0:21", 0:51", 14':40")[95]

Figure 4-1e: Theatrical ending, deflated balloon in performer's hands synchronized with image fade out. Concert at LIVE@CIRMMT, MMR, McGill University.[96] Video excerpt (15':20")[97]

Most of the hand and arm gestures used to manipulate the balloon are also choreographed. Specifically, sounds are assigned to a movement's quality (speed, fluency, stifness) and hand. These gestures are not embellishments but specific landmarks designed to provide a sense of consistency for the performer's control of the instrument. This control is imperative in order to distinguish between a casual sonic exploration of an object and what is a complex performance of a hybrid instrument, where all sounds and gestures are fully controlled and suggestive of a hidden structure.

The theatricality and interrelations of the work are established before the musical discourse begins. In *Six Drawings by Randall*, the *performing body* animates an object when the performer's breath is exhaled and contained in the balloon's body live on stage. The balloon is turned into an expression medium that goes back to its object state after the air is released, in the same way as human bodies do when all air departs. This is a poetic metaphor delivered through the *performing body* within new music theater.

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[95] Personal archives.
[96] October 10th, 2013.
[97] Personal archives.

4.4. Hybrid Custom Electronic Instrument

During our weekly sessions I assisted Adamcyk to develop a hybrid custom electronic instrument consisting of:

- balloon (extra large size from *Balloon Saloon* NYC)
- contact microphone (1 inch diameter approx.)
- computer (MacBook Pro OS X)
- sound card (MOTU 8pre)
- video projector
- MIDI interface (UMI3-Logidi or Behringer BCF2000)
- MIDI expression pedal (Yamaha FC7)
- MIDI switch pedal (Yamaha FC5)

Mostly the contact microphone is used as a sensor to control sound effects. Direct amplification of the balloon is almost never used in the piece.[98]

4.5. Rapid Mastery Developing Custom Performance Techniques

The principle of rapid mastery was essential to develop custom techniques in this new instrument. Each movement of the piece was derived by one of these techniques that we developed during our weekly sessions. These were analogous techniques on other percussion instruments. Finger tapping, finger rolls and palm strokes, for example, were inspired by Middle-Eastern hand drums techniques, such as darbuka or tombak (Figure 4-2).

Other techniques are related to guitar playing such as flicking (Figure 4-3), water nail roll and water nail squeaking. For this I placed two glasses with water at my sides so I could access them during the performance. My approach to these techniques was a consequence of my childhood classical guitar studies and my passion for *Son Jarocho*–a

[98] Only at the beginning of the piece when the balloon is inflated.

traditional Mexican style combining instruments that are played with the fingers in different ways: jaranas (Mexican guitars similar to baroque music guitar), marimbol (bass thumb piano), and pandero jarocho.

Other sounds are produced using a traditional drumstick and a foam tube. The drumstick acts like an extended press roll that bounces three to four times more than when applied on a regular drumhead (e.g. snare drum). The foam tube is almost weightless compared to the drumstick. The grip I use to hold it is similar to cello bowing technique, with the position of the hand holding the tube equivalent to holding a bow – a movement through which I press the tube towards my body. This similarity, in combination with the actual low sound that it produces is why we call this section 'bowing' (Figure 4-4).

Different ways of rubbing are used to produce contrasting effects. Dry fingertip rubbing results into a low distorted tone (Figure 4-5), wet rubbing results in a middle-range tone, and cotton rubbing has a wide pitch range because it is filtered by the computer system proportionally to the speed and pressure assigned.

Pressure blowing sounds are produced similar to soprano saxophone (Figure 4-6). The Technique involves blowing with pressure inside the balloon through a quasi-reed shape molded from the balloon's neck with fingers and lips.

4.5.1. Balloon Techniques and Instrumental Roots Illustrations

Figure 4-2: Hand technique inspired by Middle-Eastern drumming.[99]

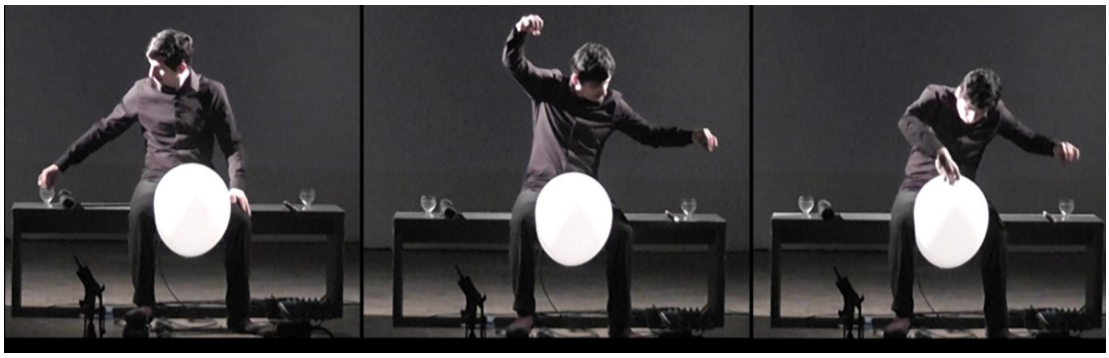


Figure 4-3: Flicking technique with wet fingers and two glasses with water. Live at *Eastern Bloc* gallery, *Gaudeamus-Innovations en Concert* (2':45", 2':57", 3':02")[100]

Figure 4-4: Bowing technique, foam tube and bouncing drumstick. Computer Music Center, Columbia University, December, 2012. Photo: David Adamcyk[101]

[99] Used with permission.
[100] Personal archives.
[101] Used with permission.

Figure 4-5: Rubbing with dry hands. Computer Music Center, Columbia University, December, 2012. Photo: D.Adamcyk[102]

Figure 4-6: Blowing soprano sax technique. Live at Ena Theater, Cyprus. Photo: James Turney[103]

Every section of the piece has a different set of effects preset in the computer system and each of the described techniques has an assigned degree of reverberation controlled by the expression pedal. Changing between techniques involves parallel activity on both hands and right foot. Consequently, each movement is equivalent to playing a different instrument with different characteristics (e.g., dynamics, resonance, pitch, etc). Therefore, a technical approach to this hybrid custom electronic instrument is analogous to a multi-percussion setup– there are more than two different instrumental

[102] Same location, date, and conditions as Figure 4-4.
[103] Used with permission.

characteristics and playing techniques that change within and between each section of the work.

4.5.2. Feet Controlling Expressive and Compositional Parameters

By pressing a switch (built into the expression pedal), the performer can decide when to set the software (Max/MSP) to listen to the sounds picked up by the contact microphone (Figures 4-7 a, b, c).

Hill view **Toe** **Pressing toe**

Figures 4-7a, b and c: Expression pedal positions

Once the system is in listening mode, the next event executed on the balloon's surface that exceeds a certain amplitude level (volume) will trigger the beginning and end of each section of the piece. There are exceptions in the second movement where two different sound sets (A and B) are changed in the following order A, B, A, B, A. In this case there is a counter in the patch that will set the movement off after the third time sound set A is reached. In movement 4 the same listening system is used to trigger a sound file of a long feedback recording that serves as a transition to movement 5. Using the previous techniques, the performer is in control of the compositional parameters of the work, specifically the length of the movements and their respective sections.

The expression pedal also allows the performer to control the amount of reverb applied to the balloon's sound. This effect has a central role in the piece since it is used

differently in each movement. From the audience's perspective, the reverb combined at the right level with each of the performance techniques brings an illusion of varying proximity to and distance from the balloon.

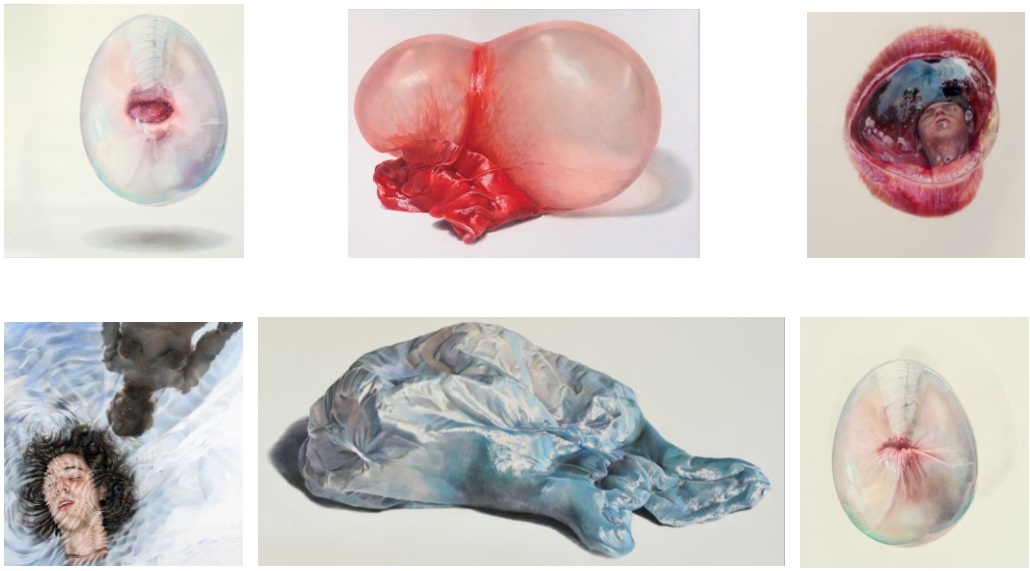
4.5.3. Voice Integration

The first and sixth movements involve onomatopoeic sounds produced with the voice that alternate with wide and slow hand/arm gestures that flick the balloon's surface. Originally, by making a sound through a headset microphone placed in front of my mouth, I triggered a recording of the same onomatopoeic sound backwards giving the impression of real-time processing. However, the level gain of this microphone had to be quite high to trigger the sound file in comparison to the lower level needed to amplify the acoustic voice. For this reason and the ever-changing acoustics between each venue, there would be problems of feedback and the sound engineer would have to be adjusting the levels during the concert. To solve this Adamcyk decided to use a drastically different but more robust technique: triggering the voice sound file by pressing a second MIDI pedal (switch pedal). In this way the headset microphone's level would be set exclusively to amplify the voice, instead of serving a double role (amplifying and as a triggering input). This is particularly useful when the piece is played with a sound engineer who does not know the piece.

4.5.4. Image Control

As the title indicates, each of the six movements of the piece is inspired by one of six drawings (Figures 4-7 a-f) that are projected on a screen placed behind the performer.

These images serve as a scenography of the performer's gestures. Each drawing influences the mood, sonority, and performance actions of each part. By pressing a foot switch the performer can decide when to set the software (Max/MSP) to listen to the contact microphone. Once the system is listening, the next event executed on the balloon's surface that exceeds a certain amplitude level (volume) will trigger the projection on and off, as previously discussed in the MIDI pedal section (4.5.3.) of this chapter. In effect, the custom electronic instrument enables the performer to control each projection's timing (on and off).



Figures 4-8 a, b, c and d: Cropped drawings by Julia Randall[104]

4.5.5. Video-Audio Recording

From the beginning, Adamcyk and I collaborated in much the same way that most choreographers and theatre directors work directly with dancers and actors in each rehearsal. We made video and audio recordings of the most relevant results of each day. This allowed us to revise the session during the week by thinking about what could be

[104] Used with permission.

improved and how this could be achieved. No written or notated drafts were ever produced. A selection of the rehearsal videos and a workshop video-audio recording completed at Columbia University in December 2012 constitute the actual video-score of this work. An advantage of this process is that by the end of the composition process I, as the performer, knew the whole structure of the piece and had only to finish mastering the techniques and their natural flow across the architecture of the work.

4.5.6. Evaluation

As previously noted, *Six Drawings* was also recorded.[105] Unfortunately the video files of the first scene were lost so a definitive video version is still to be realized. However, the remaining video-audio material and several international performances confirmed that both the architecture of the piece and its performance had reached a point where the work could be declared finished and ready for further public performance.

4.5.7. Self-sufficient Trouble Shooting

Even after declaring the piece finished, though, there were still several technical issues that came up during subsequent performances, indicating that little adjustments had to be made to the patch. In order to solve this for future performances, we had sessions where Adamcyk explained me how to adjust each of the parameters of the patch. In so doing, he made it more accessible for future performers who would potentially have the same issues.

[105] Recorded with support of the Nikki Yanofsky Audio-Technica prize and the Schulich School of Music, McGill University.

In a very general way, as seen in Figure 4-8, the patch is divided in three vertical columns (yellow, white, green). The left column includes the instructions to turn the patch on properly; the middle one shows when the system is listening, and when the pedals and the balloon triggering are activated; the right column shows the contact microphone input, sound files level, and section number of the piece that can be changed for rehearsal purposes. There is a separate screen to monitor the projections triggered (placed on the left top corner of the screen). Additionally, there is another piece of software (MainStage) in which the MIDI information from the pedals is received and where all the sounds of the balloon and the files are filtered and sent to the patch to be organized. I leave this window open under the Max patch window (on the bottom left of the screen) to verify that the correct sound is activated with the corresponding section of the piece.

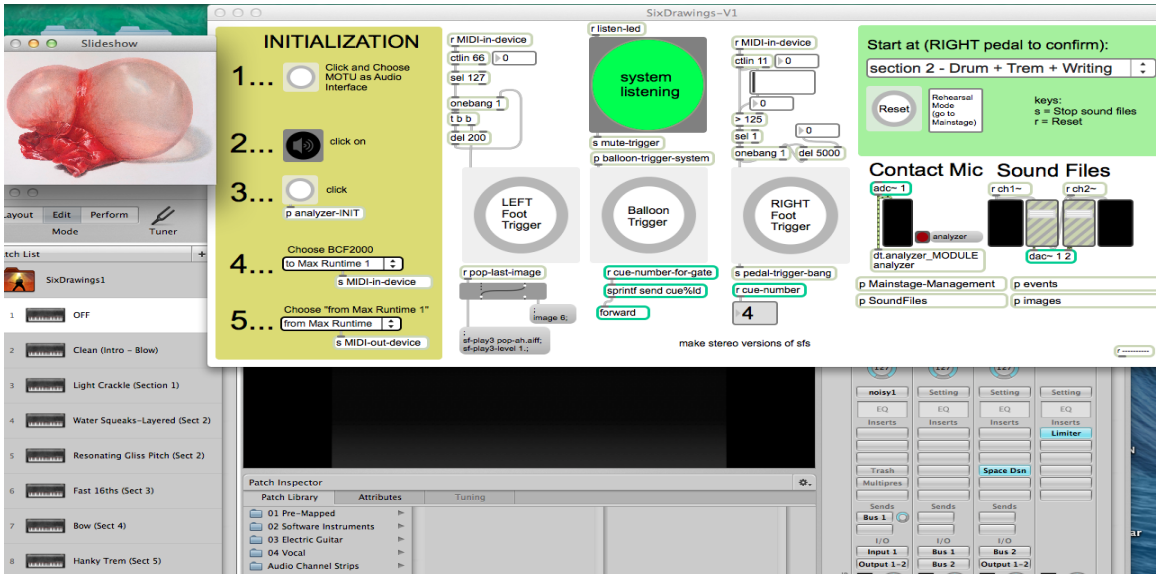


Figure 4-9: Screen image of performance Max patch and MainStage windows for *Six Drawings by Randall*

Besides the issues of the patch, there is always a huge technical risk when the piece begins. The position of the contact microphone and the area that it touches on the balloon's surface are never fixed. This is because the balloon, which is inflated on stage in front of the audience, is made out of an elastic material. Its stiffness and size change depending on the temperature of the room, the amount of air previously used to inflate it, and the amount of air that is blown at the moment of the performance. The microphone, in contrast, is made of a hard material that remains flat regardless of how inflated the balloon is. This has direct consequences on the amplification quality and the signal that it sends to the computer system for its real-time processing and projection triggering. In other words, an essential component of the custom electronic instrument is setup on the spot during the performance. Setting up live on stage is related to the principle of sonic and physical organization. Usually during percussion concerts percussionists quickly setup the next piece while the audience observes. *Six Drawings by Randall* approaches this in a different angle. From a non-technical but dramatic point of view, this action should be perceived as the simple activity of inflating a balloon while, in the most discrete way, the performer carefully makes sure that the microphone is well set.[106] There are many other subtleties requiring similar attention for a successful performance of *Six Drawings*, including having the pedals in the right place in order to used them only when necessary, etc. In a general way, it is the performer's task to hide all the technicalities from the audience's view.

[106] A comparable example would be Theo Loevendie's *Operina*, which started with an empty stage and the first scene consisted on the musicians and actor setting up.

4.6. *Six Drawings* (alternative version)

Recently I collaborated with artist Maotik[107] on an alternative version of *Six Drawing by Randall* specially designed for the multimedia dome called *satosphere* at la SAT, (Société des Arts et Technologies). The SAT is an institution that specializes in 'immersive technologies, augmented reality and the creative use of high-speed networks.'[108] The *satosphere* allows an immersive audio-visual experience consisting of a 360º screen, 8 video projectors and 157 speakers.

Maotik designed visuals that simulate a gigantic spherical balloon projected on the dome's screen (Figures 4-11). When the performer plays on the physical balloon, the spherical projection is deformed to give the impression that the audience is in the interior of the projected balloon. This immersive characteristic of the version *Six Drawings* situates the experience of the audience within the field of art installation, by placing the public within the work and leaving at their discretion the decision of where to look. Due to the 360 degrees' sound and video projection, the impossibility of perceiving the completeness of the work is implied in the nature of the medium used (similar to Cage's *Black Mountain*).

Since none of Randall's drawings were projected the title of the piece was modified by omitting her last name becoming simply *Six Drawings*. Due to a lack of time, Maotik was doing the visuals live to simulate a real-time reaction to the live performance. The original stereo sound was evenly distributed between the speakers; there was no dynamic spatialization. This version will be improved to allow the performer the control of the projections and spatialization in the future presentations.

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[107] Maotik if the artistic name of Mathieu Le Sourd.
[108] Société des Arts Technologiques. Accessed September 1, 2014. http://sat.qc.ca/en/sat#section

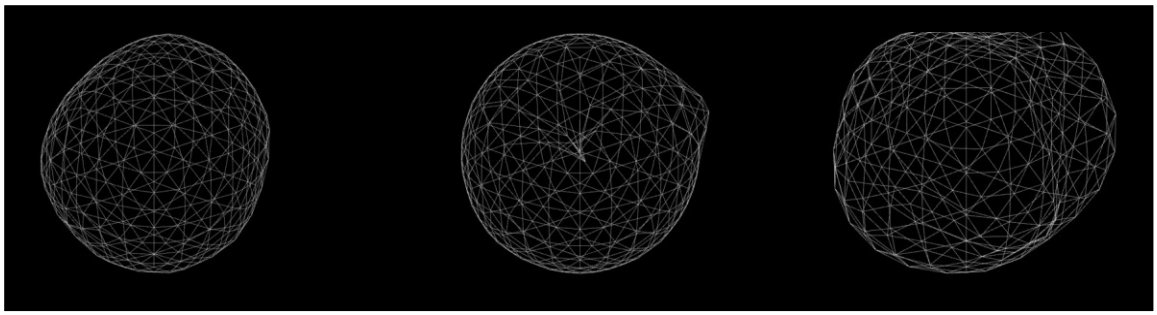

Figure 4-10a: Model of projected surface's deformation by Maotik[109]

Figure 4-10b: *Six Drawings* inmmersive version. Live at la *SAT* May 23 2014. Photo: Sebastien Roy[110]

[109] Used with permission.
[110] Used with permission.

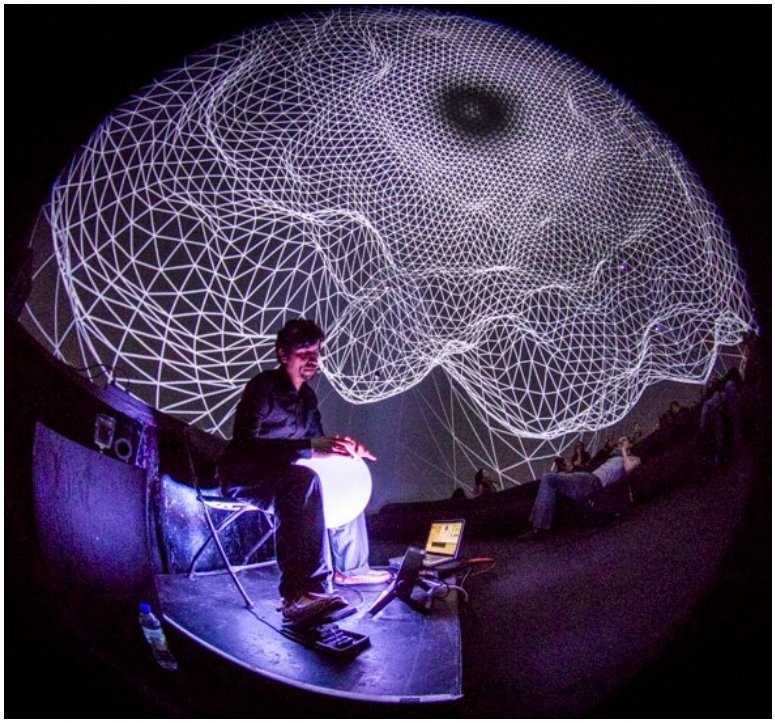

Figure 4-10c: *Six Drawings* immersive version. Live at la *SAT* May 23, 2014. Photo: Sebastien Roy[111]

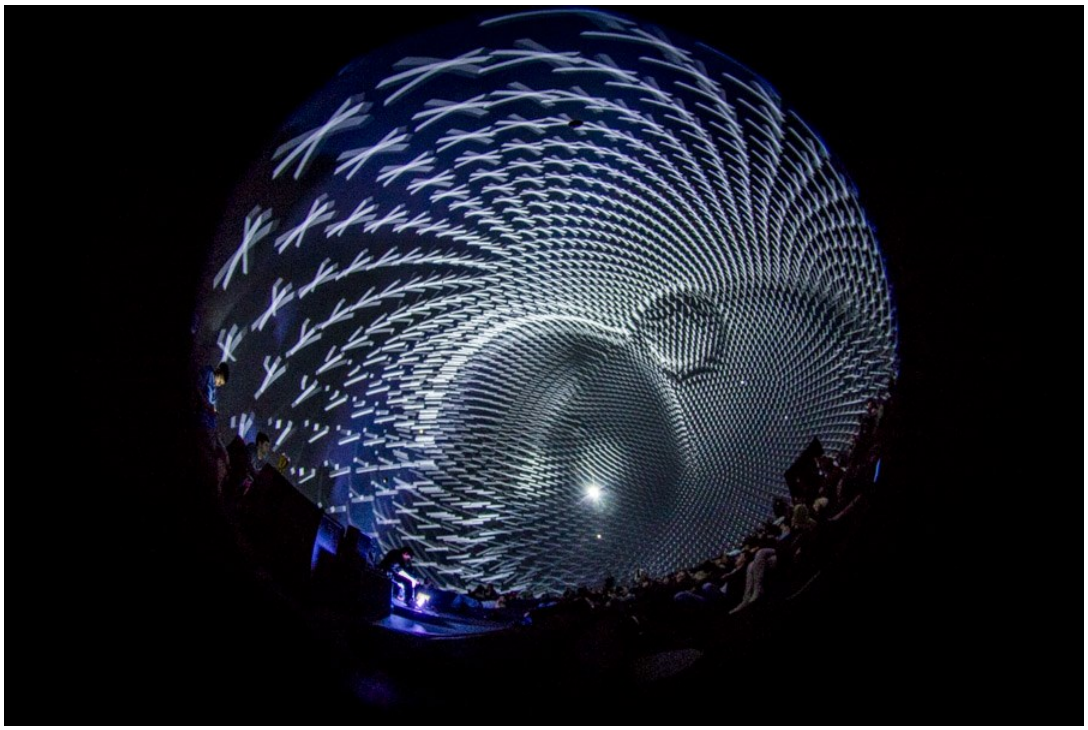

Figure 4-10d: *Six Drawings* inmmersive version. Live at la *SAT* May 23, 2014. Photo: Sebastien Roy[112]

[111] Used with permission.
[112] Used with permission.

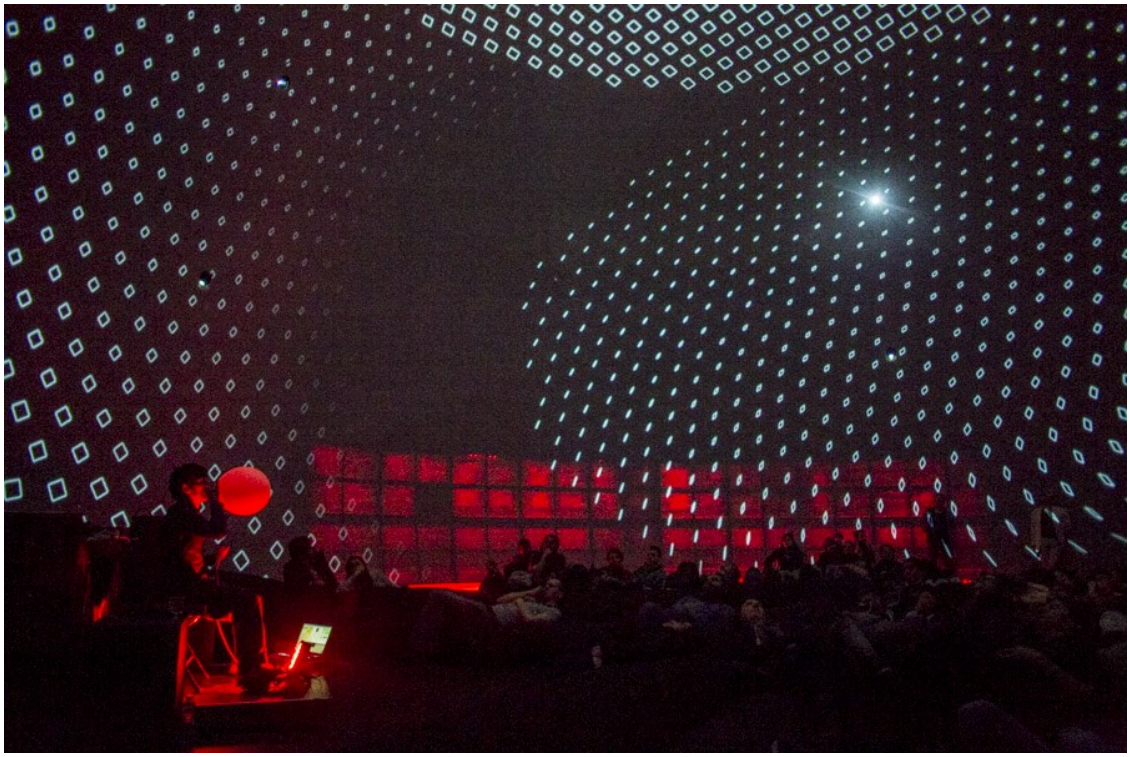

Figure 4-10e: *Sixx Drawings* inmmersive version. Live at la *SAT* May 23, 2014.
Photo: Sebastien Roy[113]

Figure 4-11: Choreographed gestures, *Six Drawings*. Live at la SAT May 23, 2014.
Photo: Sebastien Roy[114]

[113] Used with permission.
[114] Used with permission.

4.7. Intermedia: Between Categories

According to *Fluxus* artist Ken Friedman, a piece that includes several different media simultaneously is known as multimedia.[115] When a work manages to bring together different media to create something different (e.g. a synthesis or hybrid), this is known as *intermedia*:

> *[Dick] Higgins coined the term intermedia at the end of 1965 to describe art forms that draw on several media, growing into new hybrids. Intermedia works cross the boundaries of recognized media.*[116]
>
> K. Friedman[117]

Since the *Six Drawings by Randall* was originally conceived for an art gallery environment, we also took into account that the actions in the work would acquire different meanings in different galleries[118] *Six Drawings by Randal* is not a happening but a historical consequence of Cage's *Black Mountain*, event where live projection, music performance, dance, and theater are juxtaposed and further integrated.

Six Drawings by Randall is an intermedia work because it integrates theater, drawing, video projection, percussion performance, real-time processing, and choreographed gestures into a whole. In this work, the *performing body* is redefined as a new music theater agent and a real-time sound and image interface.

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[115] According to Friedman most happenings are considered multimedia.
[116] Ken Friedman, *Intermedia, Multimedia, Media*, 2007.
[117] Friedman refers to Dick Higgings, who coined the term *intermedia* as a member of the *Fluxus* movement.
[118] This work has been presented at the Studio Theatre Gallery in Edison (New Jersey), Eastern Bloc (Montreal), CCD Centro de Cultura Digital (Mexico).

4.8. Multi-Percussion Principles Within *Six Drawings by Randall*

The setup of this work is a hybrid of image, digital, and analog devices where the performing body serves the role of sound/image interface. The development of possible sounds within this new custom electronic instrument in conjunction with setup decisions, such as microphone placement, specific point of the balloon to apply each performing technique, and size of the balloon were possible due to my abilities of the principle of Sonic and Physical Organization.

The principle of Gesture is heightened in this piece through choreographic performance of specific sounds and dramatic actions that are essential to establish the relation between the images, the balloon, and the performer.

Many techniques were developed and mastered in this work, some were extrapolated from other instruments' techniques and other were invented from scratch like the foam bow, over blowing the balloon. Developing and memorizing each gesture and sound was achieved thanks to the principle of Rapid Mastery.

Chapter 5–Conclusions

5.1. New Performing Paradigms

The introduction of works involving acoustic instruments and "non-traditional elements of technology"[119] (electromagnetic tape and analog electronic devices) changed the paradigm of music performance during the 1950s. This combination has continued to develop and is now firmly established as the hybrid category called electroacoustic music. The integration of percussion into this category is particularly prominent in comparison to that of other acoustic instruments' history. This is starting to be recognized by other scholars such as Robert Esler, who proposes incorporating the hybrid of "percussion+digital technology" into the basic category of *percussion*.[120] While it is not possible to categorically confirm this, what can be stated as fact is that the solo multi-percussion discipline (not solo percussion alone) has been understood from the very first piece ever written for the medium (Cage's *27′ 10.554″*) to include any instrument or device.[121] This is particularly significant, given that Cage's work may be performed, as previously mentioned in multiple ways: acoustically, electro-acoustically (including fragments of prerecorded performance of the piece or any other sound generator), and as a completely prerecorded performance played back on fixed media, which can be done in any format available (LP, cassette, CD, etc). What I suggest here is that solo multi-percussion might be Western Music's first solo discipline to begin its life from the start as

[119] Robert Esler, "I Drum the Body Electric." In *The Modern Percussion Revolution: Journeys of the Progressive Artist*, edited by Kevin Lewis and Gustavo Aguilar, 121. New York: Routledge, 2014.
[120] Ibid.,115.
[121] In the score the group identified with the letter *A* consists of all other instruments or devices such as radios, whistles, electromagnetic tape, etc. In essence any future and older technology are somehow contained in this definition.

an electronic/acoustic hybrid category. This may explain its rapid and varied development over the last sixty years.

5.2. Embodiment of Technology

The works discussed in this paper show that the essential issue at stake is the *embodiment* of these hybrid combinations using and developing characteristic multi-percussive skills–*sonic and spatial organization*, *gesture*, and *rapid mastery*. It is through these abilities that performers manage to adapt to new instruments, to inspire the design or improvement of them, and consequently to expand into new areas. Performing techniques and technology are in continuous dialogue: they inform, transform, and expand each other.

5.3 Beyond Multi-Percussion Principles

The three cases discussed in this paper (*Aphasia-Dialogue*, *150pF*, and *Six Drawings by Randall*) show my venture into the choreographical and compositional field serving the role of a **performer as a composer**. Each work demonstrates how I pushed the technical and expressive boundaries of multi-percussion by applying the principles of Sonic and Physical Organization, Gesture, and Rapid Mastery in diverse composer collaborations that heighten the possibilities of the *performing body* as a multi-faceted instrument that cuts across different artistic disciplines–music, the visual arts, and dance. Ultimately, I expanded my performative role beyond the principles of multi-percussion becoming a **multi-disciplinary performer** that acts, dances, and performs new music and new instruments.

5.4. Redefining Multi-Percussion

Understanding hybridity as an essential characteristic of multi-percussion that informs and expands its performance practice allows us to take steps towards a broader definition of the term:

- multi-percussion started as a hybrid discipline since its inception. First as an instrumental hybrid;
- instrumental hybridity involves a variety of techniques that derive from mixed physical actions and adaptive skills;
- the constant embodiment of different hybrid instrumental combinations challenge multi-percussionists to develop and coordinate different abilities;
- collaborations with composers and artists have pushed the boundaries of multi-percussion, ultimately expanding the hybrid discipline across dramatic and performance art categories such as new music theater and intermedia, turning multi-percussionists into multi-faceted performers.

Embracing any object as a potential percussion instrument makes it impossible to establish the limits of this field in a fixed palpable way – the definition of multi-percussion must go beyond a mere description of the instruments employed. The only consistent element within the equation of making a multi-percussion performance is the *performing body* – the essential medium for interaction and articulation with the heterogeneous group of instruments, objects, and devices through gesture. Justin Dehart states that, by establishing the equivalence between percussion instruments and tools, Schick is "perhaps implying that the real instrument is actually the individual performer."[122]

> *Most of the instruments... of a contemporary solo percussionist... are interchangeable objects: musical value comes from their momentary utility in addressing specific musical problems. They are, in effect, more like tools than instruments.*[123]
>
> *S. Schick*

[122] Justin W. deHart, "Tap Router: The Changing Role of the Contemporary Artist-Percussionist." DMA diss., 16. University of California, 2010.
[123] Steven Schick, *The Percussionist's Art: Same Bed, Different Dreams* (University of NY: Rochester Press, 2009), 6.

If the body of a multi-percussionist is essentially the instrument in action this necessarily changes their relation with the works they perform, especially compared to the practice of other instrumentalists.[124] Esler states that the individual performer becomes the work ***embodied in time*** and defines this concept as ***corporeality***:

> *When the performer performs a composer's work, at that point in time, they (the performer) are the work. They become the idea, embodied in time, and that is the only way the work can exist. The score is not the idea, it is not the work. The work is the interpretation and performance of the score or idea. This concept is best defined through the term corporeality: the fusion of the mind, the intellect, and body of which becomes an abstract idea, a piece of music.*[125]

Esler refers to ***corporeality*** beyond the exclusively physical aspect of realizing an action with one's body.[126] He embraces mind and intellect as essential parts of it. I would heighten that intuition also plays a significant role given that ***corporeality*** implies a very subjective condition where a performer cannot take distance from its main instrument – the body. As we discussed in Chapter 1, the multi-percussion principle of rapid mastery develops performer's physical, intellectual, and intuitive abilities that are applied in motion within the infinite variety of environments where multi-percussionists perform.

Having understood a broader sense of the term and integrating it with Schick's and de Hart's statements discussed in the previous page, we can say that the performer's ***corporeality*** creates the *momentary utility*[127] of any *tool*[128] employed and becomes *the*

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[124] Except singers.
[125] Robert Esler, "I Drum the Body Electric." In *The Modern Percussion Revolution: Journeys of the Progressive Artist*, edited by Kevin Lewis and Gustavo Aguilar, 120. New York: Routledge, 2014.
[126] The Oxford dictionary defines corporeality as "relating to a person's body, especially as opposed to their spirit. Source: http://www.oxforddictionaries.com/definition/english/corporeal?q=corporeality#corporeal__7
[127] Steven Schick, *The Percussionist's Art: Same Bed, Different Dreams* (University of NY: Rochester Press 2009), 7.
[128] Ibid.

work itself[129] in every action executed, not only through his or her isolated movements, but through the *value*[130] that is imprinted to each instant through performative gestures.

Therefore, it brings me to redefine multi-percussion as **"the performing body in motion**." How and why we move in time and through space is of significant relevance in our practice. In my doctoral research, I set out the goal to redefine what it means to me with three new collaborations. In each of them I approached the role of the *performing body* in a radically different way.

First, in *Aphasia* I used the performing body as a dancer's. By establishing a personal approach to Mark Applebaum's score, I created my own choreography using my knowledge as a percussionist and dancer expanding my practice outside the conventional multi-percussion discipline.

Second, in *150pF*, Hugo Morales and I worked collaboratively forming the concept of the piece to the delivery of its final version. Through the process of research-creation, I as performer critiqued different compositional aspects of the piece, leading to notational and compositional changes in different sections of the work. The unprecedented use of my tongue as an electrical sound articulator positions my *performing body* as an electronic interface. I found this process to be inspirational throughout.

Third, in *Six Drawings by Randall*, David Adamcyk and I used video recording, improvisation, and performance as compositional tools. Instead of playing notated drafts, ideas were brainstormed, improvised and video recorded on the spot during our sessions.

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[129] Robert Esler, "I Drum the Body Electric." In *The Modern Percussion Revolution: Journeys of the Progressive Artist*, edited by Kevin Lewis and Gustavo Aguilar, 120. New York: Routledge, 2014.
[130] Steven Schick, *The Percussionist's Art: Same Bed, Different Dreams* (University of NY: Rochester Press 2009), 7.

In effect, we created a custom electronic instrument that involves the *performing body* as a real-time image and sound interface.

Multi-percussionists have often taken on new works that fall outside of the established canons. Of course this is not exclusive to percussionists but the nature of their instrumental and technical facility has contributed to this situation. Multi-percussionists have naturally evolved into **multi-disciplinary performers**, highlighting the *performing body* as the focal point of expression pushing the boundaries of musical skills, instruments, and technology. Creating new works as a **performer-composer** expands performance practice, implies a self-discovery process, and constitutes an original contribution to the field to be continued.

If this constantly increasing range of abilities keeps growing, how are performers going to cope with this variety in the future? If playing all current percussion instruments at a virtuosic level seems impossible today, how is it going to evolve in sixty years from now? Performers' capacity for adaptation will play a key role, and multi-percussionists exercise this capacity in every work of their repertoire. This project has been but one example.[131]

[131] Others are already emerging, e. g., Mark Applebaum's *Composition Machine* (2014), for solo performer, challenges the player to 'write' the score live on stage by drawing shapes of certain objects and subsequently the score is performed on a setup predesigned by the performer. This piece was recently commissioned by a community of over sixty multi-percussionists.

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