

DANCE FROM THE CENTER:
TECHNIQUE, PHILOSOPHY, AND BIOMECHANICS

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TABLE OF CONTENTS:

Abstract	4
PART 1: BASIC TERMS	
1. Core	5
2. Center	6
3. Technique	7
PART 2: MODERN DANCE TECHNIQUES	
1. Basis of Modern Dance	8
2. Martha Graham	9
3. Lester Horton	11
4. José Limón	13
PART 3: BALLET TECHNIQUES	
1. Basis of Ballet Technique	15
2. Enrico Cecchetti	17
3. Agrippina Vaganova	18
4. George Balanchine	19
PART 4: PHILOSOPHY	

1. Defining Philosophy in General Terms	22
2. Discerning Philosophy from Technique	23
3. Ohad Naharin	23
PART 5: IMPROVISATION	
1. Defining Dance Improvisation	26
2. Context within Dance & Technique	27
3. William Forsythe	27
PART 6: BIOMECHANICS	
1. Defining Biomechanics and Its Place in Dance	30
2. Ballet Biomechanically	31
PART 7: CONCLUSION AND BIBLIOGRAPHY	
1. Conclusion / Summation	33
2. Bibliography	34

ABSTRACT:

My thesis is that dance originates from the core in more ways than one: biomechanically, spiritually, philosophically, and traditionally. I have created a thesis as a research-based paper. This thesis utilizes various dance texts on philosophy, improvisation, modern dance techniques, ballet dance techniques, and the biomechanics of dance, as well as autobiographies of principle figures of techniques in the concert dance community. These works are composed primarily of library research from varying sources. I believe that although many dance resources mention the core or the spirit of dance in their texts, I do not believe that many have covered this kind of motivation to dance holistically and thus I believe that my proposed project and research will be distinguished from others. From this research I aspired to discover more about my dancing's origin and gain increased bodily awareness in my art form. There will be various texts examined through each semester. I had held scheduled meetings with my advisor throughout the semesters. This culminated in more inspiration for deeper research into various subjects surrounding my thesis and will produce greater work output overall. Criteria for the evaluation of my thesis should be the consideration of the validity of the sources in the art form—dance—and how well this topic has been explored holistically.

PART 1: BASIC TERMS

1. Core:

In order to build this paper from the ground up, it is important to recognize and further explain the foundation: the core. The word core does not have a distinct etymological origin; however, its meaning stretches well beyond that of the human body and dance in general (merriam-webster.com). Core can refer to some of the most complex components of the universe—nuclear fission, RAM, celestial bodies—as well as the smaller and more basic parts of life—fruit, stone, castings. The semantics of the word core that pertain to this paper are defined as an essential, enduring, or basic part, the essential significance, the most intimate or inmost component. These elements concern the building blocks of this paper in a way that seems so basic that it nears being ineffable or seemingly redundant. However, that is the exact purpose of this paper: digging into the core of what dance is and where it comes from. Throughout this paper, the impetus of movement, i.e. the core of the movement, will be explored from various significant points of view from people inside and around the concert dance world, each defining and refining movement at its origin and essential parts.

2. Center:

The second term necessary to establishing the basis of this paper is center. Center comes from the Greek word *kéntron* meaning stationary point of compasses and midpoint of a sphere or circle (merriam-webster.com). This word itself is partially defined by Merriam-Webster as “a point, area, person, or thing that is most important or pivotal in relation to an indicated activity, interest, or condition” as well as “a source from which something originates”, and “the middle part (as of the forehead or a stage)”. These meanings together convey a sense of importance, origin, and concern the human forehead as well as performing artists’ area of events. Not only do these meanings support the ideas being built in this paper fundamentally but also they are furthered by the ideas of dance in particular. Aside from Lander’s famous 20th century ballet *Études* (among other few exceptions), dance is performed in center, i.e. the middle of the room, on stage, without barre (abt.org). Most of dance is performed in this medium of space, further relating to the importance of center in dance as both a concept and essential part.

3. Technique:

The last of these basic terms to be defined is technique. Technique comes from the Greek word *téchnē* meaning “art, craft, proficiency in an art or craft, systematic method of performing or engaging in an art” (merriam-webster.com). Etymologically, there is a link between technique and art which can also be seen in semantic and pragmatic contexts. Painters and visual artist employ technique to make their craft, cinematographers and editors use technique to frame film into certain narratives and ideas, and dancers use technique as the basis of organized movement. This is particularly emphasized through the ideas of technique being systematic and concerning proficiency. Technique, the word itself, is defined as how basic physical movements are utilized and the method of successfully executing a goal. In the following paragraphs, various technical methods will be explored relating to the terms of core, center, and the pure semantic idea of technique, i.e. the craft of art’s tasks and the art itself.

PART 2: MODERN DANCE TECHNIQUES

1. Basis of Modern Dance:

Modern art on the whole is about rejecting, reinterpreting, and re-imagining traditional aesthetic and practical values of the past. Thus, modern dance is the rejecting, reinterpreting, and re-imagining of dance's traditional aesthetic and values, especially those of ballet (mymodernmet.com). There is a concrete focus in modern dance on truth, breath, and the core throughout all of its techniques and styles: those of Martha Graham, Merce Cunningham, Doris Humphrey, Charles Weidman, José Limón, Paul Taylor, etc. These artists have a particularly strong emphasis on the ideas prevalent in this paper and thus represent a strong jumping off point as the foundation of the center's use in the body. Although modern techniques sometimes use barre as a means of strengthening the dancer, i.e. Martha Graham and Louis Falco among others, these methods are not the same as ballet. In fact, most modern dance classes start on the floor or in the center of the room with exercises primarily using the core and axial skeleton. In some instances, pedagogues of these various techniques and styles of the 20th century will employ imagery of the core and spine. These images are to prompt the imagination of the dancer thus allowing motion and emotion to be generated from the inside out.

2. Martha Graham:

Martha Graham, the daughter of a psychologist, created one of the most renowned techniques in all of both modern dance and dance as a whole. It is a pervasive dance language technique throughout the dance world. Famous and renowned performers and choreographers such as Merce Cunningham, Paul Taylor, Pearl Lang, Twyla Tharp, Erik Hawkins, and even Madonna have studied at the Graham School in New York City, most of whom performed with the Graham Company before starting their own companies, techniques, and styles (Halpern, 1). In fact, many of the Graham School's students can be found as alumni in companies such as Merce Cunningham Dance Company, Paul Taylor Dance Company, Taylor 2, Limón Dance Company, Alvin Ailey American Dance Theater, and countless others. Even motion picture stars and actors of the theater studied with Martha Graham. Particularly in the 1940's through the 1960's, actors trained with Graham in order to learn how to access their centers through contraction and release as the impetus to crying on demand.

Graham believed that energy came from deep inside the human body, allowing dancers to be free and in control (Halpern, 4). This energy was to be directed in common commands of 'taking in space', 'reaching out, 'and 'projecting beyond the perimeter'' (Halpern, 9). This human movement is an expression of truth—one of the main virtues of

modern art and modern dance in particular—and can be seen in one of Martha Graham’s most famous quotes: “Movement never lies” (Halpern, 4). She believed that dance is the communication of the most basic instrument, that being the body, a mirror of the intuition and instinct of the human soul (Halpern, 5). Through these instruments, Graham was trying to access the significance, i.e. the core, of dance itself (Halpern, 10). Graham stated that technique is about allowing the inner self to take shape through the body (Halpern, 5). These ideas seemingly relate mostly to the concepts of her technique and less so the physical movement; yet, they are essential in the explanation of her technique, the basis of which are three actions: contraction, release, and later, the spiral. All three movements are articulations initiated from the core, the center, articulated by the axial skeleton. Specifically, contraction and release were the most basic of impulses in the technique to create movement and use the inner energy (Halpern, 12). Movements such as these are closely related to breath which is said to have been influenced from Graham’s early exposure to Yoga (Halpern, 7). Over time, she furthered the impact of energy from the core by creating a clearly visible framework to display these distinct movements, augmenting the breathing and creating exercises with precise timing (Halpern, 14). These exercises were to be learned from the inside out, as per Graham’s instruction, and basic exercises were present in every class to build strong foundations of what the technique was to become (Halpern, 18, 27). Aiding in these motions were distinct images and qualities geared to stimulate and inspire her dancers’ imaginations

(Halpern, 20). This created many personal connections to the movement allowing the dancers to share greater inner truth. The technique was simply a means of expression to bring the inner voice clearly outward in a way that was natural to Graham dancers after enough exposure and experience (Halpern, 23).

Graham's technique also focuses on particular ways of walking, skipping, running, leaping, etc (Halpern, 9). Taking, these basic movements, Graham tore down the past and constructed a dance vocabulary that conveyed the ideas of her inner landscape (Halpern, 10). The technique requires all movement initiated from the center of the body—the emotive core—and is carried towards the extremities meaning all movements relate and could be traced to the center. Even the concept of spontaneity, as emphasized by Graham, is said to be a reminder of the technique's feeling. Spontaneity, something not related exactly to one's emotions or intellect, reflects dance and art at their core. Graham believe that art was not to be understood, but experienced by the self (Halpern, 6).

3. Lester Horton:

Lester Horton was a modern dance pioneer and created his own codified modern dance technique, leading the modern dance revolution on the West Coast in the time of

Martha Graham, Merce Cunningham, and José Limón. This technique is used widely across the United States and Europe as a supplement to many ballet programs and dance organizations such as The Juilliard School, Fordham University, New World School for the Arts, and The Ailey School, among others. One of Lester Horton's greatest protégé's was Alvin Ailey, a famous African American choreographer and dancer who went on to form Alvin Ailey American Dance Theater based out of New York City. Although the company is contemporary and ballet focused currently—in addition to modern—members of the company generally undergo rigorous Horton training at the Ailey School before joining the company. Horton's technical influence can be found in many of the greatest modern and contemporary pieces, particularly those of Alvin Ailey, Bella Lewitsky, and Ulysses Dove, as well as many others.

Not unlike Martha Graham's own technique, Lester Horton's technique originated from the torso and all movements inside of this technique are supposed to originate from the torso (Perces, 7). Secondary initiating points can be from the diaphragm, the sternum, the pelvic girdle, and the shoulder, i.e. areas in close proximity to the torso. This is reflected in how nearly all Horton classes begin. The exercise is called flat backs, rigorous successions of movement that stretch the hamstrings, strengthen the abdominals, and prepare the back for the rest of the technique's class movement vocabulary (Perces, 28). Notably, these exercising focus on the muscles of the torso and those originating

close to the center, particularly the back and abdominals; however, it is worth being noted that the hamstrings partially begin on a bony landmark of the pelvis, the Ischial Tuberosities i.e. sitz bones. The pelvis is the most inferior part of the body center discussed in this paper and is utilized heavily in this technique as well as Martha Graham's. Many ideas of this technique have been carried forward with greater biomechanical knowledge as well as the enlightenment of injury prevention studies through Lester Horton's muse, Bella Lewitzky. Much of the rigidity of Horton's technique has been eased out to better accommodate the human body through Lewitzky's own technique while still utilizing the torso as its movement's primary impetus.

4. José Limón:

The ideas of José Limón and his now codified technique are imbued with the idea of dance originating from within. This common theme of modern dance was greatly exemplified with his many modern dance performances and the qualities he looked for in his fellow company members (Lewis, 24). Not only did he want dance and all of its qualities to come from within, he believed that dance should then be felt and coordinated with the body as a whole unit. This concept was something he called "the body as orchestra" (Lewis, 27). These body parts were to be thought of as originating around the central axis of the body, utilizing these ideas for suspension and balance. Each body part

must be thought of in how it relates to the central axis which is varied among the corresponding weights and positions of every individual human body (Lewis, 27). He encouraged dancers to reach inside to utilize as much space as they possibly could and then, to conceptualize and manifest movement even further from themselves (Lewis, 30). Limón dancers have a great perception of gravity and use it as another primary force in the technique (Lewis, 35). Gravity, the force that pulls us towards the center of the earth, relates back to the idea of movement concerning and originating from the core. These dancers both use gravity, and seemingly defy its laws (Lewis, 35).

José also thought of dance as not needing music and desired to find the quality of dance that inspires wonder with pieces in complete silence, further pushing dance to its primordial place in consciousness (Lewis, 28). These pieces used breath and shared rhythm as their means of organization. One of these pieces in particular, *The Unsung*, was constructed of 6-8 men performing in varied groups of unison, each with their own solos and transitions, and all without music. Limón asked of them to find the piece in a deeply personal way in order to convey the piece's thoughts and ideas clearly without the directions and indications that music gives to dance pieces and film alike (Lewis, 29). Conclusively, Limón was most concerned with the truth of the dance in comparison to technique (Lewis, 30) Although this might seem simply philosophical, thinking of truth

while dancing manifests in the qualities and tones of the movement in the technique and is often visible even to the untrained eye.

PART 3: BALLET TECHNIQUES

1. Basis of Ballet Technique:

Ballet is a folk-art form with origin in the Italian renaissance of the 15th-century. As a whole, the art form was greatly propelled by the wealth and interest of Catherine de Medici in the 16th century by funding ballet in the courts of France. Later, King Louis XIV drove to standardize and popularize the art form, opening a dance academy in Paris in 1661 and transitioning ballet to the stage in 1681, only twenty years later. Other figureheads such as notable Frenchman Jean Georges Noverre moved ballet from its opera divertissement status to dramatic ballets, i.e. ballet d'action, the proto-narrative ballet. Thusly expressive romantic ballet such as *La Sylphide* and *Giselle* were quite popular in the first half of the 19th century and inspired Russia to take great interest in ballet. Russia produced many famous ballets in the second half of the 19th century through choreographers Marius Petipa and Lev Ivanov, transitioning ballet from the Romantic era

to the Classical era. These choreographers notably worked with world renowned composer Tchaikovsky on three original works that have become arguably the three most iconic classical ballets of all time: Swan Lake, The Sleeping Beauty, and the Nutcracker. Entering the 20th century, works transition out of the Classical era into the Neo-classical and contemporary fields, combining the abstract concepts of modern art to classical forms as well as pushing beyond classicism as much as possible (pbt.org).

The above's brief written history of ballet shows its diverse origins—those in Italy, France, Russia, and America—as well as how ballet narrative has changed over time. This relates to technique in many ways as dancers nowadays practice classical ballet as the primary source in most concert dance settings with some schools—such as the School of American Ballet in New York City—training their students in a clear neoclassical style, whilst Romantic ballets such as Giselle and La Sylphide live on in practically all major companies. However, these next few sections are primarily concerned with classical ballet technique's various styles, its direct variant neo-classical ballet, and how these concepts relate to the physicality and idea of center across the board.

2. Enrico Cecchetti:

Enrico Cecchetti was born into the arts as he was born in Rome in the dressing room of a theater and debuted on stage in his father's arms as an infant. Growing up, Cecchetti was determined to be a dancer and was trained by famous teachers of La Scala in Milan as well as by the father of one of the most famous ballerinas of the 19th century, Marie Taglioni. Another notable teacher with his own syllabi and theories was Carlo Blasis who greatly influenced Cecchetti's own pedagogy later on. His career toured him around Europe, bringing him to Russia's Mariinsky Ballet where he became a Premier Danseur and then began teaching at the Imperial Ballet School. Cecchetti soon became a teacher of note as the exclusive teacher to Anna Pavlova and later for the Ballet Russes, hired as a ballet master and mime in order to satisfy the dancers' desires for his teaching (cecchetti.org).

The port de bras of this technique in particular relates to a sense of center in a bodily fashion. Cecchetti's technique imagines lines drawn down the center of the body. This forms the basic boundary of the shape of the arms in various positions. The line in question is supposed to create symmetry with the arms in first position, as well as third, fourth, or fifth positions. Forming a boundary, it allows for the arms to never overcross and lose shape, a concept that carries throughout practically all of ballet as well as many forms of modern dance (Beaumont, 25). Another important bodily landmark for port de

bras is the ribs, the part of the axial skeleton which protects many vital human organs. Notably, although aplomb is not as distinctly described in the text being examined in this section, nearly every exercise starts with the command “Stand erect”. This relates directly to the sense of strength and stability from the axial skeleton and its closely related muscle groups. One could say that without aplomb, ballet doesn’t exist in form, further emphasizing how the core controls most of dance across its many forms, techniques, and styles (Beaumont).

3. Agrippina Vaganova:

Agrippina Vaganova was a famous Russian ballet choreographer, teacher, and dancer. Her ideas of ballet technique have created a standard for learning classical ballet across the world. She trained in St Petersburg at the Imperial Ballet School and after her graduation joined the corps de ballet of the Mariinsky Theatre Ballet Company. Marius Petipa favored her dancing and featured her in ballets such as *Don Quixote* and *Coppelia*. After her dancing career she taught at various academies across Russia and notably was the Artistic Director of the Kirov Ballet. One of the schools she taught at—the Leningrad Choreographic School—was renamed the Vaganova Ballet Academy in honor of her teaching and pedagogy (Vaganova Academy).

A main goal of Vaganova's style of classical ballet technique is instructing students to dance with their entire body (Vaganova, xii). This relates to a holistic sense of ballet movement's core and agrees with all of modern dance as well. The structure of the numbered ballet facings, although relating the room's front, corners, sides, and back, are imagined with the dancer at the center of them. In this case, the dancer is point of the compass that reaches out from the center (Vaganova, 4). Another important concept in Vaganova's style of ballet is that of aplomb. She expressed how the human spine is the root of aplomb in dance. Through one's muscular sensations, a dancer learns control of the spine particularly in the region of the back whilst performing various ballet steps. These sensations are then combined with the waist's muscles once the feeling is established, thus gaining a greater sense of stability (Vaganova, 25). Since most if not all combinations in classical ballet are performed upright, this is quite a crucial part of Vaganova's style as well as all of classical and neoclassical ballet.

4. George Balanchine:

George Balanchine was the son of a composer and became one of the most important choreographers of the 20th century through his ideas of neo-classical ballet. He studied piano from the age of 5 and dance from the age of 9, graduating from the Imperial Ballet School and enrolling at the Conservatory of Music where he would study music for

three years. Balanchine also danced with the Mariinsky Theatre Ballet Company as a member of the corps de ballet. He defected to dance outside the Soviet Union and joined Sergei Diaghilev's Ballet Russes where he would later act as ballet master. After his experiences with the Ballet Russes he began choreographing on various European companies. Although Balanchine formed his own company, Les Ballets, in Paris, America was where he would become his most famous. Collaborating with Lincoln Kirstein, they founded a school to train young dancers and feed into a larger company: The School of American Ballet. After forming various companies and efforts with Kirstein—American Ballet, American Ballet Caravan, Ballet Society—they finally established a solid hold in the New York public eye with the New York City Ballet. Here, George Balanchine acted as ballet master, artistic director, and resident choreographer, training students and company members alike in order to prepare them for his new and daring works (NYCB).

Balanchine developed a reputation for choosing and encouraging very specific female ballet bodies in comparison to ballet's past. His ballerinas were tall, slender, long in the feet, endowed with exceptional turnout, had great capabilities of leg extension in height, were extremely quick, virtuosos of both classical and neo-classical degrees, and had quite refined musicality, among many other virtuous qualities. However, it is often said that he believed dance was not about these things but about the dancers themselves

(Schorer, 21). It was not specifically what intrigued him but specifically who intrigued him. In believing that the most interesting dancer is the most interesting person, Balanchine produced some of the greatest American star ballet dancers of the 20th Century, among them being Edward Villella, Gelsey Kirkland, Jacques d'Amboise, Allegra Kent, Peter Martins, Suzanne Farrell, and, in his legacy, Peter Boal, Wendy Whelan, and countless others. This thought certainly connected with audiences and showed how dance best comes from a personal place and one's personality. Technically, Balanchine preferred to look at the body in symmetrical halves, emphasizing the beauty in symmetry that ballet continues to perpetuate (Schorer, 39). The concept of imaginary lines is related back to the other classical ballet techniques we discussed with Balanchine taking it a bit further. He purported that the impetus of movement in the arms comes from inside the center of one's body. It emanates sequentially from the arms, to the hands, to the fingers, and out into space. This is a common correction given by Balanchine when he taught class for his company (Schorer, 147). Another greatly emphasized idea in Balanchine's version of ballet is that of the cross and overcross. Crossing and overcrossing relates to the center in how we visualize our center line. In this technique, fifth positions, first positions and practically all other positions of the feet and legs relate to the symmetry / identity of the center line. This is where tendus, développé, and all positions both à terre and en l'air as well as en avant and derriere must meet (Schorer,

265). Displaying the idea of center in practically every position was an idea that continues to pervade most forms of classical ballet technique to this day.

PART 4: PHILOSOPHY

1. Defining Philosophy

The word philosophy comes from the Greek roots phil-, meaning love, and sophia, meaning wisdom. Philosophers and those who concern themselves with philosophy are lovers of wisdom. Philosophy itself can be defined as ‘a discipline comprising as its core logic, aesthetics, ethics, metaphysics, and epistemology’ as well as ‘pursuit of wisdom’, ‘a search for a general understanding of values and reality-’, ‘an analysis of the ground of and concepts expressing fundamental beliefs’, and ‘the most basic beliefs, concepts, and attitudes-’ (merriam-webster.com). Although these meanings are varied, they share the ideas of wisdom at its core, fundamental underlying values of our reality, and truly our basic beliefs: the foundations on which life itself is built.

2. Discerning Philosophy from Technique

Technique and philosophy can seem similar in many aspects. They both concern the meanings of our reality, they are both disciplines based on fundamental logic and aesthetics, the study of them expresses fundamental beliefs, and they concern the bases of what being human is. However, philosophy applied to technique and dance is quite a different subject than technique applied to dance. Technique has style in addition to its underlying knowledge of biomechanics. Learning a specific technique has the touches of history and interactions built into its study as a folk-art form. Philosophy is more abstract and conceptual. In studying the philosophy of dance, one attempts to build meaning from why we are moving not just how we are moving.

3. Ohad Naharin & Gaga

Ohad Naharin is currently the House Choreographer for Batsheva Dance Company in Tel Aviv, Israel and created the movement language Gaga. Born in Israel, his father was a psychologist and his mother was a Feldenkrais teacher. Despite no formal training, Naharin joined Batsheva Dance Company in the era of Batsheva de Rothschild's and Martha Graham's influences. Graham then invited Naharin to perform in her company in New York where he would study at the School of American Ballet and

The Juilliard School. In New York, Naharin formed his own company and created many original works on them before being appointed artist director of Batsheva in 1990, a position which he held until 2018. Throughout his time in New York and Israel, Ohad has been developing the movement language he calls Gaga which acts as the daily training of Batsheva's dancers (batsheva.co).

Studying movement and gaga from a philosophical point of view recognizes the body as the origin for building knowledge phenomenologically (Katan-Schmid, ix). To clarify, phenomenological knowledge is the knowledge one observes through their own perception. The human body interprets massive amounts of phenomenological knowledge in addition to its own tacit knowledge, that is knowledge that it understands simply by existing (Katan-Schmid, 5). Making sense of these pieces of knowledge is a process undergone by studying this base of phenological and tacit knowledge, and building knowledge on top of that information slowly to create a sound and solid structure of study. In understanding dance philosophically, one must propose that dance is philosophical with ideas physically embodied inside the movement (Katan-Schmid, 7). This is quite different from most philosophies as philosophies are normally built on words through ideas. In this case, dance philosophically is built upon immediate and underlying perception of the world. Building knowledge in this way relates to René Descartes logical philosophical dictum 'cogito, ergo sum', meaning 'I think, therefore I

am' (alberells.org). Dance's fundamental logic can only be built up strongly by this step by step process. Thus, dance is shown to be a quite ephemeral art form philosophically as it is built by phenomenological knowledge and tacit knowledge. Dance's philosophy consists of the ideas perceived in the moment as well as parts already understood by the dancer. Philosophy of dance thus differs from technique in how it is not about the structure of the art form but about perception. Philosophy suits Gaga well then as it is not as concerned with technique as an ever-developing movement language of guided improvisation. The fundamental concepts of Gaga are being built slowly over time based on tacit and phenomenological information of dancers. Gaga supports the idea that building meaning in dance is about the dancer's perception and not the dancer's steps. Through improvisation, not steps, the dancers are allowed to express their perception of concepts and information through their own movement (Katan-Schmid, 10).

PART 5: IMPROVISATION

1. Defining Improvisation

Improvisation comes from the Latin roots pro-, meaning 'forward', and videre, 'to see', combined with the prefix in- / im-, 'not / negation', and altered with the suffix -ation, 'act of' (merriam-webster.com). These roots come together to conjure a meaning in an act that is not foreseen. The act of improvising in dance is just that: not planning for what is coming next so much as feeling the impetuosity inside one's body. In life, people improvise all the time. One cannot know exactly what is always going to happen, thus the accumulated knowledge one possesses allows them to cope with the randomized nature of the universe and carry on. This notion of improvisation is often different than how it is perceived in the arts. Oftentimes, when a musician improvises, there is a great underlying structure such as a key of music or a plethora of scales to choose from. The underlying and unconscious knowledge that comes from experience aids one in improvising well. Similarly, dancers much of the time create improvisational parameters to perform within. We are oftentimes not concerned with pure, unfed improvisation but with particular tasks and ideas.

2. Context within Dance & Technique

Dance improvisation is now a widely known practice by professional dancers and dance enthusiasts alike as it one of the events that can shared by both in the same capacity. In America, dance improvisation as a practice became popular in the 1960's and 1970's with the post-modern ideas of deconstructing art and concert dance in various ways. A figure who stands out in terms of organizing this practice is Steve Paxton who founded an organization called Contact Improvisation. A former dancer with the likes of Merce Cunningham, José Limón, Trisha Brown, and Yvonne Rainer, Paxton began seeing the valuing of everyday improvised activities which soon moved onto contact improvisation. This type of improvisation technique was named Material for the Spine and focused on movement coming from the center of the body. These practices, although Paxton is not consistently recognized for starting them, are seen in all types of contemporary dance today as well as many choreographic processes as a tool (foundationforcontemporaryarts.org).

3. William Forsythe

William Forsythe was raised in New York and danced with prestigious concert dance companies such as Stuttgart Ballet and the Joffrey Ballet. After his performing

career ended, he became the Resident Choreographer of Stuttgart Ballet and created works on that company as well as ballet companies in San Francisco, New York, Paris, Frankfurt, Berlin, Basel, London, The Hague, and Munich among others. Later on, he became the artistic director of the Ballet Frankfurt and later established his own company, The Forsythe Company. His works can be found amongst nearly all of the world's major ballet companies including the Paris Opera Ballet, the Royal Ballet of London, Semperoper Ballet Dresden, the National Ballet of Canada, San Francisco Ballet, New York City Ballet, and the Mariinsky Ballet. In addition to traditional choreography, he developed a CD-ROM entitled *Improvisation Technologies: A Tool for the Analytical Dance Eye* which has been used by various companies to train their dancers in expansive contemporary ballet improvisation (kaufman.usc.edu).

Forsythe believes that the body in space is at the root of all possible extension. There are three primary ways that the body interacts with space concerning extension. The extension of narrative is the body in space concerning time, meaning creating narrative is about how bodies move in space over time. Ritual extension is how the religious or dedicated body moves in sacred space. Lastly, the interactive extension of life is the body and how it affects space. Thusly, space is the main important factor under Forsythe's ideas of improvisation, aside from the body from which he believes all movement extends (Forsythe, 8). In this case, the idea of core is the entire body of the

dancer. Forsythe proposes that improvisation is made up of voluntary decisions that are then affected by the space around oneself as well as gravity and velocity. Combining these various outside factors is what causes oneself to continue to make decisions, whether conscious or unconscious (Forsythe, 22). With these ideas established, Forsythe encouraged his dancers to look for information outside themselves through perception, sight, and touch. From the tacit foundation of knowledge that the body already has available, Forsythe asks dancers to look for ideas and movements that are not memorized internally. They must “re-read” different parts inside themselves and stimulate new ways of moving. The items that could impact this sensory input could be three-dimensional objects, fingerprints, etc. Then, taking those items, one must translate them into two-dimensional base ideas and form them into three-dimensional movement (Forsythe, 28). Over time, these new ideas become internalized and the process begins again with new items in every session.

PART 6: BIOMECHANICS

1. Defining Biomechanics and Its Place in Dance

The words biomechanics comes from the Greek roots bio-, meaning ‘life, or war of living’, and mēkhanē, meaning ‘machine, tool, device’ (merriam-webster.com). Thus, biomechanics relate to how machines, in the scientific sense, pervade natural life. Semantically, biomechanics specifically relates to mechanical muscular activity such as exercise or locomotion and is an interdisciplinary field taking into account anatomy, physiology, kinesiology, physics, among other maths and sciences. This field allows one to truly understand the actual world of dance through the body in a scientific and apparent fashion.

2. Ballet Biomechanically

Ballet in particular seems to be defined by what the arms and legs are doing at all times, as these give ballet its various codified positions. However, arms and legs are not the primary appendages one uses to change direction, turn, or balance whilst dancing (Grieg, 15). As mentioned by the various famous ballet pedagogues examined in this paper, aplomb i.e. stability is the quintessential feeling in all ballet techniques and dance

technique in general. This sensation given from correct placement of the spine and muscular sensations can be boiled down further in biomechanical terms (Grieg, 15). A common idea of centering one's spine concerns positions of the vertebrae along the spine and the desire to lessen the curves through length (Grieg, 19). With greater length of the spine, range of movement from all appendages can almost immediately be felt. Spinal length creates freedom and most famous professional dancers seem to move from this place (Grieg, 20). This is also called the pull-up and occurs between the coccyx and the C1 vertebra. The axial skeleton, which includes the spine, also includes the head, one of the main weight centers of the body. Heads contain the equilibrium of the body through sensations of position, weight, and motion from the inner ear (Grieg, 22). Movement of the head is led by the top two vertebrae of the spine—C1 and C2—nicknamed Atlas and Axis respectively (Grieg, 21). Many movements in ballet require the rotation of the spine, particularly *cambrés*, *attitudes*, and *arabesque*, where the true strength of the center / spine is put to the test. Rotation of the spine also is the impetus of turns and facilitates sharp or quick changes in direction. This action also produces *épaulement*, one of the most basic and essential concepts in ballet (Grieg, 23). *Épaulement* taking place in the lower thoracic vertebrae and allows multiple *pirouettes* to be successfully achieved. Flexibility and strength in this area are essential to established dancers and are best gained through correct placement as early students of the art form. The lower thoracic

region is joined with the lumbar vertebrae in great leg extensions and full *cambré derrière* (Grieg, 24).

In addition to the strength of the spine and head, strong abdominal muscles ensure the safety of the movements mentioned above. They counteract backbends eccentrically, resisting gravity's pull, and contract concentrically to bring the dancers into the upright condition. Arabesques as well require strong abdominals, sustaining the spine and taking the weight of the pelvis away from the supporting leg (Grieg, 24). Posture, in a biomechanical sense, is considered the place from which movement always flows. This is due to it being the most efficient structure in which dance can occur (Grieg, 26). With the help of the pull-up, one's posture becomes ideally balanced, shifting the spine parallel with the line of gravity and thus reducing the overall muscular efforts required with standing (Grieg, 27). This action involuntarily activates the front pelvis while pulling the patellae up. It is with the ease that the muscles, whose task to move bones, can best accomplish their primary task (Grieg, 28-29). A notably good way of thinking of the pull-up is to imagine one's spinal column as an ever-expanding rod which reaches into the floor and beyond the ceiling. By using this way of thinking, gravity's force, a constant inherent factor of human movement, can be decreased on the spinal column (Grieg, 29).

PART 7: Conclusion & Bibliography

CONCLUSION / SUMMATION:

Through this paper, it is shown that dance is holistically derived from the center. Technically, the center emanates movements in both ballet—Enrico Cecchetti, Agrippina Vaganova, George Balanchine—and modern—Martha Graham, Lester Horton, José Limón. Philosophically, dance's origin is the center, as evidenced by philosophical research of Ohad Naharin with Gaga. In improvisation, dancers create dance from their core, as shown by improvisation researchers Steve Paxton and William Forsythe. Biomechanically, dance comes from our core, e.g. the axial skeleton, the spine. Whether it is through different dance techniques, or teachers within those varying fields, dancers' cores are at the center of movement's forms and its manifold ideas.

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