THE "FIGHT" OF D. ANDREW STEWART AND THE T-STICK IN THE IMPROVISED CHOREOGRAPHY TO "EVERYONE TO THE POWER OF ONE"

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Abstract

Departing from a theatrical improvised performance recorded on video (2008) and its subsequent annotation in a graphic music score (2009), D. Andrew Stewart creates a choreography of 8 minutes and 45 seconds for his work, "Everyone to the Power of One". The human body and its "extension" (the T-Stick, a digital music instrument created in 2005 at the IDMIL lab of McGill University) play a fundamental role on stage, delivering explicit and subliminal meanings produced by this Canadian composer-performer. We present an analysis that consists of a superimposition and understanding of several artistic layers (context, words, sounds, dance, theater, and video). Despite being part of an improvisation, it reveals a coherent, meticulous performance plan and an intense, deliberate practice. It allows the construction of climaxes, including the demarcation of two golden sections within the general form A-B-[AB]'. The results of this study also highlight the interweaving of (1) musical motifs (notes, timbre, intensity, and sound envelopes), (2) large and small body movements based on martial arts, and (3) images and shadows produced by the performer, stage lighting and real time screen projection.

Keywords: *Improvised multimedia performance; body expression in music; analysis of music videos; D. Andrew Stewart; T-Stick.*

A "LUTA" DE D. ANDREW STEWART E SEU T-STICK NA COREOGRAFIA IMPROVISADA DE "EVERYONE TO THE POWER OF ONE"

Resumo

Partindo de uma performance teatral improvisada gravada em vídeo (2008) e sua posterior anotação em uma partitura gráfica (2009), D. Andrew Stewart cria uma coreografia de 8 minutos e 45 segundos para sua obra "*Everyone to the Power of One*". O corpo humano e sua "extensão" (o T-Stick, um instrumento musical digital criado em 2005 no laboratório IDMIL da Universidade McGill, Canadá) desempenham um papel fundamental no palco, comunicando significados explícitos e subliminares produzidos por este compositor-intérprete canadense. Apresentamos uma análise que consiste na superposição e compreensão de várias camadas artísticas (contexto, palavras, sons, dança, teatro e vídeo). Apesar de fazerem parte de uma improvisação, elas revelam um planejamento minucioso e coerente, e uma intensa prática deliberada. Isto permite a construção de clímaces, incluindo a demarcação de duas seções áureas dentro da forma geral *A-B-[AB]'*. Os

resultados deste estudo também colocam em evidência o entrelaçamento de (1) motivos musicais (notas, timbre, intensidade e envelopes sonoros), (2) movimentos corporais grossos e finos baseados em artes marciais, e (3) imagens e sombras produzidas pelo performer, iluminação de palco e projeção em tela em tempo real.

Palavras-chave: Improvisação em performance multimídia; expressão corporal na música; análise de vídeos de música; D. Andrew Stewart; T-Stick.

1- COMPOSER-PERFORMER D. ANDREW STEWART, THE T-STICK, AND THEIR SOUNDS

The **T-Stick** is a DMI (Digital Musical Instrument) created in 2005 by **Joseph Malloch** at IDMIL (Input Devices and Music Interaction Laboratory) at Schulich School of Music, McGill University (Canada), under the supervision of the second coauthor of this paper and presented as the main result of his Masters and Doctoral studies (Malloch, 2008 and 2013). Built inside and outside of an ordinary piece of regular ABS pipe with hardware and software, including several types of sensors (touch, pressure, movement, and orientation; Malloch and Wanderley, 2007) and allowing the performer to produce sounds with a variety of sound envelopes with many combinations of register, timber, dynamics and articulation. According to Pešević (2025, p.4), its sound production and playability are of a different kind when compared to traditional acoustical musical instruments:

> "…Minute finger articulations on the capacitive sensors, for example, do not appear as obvious, hidden under a wrap of heat-shrink tubing. Thus, the T-Stick enables gestural expressivity, but reduces the immediacy of traditional pitch control – directing users to think in terms of gesture rather than in terms of discrete notes...".

Since the inception of the T-Stick, **Andrew Stewart** has been the leading composer and performer of the T-Stick with many works written for this instrument[1], including solo, chamber,

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[1] D. Andrew Stewart's compositions are still being cataloged. They include: "Study No.1 for T-Stick" (soprano, T-Stick, 2006), "The One: a source of electrical and musical energy" (tenor T-Stick, 2006), "Packing a lunch!" (soprano T-Stick), "With winds" (soprano T-Stick), "Cyberain, uh-huh and bam" (soprano T-Stick), "Still Life: Eviction" (soprano T-Stick), "Dweller within" (soprano T-Stick), "E Pluribus unum" (soprano T-Stick), "Improvisation à trois" (soprano T-Stick, clarinet and vibraphone), "Ground salt" (soprano T-Stick and electric guitar), "Improvisation-Transir" (soprano T-Stick and bass flute), "Duet" (T-Stick and recorder), "Alt F in Front of the Body" (open instrumentation), while "Dancing with a tiger" (soprano, T-Stick, 2006) is still an incomplete work.

and symphonic repertoire. In his Doctoral dissertation (Stewart, 2010), he systematized the artistic use of the T-Stick, creating notations to facilitate the change of mappings[2], a symbology for traditional and graphic music scores, as well as theatrical performances of a choreographic nature. He challenges the non-acoustical nature of DMIs and invests in the development of an expanded idiomatic writing for the T-Stick that includes bringing the instrument closer to the centuries-old tradition of controlling pitch and using sequences of discrete notes to form motifs, short melodies, or even a harmonic progression.

Fig.1 shows the spectrogram of two melodic variations of the 3-note motif that pervades the whole recording of "Everyone to the Power of One". First, Stewart uses **traditional rhythms** (a dotted 8th note followed by a 16th note tied to a quarter note) in an **ascending chromaticism** (F-F#-G) that reverberates to form a **dissonant cluster** (Fig.1a). He then plays a very fast and intense **arpeggiation** (Fig.1b), which we called "magnetic whip". It is centered on the note F# and has a dynamics level we estimated qualitatively as progressing from *f* to *fff*. This arpeggiation spans over 5 octaves (the pitches $F\#_4$, $F\#_5$, and $F\#_9$), a tessitura that would be virtually impossible if the soprano T-Stick, with its short tube, were an acoustic instrument. Although this sonic gesture struck our ears as an **aural climax** containing the highest frequencies in the whole video recording, it is not accompanied by a relevant intensity sound level[3] or corresponding synchronized movements of the performer's body or the instrument. Thus, we will use the synchronies perceived in the sound-image binomial as a reference to determine the location of **structural climaxes** in the performance, as shown below in the second section of this paper.

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[2] In a more recent approach, DMI mapping can be viewed as "…codifying the complex physical-experiential phenomena of musical instrument performance into symbolic dimensions connected to language and numbers", in a way that it allows (1) a representational stability that keeps the original descriptors, (2) spatial metaphors in space, and (3) a directed and flexible flow of control data (Mcpherson, Morrison, Davison and Wanderley, 2024).

[3] An intensity spectrographic analysis of the main musical events in the videorecording of "Everyone to the Power of One" shows that its quantitative dynamics level varies from 6,5 dB (at [4:54.208] and [5:46.997]) to 66,5 dB (at [6:32.891]).
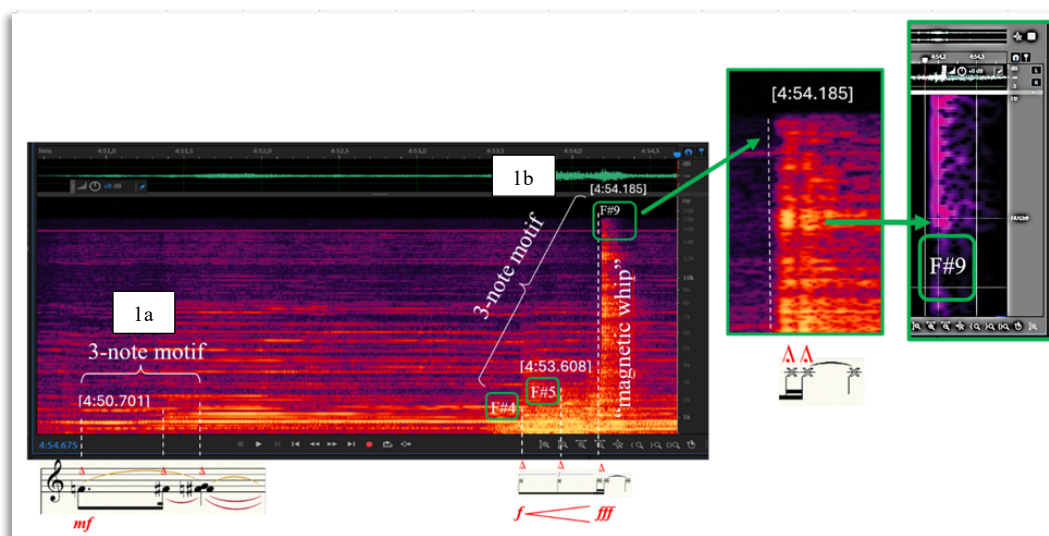
Fig.1 - Two recurrences of the 3-note motif in D. Andrew Stewart's recording of
"Everyone to the Power of One": melodic chromaticism (F-F#-G) becoming a
dissonant cluster (Fig.1a) and the intense and fast arpeggiation ("magnetic whip")
of the 3-note motif in 5 octaves (F#$_4$-F#$_5$-F#$_9$; Fig.1b).

Stewart not only manages to play discrete notes and rhythms with the basic 3-note motif of the performance but also goes as far as suggesting very stereotypical tonal **harmonic progressions** at [2:53], emphasizing the dominant, tonic and leading tone (the I, V and VII degrees) in the key of C major (Fig. 2). Moreover, he expands the ascending chromatic line, adding a semitone to it (E-F-F#-G).
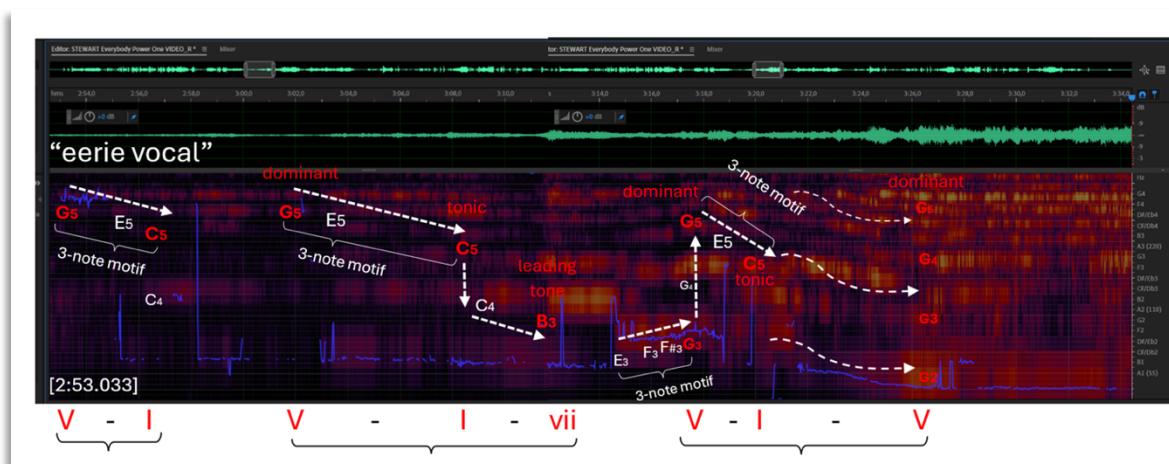

Fig.2 - Suggestion of traditional harmonic progressions in the key of C major and ascending chromaticism in D. Andrew Stewart's recording of "Everyone to the Power of One".

Unlike usual compositional processes, in which the performance comes after the music score, Stewart devised, practiced, and performed "Everyone to the Power of One" without a notation, scheme, or draft known to us. Only one year after the present performance was recorded in video (which is our main primary source; Stewart, 2008), he provided a bare, concise graphic score, which he calls a **prompt score** (also a primary source; Stewart, 2009), comprised of pictures and drawings. These images may suggest semiological indexes (Peirce, 2005) and causal listening[4] (Chion, 1994, p.25), sometimes with correspondence across the arts (Plaza, 2003) and specific values and cultures (such as international wars, martial arts, machinery, US cowboys, and sounding objects), and related body movements, dynamics, timbers and articulations (Fig.3a). Also, there are a few music symbols, both traditional (such as the dynamics from *pppp* to *fff,* a *fermata*, arpeggios and chords) and new ones created by Stewart himself. Among the latter, there is a 25-square 2-D tablature system to change the mapping of pitched, semi-pitched and unpitched sounds (Fig.4).
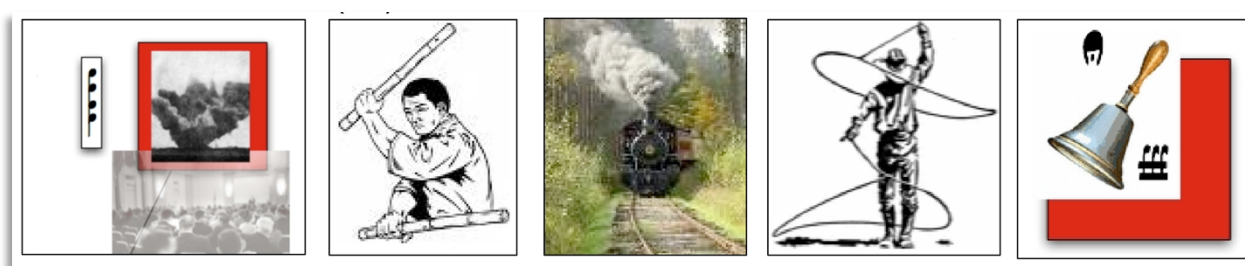

Fig.3 - Pictures (nuclear explosion, political meeting, steam locomotive), drawings (martial art fighter, lasso cowboy, handbell) and traditional music symbols (4-note chord, *fermata*, *fff*) in D. Andrew Stewart's prompt score to "Everybody to the Power of One".

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[4] Chion (1994, p.25-34) proposed three listening modes as far as the use and perception of sounds in multimedia: **causal listening** (related to identifying the physical source of the sound), **semantic listening** (related to the interpretation of the meaning of a sound), and **reduced listening** (after Schaeffer; related to analyzing and describing the acoustical traits a of a sound).
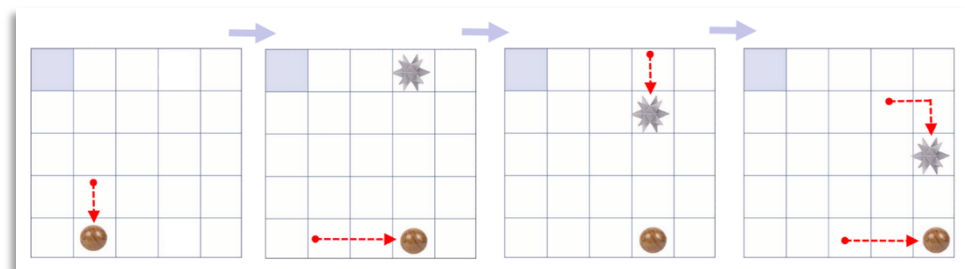
Fig.4 - D. Andrew Stewart's 2-D tablature steps throughout the prompt score for changing the mappings during the performance of "Everybody to the Power of One".

To analyze and describe Stewart's sounds and images after repeated **semantic** and **reduced listening** (Chion, 1994, p.28 and 29),[5] we created a detailed notation to transcribe the sounds, highlighting relevant musical events at local (**foreground score**), medium (**middle ground score),** and macro levels (**background score**).[6] Then, we selected corresponding photograms from the video to make more explicit the development of recurrent motifs, phrases, sections and, finally, the entire work in a single glance, which follows an *A - B - (A'B')* scheme[7]. From

To communicate the analytical results of this study, we employed the concepts and procedures of *mAVAm* (Method for the Analysis of Videos and Audios of Music; Borém, 2024, 2016). With its four writing tools, we created musical examples, such as those mentioned above and the ones that follow, combining layers of meaning from textual, contextual, sonic, and imagistic sources. We now focus on moving images that suggest explicit and subliminal meanings in the video performance.

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[5] The T-Stick is a mutable source of sounds depending upon ever evolving hardware, software and mapping, what limits greatly the causal listening in the videorecording of "everyone to the Power of One".

[6] In order to provide an analytical look encompassing small to large aspects of the performance, we resorted to the three analytical focuses of Schenkerian analysis (Forte, 1959, p.8-9), thus notating the text-sound-image layers of "Everyone to the Power of One" at micro, medium and macro levels to generate the foreground music score, the middle-ground music score and the background music score, which will be detailed in another paper.

[7] The *A-B-(A'B')* form reflects two clearcut contrasting sections [*A* and *B*] followed by a mixed and free recapitulation of their materials [*(A'B')*].

2- THE MOVING IMAGES OF STEWART AND THE T-STICK IN "EVERYONE TO THE POWER OF ONE"

To select photograms from the video of "Everybody to the Power of One", we resorted to the set of five concepts devised by Haga (2008) to analyze dance movements, and adapted to music by Borém (2014): (1) **Chunking**, which allows do divide the whole performance into smaller autonomous gesturally-marked units; (2) **Activation Contour**, which marks changes in activity or energy levels of Kinematics or Dynamics (both derived from physics); (3) **Kinematics** is related to changes in gesture speed; (4) **Dynamics**, differently from music, is here related to the forces for initiating or constraining a movement; (5) **Sync-Points**, which mark relevant synchronization points between music and gesture. To characterize body movements qualitatively, we used Laban's concepts of **effort**, **space**, **time**, **weight,** and **flow** (Rengel, 2001).

Michel Chion coined the concept of **synchresis**, a synthesis achieved by synchronism in filmmaking can be perceived as

> "… the spontaneous and irresistible weld produced between a particular auditory phenomenon and visual phenomenon when they occur at the same time […] a function of meaning, and is organized according to gestaltist laws and contextual determinations […] meaning and rhythm […] influenced, reinforced, and oriented by cultural habits patterns of mutual reinforcement and phenomena of "good form" that do not operate by any simple rules…" (Chion, 1994, p.63-64).

The title of the work in our case study, "Everyone to the Power of One", and the first three images of the prompt score strongly foretells a **war**: (1) a 4-note chord followed by (2) a nuclear explosion overlapping with what seems to be (3) a formal meeting of men in a large hall listening to a (political?) leader (first box of Fig.3). This is reinforced later in the prompt score by the drawing of a martial-arts fighter with bamboo sticks in attack and defense positions (second box of Fig.3). Although Stewart is alone on stage, sometimes the lighting produces two shadows of his in the backstage curtain in [2:45] of the video. More strikingly and reinforcing rhythmic activity, a mix of shadows and live video projections appears on the screen in [0:19], adding a group of six

extra "Stewarts" on stage (Fig.5). Thus, the initial "one" solo fighter becomes an army of "three", sometimes "seven" fighters, united as the "Everyone" in the work's title.
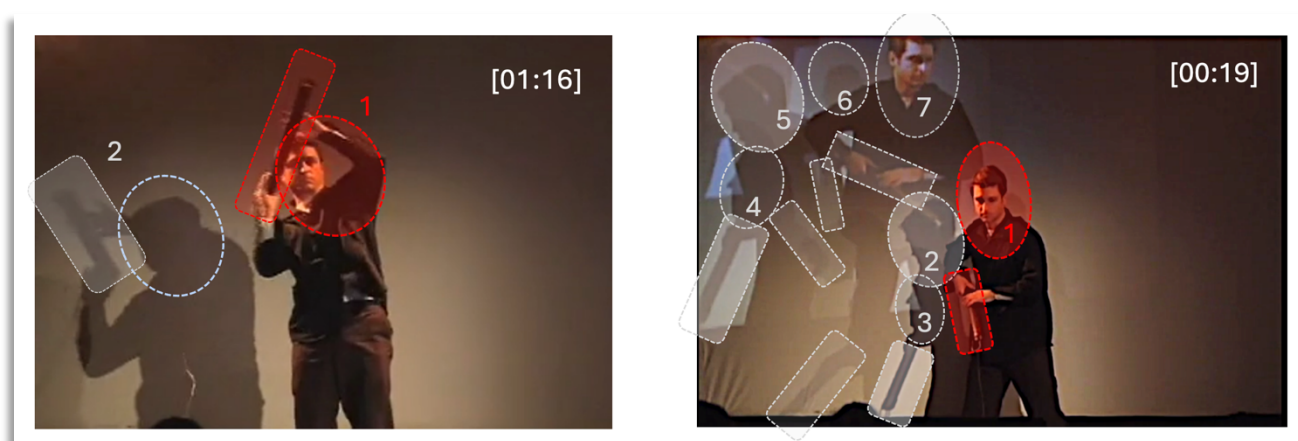

Fig.5 – A mix of shadows and live video projections multiply the fighter on stage:
The "One" becoming "Everyone" in the video recording of "Everybody to the Power of One".

The words "relax hands", "eyes up", "shoulders down", "back straight" and "bend at the knees" written in the cover of the prompt score, very common in the practice of martial arts as commands for posture and preparation for a fight, are suggestive for the interpretive mood of the piece. Accordingly, Stewart uses the first 12 seconds of the video to delimit the **warfare theater**. As a solo fighter, he walks around an imaginary "squared circle" [8], from a static lateral body position on the left side to a dynamic central position on the stage, looking directly into the audience's eyes, to occupy his initial combat position. Moving along this path, he expands his kinesphere (Laban, 1978, p.63-64, 73) to a maximum, opening his arms with the T-Stick, and then contracts it to a minimum, lowering his arms, bending his knees and retracting the T-Stick (Fig.6).

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[8] Square circle is a term commonly used to designate the space fighting sports, which was historically first a circle and later became a square.
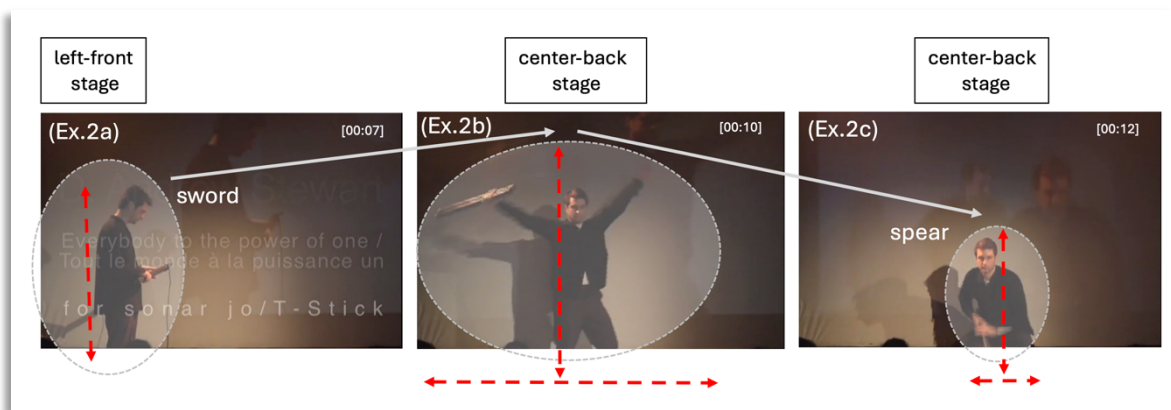
Fig.6 – D. Andrew Stewart expanding and retracting his kinesphere with the T-Stick before the performance of "Everybody to the Power of One".

Stewart uses the T-Stick not just as a musical instrument, but also as a prop, "… mirroring and magnifying the performer's body movements […] as an extension of the performer's body, thus forming an embodiment relation…" (Pešević, 2025). He emulates three cold arms on stage to explore the 3D axes: a **spear** with a two-handed grip, a **sword** held with both hands together, and a **shield** with an overhead circular motion (Fig. 7).
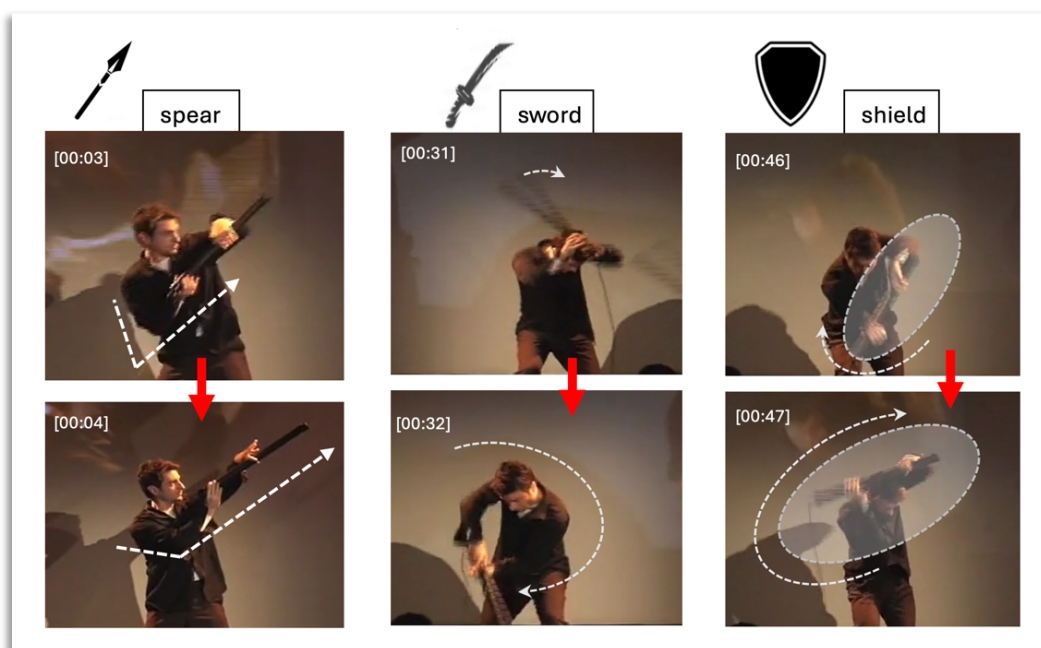

Fig.7 – Stewart's employment of the T-Stick as a prop to emulate a spear, a sword and a shield to explore the 3D space.

Slow motion movements (such as the rising of the right knee at [0:38], [2:46], [6:40] and [8:21], probably to change mappings) and the introspective mood adopted by Stewart on stage can be associated with **tai chi chuan**, which is not only a set of health and wellbeing exercises, but also

> "… a stand-up internal martial art, which can handle incoming forces with minimal effort and can overcome hardness with softness […] the biomechanics and kinesiology of Tai Chi martial arts is provided in terms of emotional control, six degrees of freedom in motion, maintaining a central equilibrium, biotensegrity formation, living fulcrum and leverage utilization, ground reaction force enhancement, and body kinetic chain manipulation." (Chu, 2024).

Some of the body movements in Stewart's video recording are used at strategic structural portions of the performance to mark eight **imagistic climaxes** (at [1:56], [2:01], [3:34], [5:00], [6:06], [7:02], [7:35] and [7:36]), either through repeated energic gestures or slow-motion gestures.[9] Out of these eight climaxes, we consider four climaxes (at [1:56], [3:34], [5:00] and [7:35]) as more prominent (Fig.8), because the sound energy is amplified by points of synchronization with the images' micro rhythms, yielding a "… a vigorous perceptual solidarity…" (Chion, 1994, p.15-16, 37). Accordingly, at [1:56], Stewart continuously jerks his head, shoulders, and the T-Stick as if being attacked from all directions. At [3:34], his right- and left-hand fingers hastily touch two regions on the outer side of the tube, approximating the visual of a virtuosic keyboard player. At [5:00], in a defensive gesture, Stewart's right arm draws an infinite sign loop to clear the space in front of him. At [7:35], he performs a series of 24 orbital loops with the "sword" above his head, from slow motion to *accelerando*, producing a repeated sound that brings to one's mind the fluctuation in sound frequency of the Doppler effect or the swallowing *crescendo-decrescendo* of the French Baroque *enflé* [10]. Finally, among these four

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[9] Not only the increase of speed or rhythmic acidity, but also the decrease may suggest or emphasize a climax. Thus a slow motion may feel "… at the same time intense and exhilarating through rapid-fire cuts and alternating slow and normal motion. (Rogers, 2013, p.4). As observed by Wöllner, Hammerschmidt and Albrecht (2018): "… slow motion in audiovisual screen-based media mirrors the psychological processes involved in these situations, and that music modulates the observers' experiences."

[10] Although Stewart chose to represent this aerial rotating movement in the prompt score with a cowboy with his lasso, we associated it with a martial-arts defensive fight movement: a shield in [1:49] and [7:14], and a sword in [5:58] and [7:20], respectively.

major climaxes, we detected two **golden-section climaxes** (at [1:56] and [7:35]), which mark the last 1/3 portion of both outer and more intense sections of the video performance (*A* and *A'B'*).
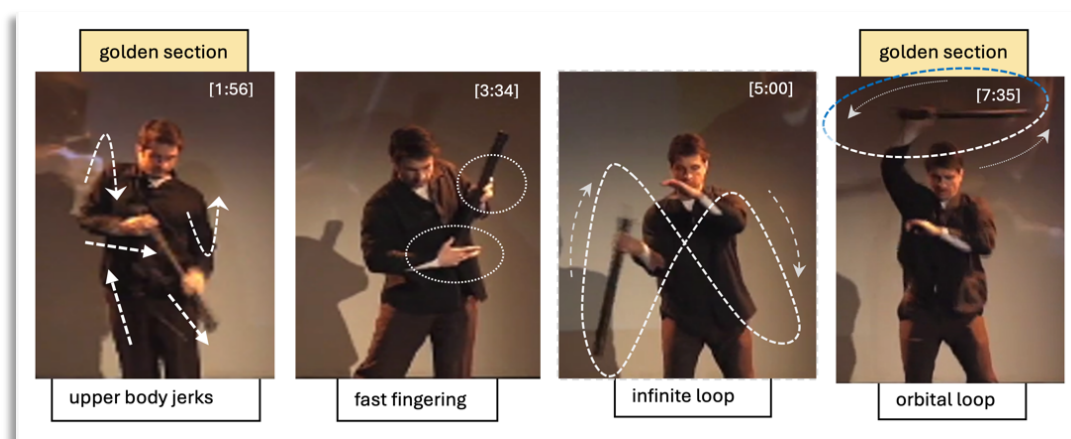

Fig.8 – The four major climactic points of Stewart's body and T-Stick movements, with two outer golden sections in the video of "Everybody to the Power of One".

To see in a single glance the main sonic and imagistic events in Stewart's whole video performance, we prepared a **background music score** (Fig.9) including (1) the main formal sections (*A*, *B* and *A'B'*) and their duration, (2) the main contours of sound intensities (*pp*, *p*, *mf*, *f*, *ff*, *crescendi* and *decrescendi*), (3) the construction of the 8 climaxes made of body movements coupled with dynamics or simple climaxes of body movements, including the two climaxes that coincide with the golden sections of the *A* and *A'B'* Sections, and (4) the photograms corresponding these climaxes accompanied by keyword descriptions.
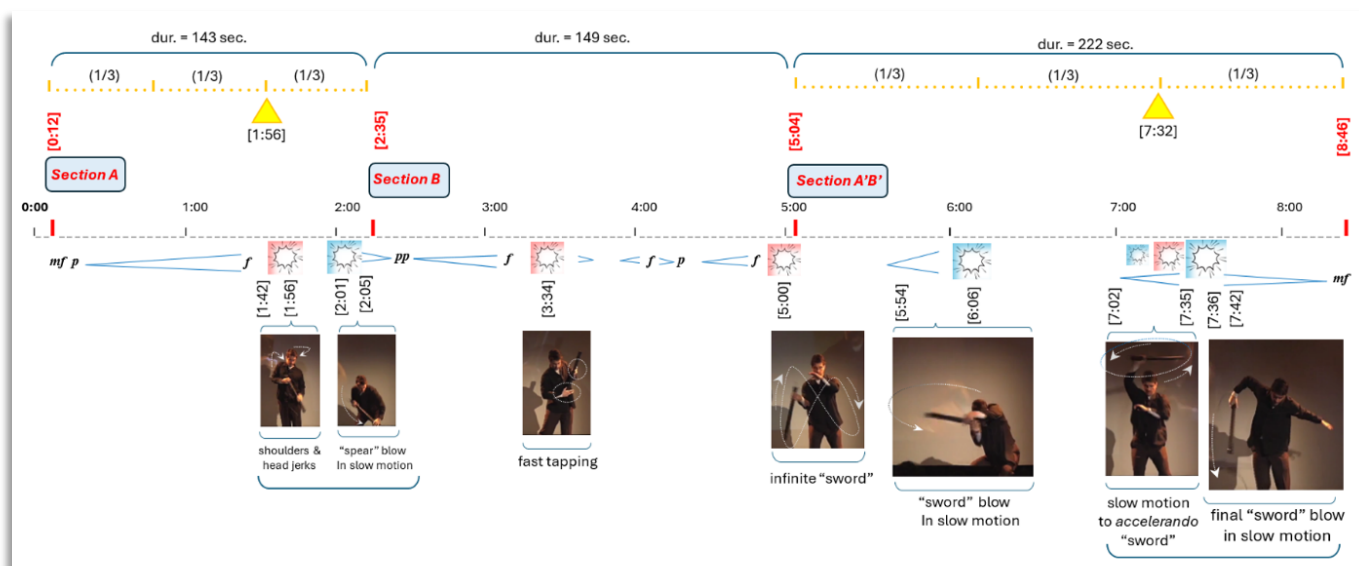
Fig.9 – The background music score showing the main formal sections and the main formal structures of the improvised video performance of "Everybody to the Power of One".

3- CONCLUSION

Despite being an improvisation, the video performance of D. Andrew Stewart with the T-Stick in his "Everybody to the Power of One" exhibits highly structured and rehearsed sequences of sonic and visual events, many of them sharing synchronous intentions and meanings. Our analysis of the sound spectrograms and moving images recorded in 2008, along with the textual and contextual information subsequently documented in the 2009 prompt score, reveals an integrated recurrence of musical motifs, indexical gestural movements, the organized construction of climaxes, and both explicit and subliminal content. These findings point to a remarkable naturalness of D. Andrew Stewart on stage, fruit of much deliberate practice, and not spontaneous spur-of-the-moment moves and sounds as it may look and sound to the audience.[11]

Evidence of a carefully planned and meticulous choreography is also reflected in the connections among (1) the title of the work, (2) command words for the performer in the cover of the prompt score, and (3) images from inside the prompt score (photographs, drawings and

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[11]   Within the continuum of spontaneity in music performance (Borém, 2016, p.7, 14-18; Borém and Taglianetti, 2014, p.66), most videoclips after MTV became non-spontaneous or quasi-spontaneous.

symbols). Together with the explicit and subliminal layers of sounds and images from the video, they form a big theatrical picture in which the protagonist can be viewed as a martial arts fighter dancing with his digital musical instrument.

The moving images (simplified here as still photograms) and sounds (graphically represented here in spectrograms) of the video recording can tell a story of a flesh-and-blood martial-arts fighter and his cold weapons who fight for a good cause against an imaginary army with the help of virtual companions.

Ultimately, D. Andrew Stewart brings an optimistic post-epistemological perspective (Rosenberger and Verbeek, 2015) to DMIs, generating synchresis (Chion , 1994) between his body and the T-Stick when he amplifies gestures and sounds that traditionally belong to apparently immiscible and opposite worlds: the acoustic versus the electronic, the artisanal versus the technological.

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