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## A THEATRE OF SOUND AND MOVEMENT: EXPERIMENTAL MUSIC THEATRE AND THEORIES OF EMBODIED COGNITION

Let us think about a theatre of sound and movement. Note the general nature of these terms: ‘sound’ not ‘music’, ‘movement’ not ‘action’ or ‘choreography’, ‘theatre’ not ‘opera’ or ‘music theatre’. (No mention of words, speech, meaning, plot, scenario, scenic illusion, the willing suspension of disbelief...) I believe that the complex relations between sound and movement **underlie** all forms of theatre, whether spoken, sung or mimic. I further argue that the reason for this lies in the human perceptual and cognitive system: the way we experience our world, our place within and our interactions with it. In the following, I will argue that experimental music theatre (EMT) is based on the investigation of these relations between sound and movement and that it thereby plays with our perception and cognition. I will do this through theories of embodied cognition from psychology and neuroscience, in conjunction (or tension) with such fields as performance studies and phenomenology.

Following the theme of getting back to basics or first principles, the natural environment is a good place to start. Imagine yourself in an open space (or even better go out there, but this may be impractical now): what do you hear? The wind in the trees, possibly water, birds, insects or other animals (presumably planes, cars or trains too, but let’s leave them aside for a moment). One thing becomes clear: all sound is the result of movement. Some of those movements are comparably small: vocal noises are the most obvious example, but we have experience of producing these ourselves. There are of course sounds whose causes we **do not** immediately see, such as thunder, but these remain uncanny and frightening for us to this day – as are pretty much all sounds in the dark when we cannot see their causes.

This is presumably one of the reasons why in our perceptual system hearing is intimately connected with movement. *Hearing sound means perceiving movement*. And sounds are also a potential *cause* for movement: we **would not** be here if our ancestors **were not** able to identify the sounds produced by predators or prey and react accordingly.

What is true of our evolutionary origins is also characteristic of our individual development. One of the first things we learn as babies, even as unborn foetuses, is to associate sounds with movements and to imitate the sounds and movements produced by our carers, typically our mother.<sup>1</sup>

There is one school of thought, the motor theory of speech perception, according to which the way we learn to speak is not by analysing sounds but by imitating the movements made to produce speech. While it was originally assumed that this was a special property of speech cognition, more recent research<sup>2</sup> suggests that it is based on the general principles of motor mimesis and perception/action coupling that have been fundamental to psychology since the work of Roger Sperry if not William James.<sup>3</sup> Further, according to the theory of ‘mirroring’, observation is not simply passive but involves an interior imitation of and participation in any action and activates the same areas of the brain that are involved in performing the action.<sup>4</sup>

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<sup>1</sup> Stephen Malloch, Colwyn Trevarthen, *Communicative Musicality: Exploring the Basis of Human Companionship* (London: Oxford University Press, 2009); Colwyn Trevarthen, Jonathan Delafield-Butt, Benjamin Schögler, ‘Psychobiology of Musical Gesture: Innate Rhythm, Harmony and Melody’, in Elaine King, Anthony Gritten (eds.), *New Perspectives on Music and Gesture* (Ashgate: Farnham, Surrey, 2013), pp. 11–43.

<sup>2</sup> Bruno Galantucci, Carol A. Fowler, Michael T. Turvey, ‘The Motor Theory of Speech Perception Reviewed’, *Psychonomic Bulletin & Review* 13, (2006), p. 361–377.

<sup>3</sup> William James, *Psychology: The Briefer Course* (Courier Corporation, 2012 [1892]); Roger Wolcott Sperry, ‘Neurology and the Mind-body Problem’, *American Scientist*, 40 (1952), p. 291–312.

<sup>4</sup> Jaime A. Pineda (ed.), *Mirror Neuron Systems: The Role of Mirroring Processes in Social Cognition* (New York: Springer, 2009).

‘Observation’ here is not restricted to the visual sense, but, according to Kohler et al.,<sup>5</sup> there is a lot of evidence that listening similarly activates the sensorimotor system. In other words, at the cognitive level too, hearing means perceiving and mentally imitating or participating in movement. In a process of reverse engineering, as it were, it has also been suggested that music arose out of human locomotion and ventilation (moving and breathing).<sup>6</sup>

If hearing means perceiving movement, then, conversely, making music is a way of coordinating and shaping movement. Rather than being a disembodied cognitive process, as is often at least implicitly assumed, then, listening to music engages our sensorimotor system, our bodies and our emotions. As Overy and Monar-Szakacs<sup>7</sup> put it, ‘music is perceived not only as an auditory signal, but also as intentional, hierarchically organized sequences of expressive motor acts behind the signal; and that the human mirror neuron system allows for corepresentation and sharing of a musical experience between agent and listener.’ This is not a solitary, but a social process:

Music is clearly not just a passive, auditory stimulus, it is an engaging, multisensory, social *activity*. All musical sounds are created by movements of the human body (singing, clapping, hitting, blowing, plucking) and in turn seem to encourage other bodies to move (clapping, tapping, marching, dancing). Music-making usually occurs in groups (dyads, circles, ensembles), and involves the synchronization of physical actions with extraordinary temporal accuracy *and* flexibility. Such physical, social, synchronized interactions involve imitation, learning, shared understanding, and prediction, and can encourage eye contact, smiling, laughter, and relationship building, while also allowing for leadership, competition, and individual expression—all powerful social learning experiences.<sup>8</sup>

It is worth pointing out that Overy and Monar-Szakacs’s theory as well as many of the others cited here are predicated on the existence of so-called ‘mirror neurons’, specific parts of the brain whose role is to mirror observed behaviour.<sup>9</sup> The existence and precise function of these neurons, which have been primarily observed in primates (originally macaques), in humans has been the subject of much controversy across neuroscience and neurobiology.<sup>10</sup> What matters for our purposes is the nature of the mimetic behaviour and perception/action coupling that can be observed, more than the precise physiological mechanism that may be causing it. As outlined, the perception/action coupling has been a cornerstone of psychology long before the discovery of mirror neurons.

Arnie Cox has produced arguably the most comprehensive account of music based on theories of embodied cognition. He has formulated what he calls the ‘mimetic hypothesis’: ‘How we comprehend music is by imitating, covertly or overtly, the observed sound-producing actions of performers.’<sup>11</sup>

The mimetic hypothesis closely corresponds to our musical experience: this is why we feel the urge to dance, tap our feet and nod our heads to music, or to sing or hum along with it, play air guitar or the like. Whenever we engage in this kind of behaviour, we appear to try to imagine what it feels like to produce the sounds we hear. While not all of us are trained

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<sup>5</sup> Evelyn Kohler, Christian Keysers, M. Alessandra Umiltà, Leonardo Fogassi, Vittorio Gallese, Giacomo Rizzolatti, ‘Hearing Sounds, Understanding Actions: Action Representation in Mirror Neurons’, *Science*, 297 (2002), p. 846–848. <https://doi.org/10.1126/science.1070311>

<sup>6</sup> Matz Larsson, ‘Self-generated sounds of locomotion and ventilation and the evolution of human rhythmic abilities’, *Animal Cognition* 17 (2013), p. 1–14. <https://doi.org/10.1007/s10071-013-0678-z>

<sup>7</sup> Katy Overy, Istvan Molnar-Szakacs, ‘Being Together in Time: Musical Experience and the Mirror Neuron System’, *Music Perception: An Interdisciplinary Journal*, 26 (2009), p. 489–504. <https://doi.org/10.1525/mp.2009.26.5.489>

<sup>8</sup> Ibid.

<sup>9</sup> Pierre Francesco Ferrari, Giacomo Rizzolatti, ‘Mirror Neuron Research: The Past and the Future’, *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369 (2014), <https://doi.org/10.1098/rstb.2013.0169>; J.A. Pineda (ed.), op. cit.

<sup>10</sup> Gregory Hickok, ‘Eight Problems for the Mirror Neuron Theory of Action Understanding in Monkeys and Humans’, *Journal of Cognitive Neuroscience*, 21 (2009), p. 1229–1243. <https://doi.org/10.1162/jocn.2009.21189>.

<sup>11</sup> Arnie Cox, *Music and Embodied Cognition: Listening, Moving, Feeling, and Thinking, Musical meaning and interpretation* (Bloomington, Indiana: Indiana University Press, 2016), p. 12.

musicians, we all have experience of using our voices and producing a range of sounds with our bodies and whatever tools we have at hand. Cox, following the mainstream of the debate (e.g. ‘mirroring’), uses the language of mimesis or imitation to explain the phenomenon,<sup>12</sup> but, along with Overy and Molnar-Szakacs above, it may be more conducive to think of participation or sharing. Although it could be argued that participation is based on imitation, the emphasis is different. Consider, for example, the case of clapping along to music mentioned above. Even if the bodily impulse behind this form of ‘entrainment’ – the bodily synchronization with an external rhythmic stimulus<sup>13</sup> – has its roots in mimetic behaviour, both the movements involved and their acoustic outcomes tend to be quite unlike the source that has been causing them, and our motivation in engaging in this kind of behaviour is arguably more adequately explained as a desire to participate than to imitate.

To be fair, Cox’s concept of mimesis is notably broad and distinguishes between ‘intramodal mimesis’ or ‘direct-matching’, ‘intermodal’ or ‘cross-modal’ mimesis, which typically involves subvocal imitation (i.e. humming along); and ‘amodal’ mimesis (abdominal exertions that underlie limb movements and vocalisations).<sup>14</sup> In this regard, his theory goes well beyond previous formulations, such as Rolf Inge Godøy’s notion of ‘motor-mimetic cognition’,<sup>15</sup> which is very similar to Cox’s ‘mimetic hypothesis’ except for its reliance on a somewhat nebulous notion of direct imitation. Nevertheless, the question remains whether imitation or mimesis quite captures the range of activities people engage in in response to music.

In any case, the linkage between hearing sounds, perceiving movement and (actively or imaginatively) imitating or participating in these sound-producing movements theorized by embodied cognition is evidently fundamental for our understanding of experimental music theatre. As an art form, EMT is based on the movements performed by musicians during music-making, in particular instrumental performance.<sup>16</sup> It is therefore particularly concerned with the relations between sound and movement and their perception by the audience.

This concern runs counter to the dominant tradition in Western classical music which tends to disregard the embodied nature of performance: the (supposed) stuff of composition – ‘musical structure’ – consists largely of abstract sounds symbolized by ‘dots on the page’; the actions that need to be performed to produce them are secondary at best. Particularly in orchestral performance, any motion is normally reduced to the bare minimum. The hiding away of the orchestra in the opera, most consistently in Wagner’s Bayreuth Festspielhaus, is another indication. This separation of instrumental performance from stage action is the reason why EMT is arguably more closely related to instrumental music than opera and related genres. The

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<sup>12</sup> ‘Mimesis’ and ‘imitation’ are often used synonymously in psychological literature. However, Garrels (Scott R. Garrels, ‘Imitation, Mirror Neurons, and Mimetic Desire: Convergence between the Mimetic Theory of René Girard and Empirical Research on Imitation’, *Contagion: Journal of Violence, Mimesis, and Culture*, 12/13 (2006), p. 81, fn. 1) makes the following distinction which seems to be widely, albeit often tacitly, observed: ‘Girard (1987) tends to preserve the term imitation for those acts that are more consciously copied, while mimesis would indicate a type of reciprocity that is below phenomenological awareness.’ See also Scott R. Garrels (ed), *Mimesis and Science: Empirical Research on Imitation and the Mimetic Theory of Culture and Religion* (East Lansing, MI: Michigan State University Press, 2011).

<sup>13</sup> Martin Clayton, Rebecca Sager, Udo Will, ‘In Time with the Music: The Concept of Entrainment and its Significance for Ethnomusicology’, *European Meetings in Ethnomusicology*, 11 (2005), p. 3–142; Tuomas Eerola, Kelly Jakubowski, Nikki Moran, Peter E. Keller, Martin Clayton, ‘Shared Periodic Performer Movements Coordinate Interactions in Duo Improvisations’, *Open Science*, 5, 171520 (2018), <https://doi.org/10.1098/rsos.171520>; Tommi Himberg, ‘Entrainment and Mutual Adaptation in Musical Movement and Dance’, in Micheline Lesaffre, Pieter-Jan Maes, Marc Leman (eds.), *The Routledge Companion to Embodied Music Interaction* (London: Routledge, 2017), pp. 141–149, <https://doi.org/10.4324/9781315621364-16>; Guy Madison, Fredrik Ullén, Björn Merker, *Metrically Structured Time and Entrainment* (London: Routledge, 2017), pp. 22–30.

<sup>14</sup> Cox, pp. 45–6.

<sup>15</sup> Rolf Inge Godøy, ‘Coarticulated Gestural-Sonic Objects in Music’, in Elaine King, Anthony Gritten (eds.), *New Perspectives on Music and Gesture* (Ashgate, Farnham: Surrey, 2013), p. 70.

<sup>16</sup> Björn Heile, ‘Towards a Theory of Experimental Music Theatre: “Showing Doing”, “Non-matrixed Performance” and “Metaxis”’ in Yael Kaduri (ed.), *The Oxford Handbook of Sound and Image in Western Art* (Oxford: Oxford University Press, 2016), p. 335.

unproblematic acceptance of audio recording and radio broadcasting further **demonstrates** to what extent music in this tradition can be reduced to the acoustic dimension. Having said that, the desire of audiences to see music enacted has always found an outlet, whether it is in the histrionics of conductors or the exaggerated gestures of soloists. Speaking of Wagner, his notion of *ersichtlich gewordene Thaten der Musik* ('deeds of music made visible') suggests that opera as a whole is an attempt to re-embody music,<sup>17</sup> as Nietzsche also understood.<sup>18</sup> Nor am I going to deny that the affordances of the human voice and of musical instruments and their interactions with human bodies always played an important role in musical invention and imagination.<sup>19</sup> On the whole, then, it would probably be best to say that the culture of western classical music has had an ambivalent relation to the body and embodiment that cannot be reduced to *disembodiment*, although that certainly was and is a significant tendency.

Consider the following quotation by Mauricio Kagel,<sup>20</sup> one of the pioneers of experimental music theatre, whose work will be discussed in more detail later:

Music has also been a scenic event for a long time. In the nineteenth century people still enjoyed music also with their eyes, with all their senses. Only with the increasing dominance of the mechanical reproduction of music, through broadcasting and records, was this reduced to the purely acoustic dimension. What I want is to bring the audience back to an enjoyment of music with all senses. That's why my music is a direct, exaggerated protest against the mechanical reproduction of music. My goal: a re-humanization of music-making!

For Kagel, EMT is a way of re-embodiment music, in response to the disembodiment that he associates with sound recording. One may well quibble with his account of the cultural history: it could be argued that the disembodiment of music was well underway in the nineteenth century, which Kagel seems to regard as an age of a more holistic performance culture, and that this concentration on the acoustic domain enabled sound recording to take hold, but that is not the issue here. What matters is Kagel's overall emphasis on EMT as a form of re-embodiment.

According to my definition of experimental music theatre, a musical action consists of a sound-producing gesture and a sounding result. In contradistinction to both traditional music and traditional theatre, both aspects – movement and sound – are principally of equal importance. The purpose of an action is not exhausted by its sonic result (as in traditional music performance), nor are the sounds produced just the accidental outcome of the action (as in traditional theatre performance, if, say, an actor crosses the stage, thereby producing audible footsteps).

Although nothing is ever entirely unprecedented, the first consistent realization of these principles is arguably John Cage's *Water Music* (1952). In the piece, the performer, in addition to playing the piano, has to operate a radio, play whistles, pour water from one container into another and deal out a deck of cards.<sup>21</sup> The principle uniting these diverse activities is quite simple: ontologically speaking, there is no categorical difference between what are traditionally considered musical or theatrical, or, for that matter, everyday actions, in this case between playing a couple of notes on a piano, pouring a jug of water or shuffling a deck of cards. All these actions consist of physical movements which have acoustic results (although the latter

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<sup>17</sup> Hilda Meldrum Brown, *The Quest for the Gesamtkunstwerk and Richard Wagner* (Oxford: Oxford University Press, 2016), p. 186; Simon Shaw-Miller, Ssimon Miller, *Visible Deeds of Music: Art and Music from Wagner to Cage* (New Haven, Cn.: Yale University Press, 2004); Richard Wagner, *Über die Benennung Musikdrama* (Leipzig: Breitkopf & Härtel, 1911 [1872]), in *Gesammelte Schriften und Dichtungen*, p. 306.

<sup>18</sup> Friedrich Wilhelm Nietzsche, *Die Geburt der Tragödie: Versuch einer Selbstkritik* (Gutenberg, 2005 [1872]). <<http://www.gutenberg.org/cache/epub/7206/pg7206-images.html>> (accessed 25 March 2020).

<sup>19</sup> Jonathan De Souza, *Music at Hand: Instruments, Bodies, and Cognition* (Oxford: Oxford University Press, 2017).

<sup>20</sup> Mauricio Kagel, 'Interview with Willi Wörthmüller', *Nürnberger Nachrichten*, 1970, n.p.

<sup>21</sup> William Fetterman, 'John Cage's Theatre Pieces: Notations and Performances', *Psychology Press*, 1996, p. 25–32; Heile, 2016, p. 338.

may be well-nigh inaudible as in the case of the cards or technically mediated, as in the case of the radios, where the turning of switches and dials is not normally audible as such but changes the nature of the sound produced by the radio). This is facilitated by Cage's notation, which prioritizes actions to be performed over their sonic outcomes, and thereby deviates from standard staff notation that, conversely, prioritizes sonic results over the means to achieve them.

For Cage, then, there is no distinction between musical sound (pitch) and noise and consequently, between musical and theatrical performance. Furthermore, he undermines the distinction between life and art, since many of the actions performed may occur quite naturally in everyday contexts. So, from that perspective, there are no distinctions between the act of playing the piano and that of pouring a glass of water, or between pouring said glass of water on a theatrical stage and doing so in one's own kitchen. What transforms the experience of pouring a glass of water – or experiencing someone performing that action on stage – is the framing through the stage presentation, which leads to a heightened and sensitized perception. This is one reason why Cage spoke of 'disciplined action'. This term first appears in the instructions for *0'00''* (1962): 'In a situation provided with maximum amplification (no feedback), perform a disciplined action.'<sup>22</sup> It is the discipline with which the action is performed, which is also enforced by the meticulous demands made in the score, in particular as regards its precise timing, which enables us to view it aesthetically. Overcoming the boundary between art and life, therefore, means not only allowing everyday objects and activities to intrude into the sanctified space of art, but also, conversely, aestheticizing the everyday, by transferring the discipline and heightened perception of theatrical and musical performance to everyday actions. Cage developed his ideas further in a range of pieces, including *Water Walk*, *Music Walk*, *Sounds of Venice* and *Theatre Piece*.

In an interview from around this time (some three years after *0'00''*), Cage was asked about his definition of theatre.<sup>23</sup> His response is remarkably close to the emphasis on sound and movement at the outset of this article: 'theatre is something which engages both the eye and the ear.' At the same time, he stresses the overcoming of the distinction between life and art, which was also mentioned: 'The reason I want to make my definition of theatre that simple is so one could view everyday life itself as theatre.' On the other hand, he seems to have been relatively uninterested in the specific connections between movements and sounds that are the subject matter of embodied cognition. For instance, he gives the following example of viewing a traditional orchestral performance as theatre: 'the horn player, for example, from time empties the spit out of his horn. And this frequently engages my attention more than the melodies, harmonies, etc.'<sup>24</sup> Similarly, he includes mime and dance performance where there is no or only incidental sound in his definition. Needless to say, his actual work may give rise to more interesting connections between sound-producing actions and resulting sounds; *Water Music* was a case in point. Yet there is a sense in which Cage was not particularly interested in systematically exploring that relationship further. He was guided, instead, by the principle of 'unimpededness and interpenetration',<sup>25</sup> which seemed to imply setting things side by side, rather than in relation to one another. At a more general level, his commitment to non-intentionality and the overcoming of the ego by its nature did not allow him to pursue systematic research. What was undoubtedly liberating on the one hand could also be seen to have acted as a limitation on the other. Just as in the case of Cage's 'discovery' of silence (or the impossibility thereof), which opened up a new field of inquiry in which, however, others, such as many of the composers of the Wandelweiser group, created arguably more profound work, so Cage's

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<sup>22</sup> Fetterman, 1996, pp. 92–3.

<sup>23</sup> John Cage, Michael Kirby, Richard Schechner, 'An Interview with John Cage', *Tulane Drama Review*, 10 (1965), p. 50, <https://doi.org/10.2307/1125231>

<sup>24</sup> Cage et al., 1965, p. 50.

<sup>25</sup> James Pritchett, *The Music of John Cage* (Cambridge: Cambridge University Press, 1996), pp. 74–6.

discovery of a new form of music theatre initiated new possibilities, which were, however, developed more systematically by some of his successors than by himself.

The transmission of Cage's ideas to the European avant-garde can be dated with rare precision. On 14 October 1958, Cage, together with Cornelius Cardew and David Tudor, premiered his *Music Walk* at the Galerie 22 in Düsseldorf.<sup>26</sup> Among the audience were a young composer, who had only arrived from Argentina the year before, Mauricio Kagel, and the influential critic Heinz-Klaus Metzger. Metzger responded to the event with a talk on what he calls '*instrumentales Theater*' (instrumental theatre), by which he meant a form of theatre that results from instrumental performance. All of Kagel's major theatrical works follow this seminal event, and, significantly, he applied Metzger's term 'instrumental theatre' to his innovations. Kagel's works and ideas directly or indirectly influenced most European composers of music theatre, notably Dieter Schnebel, György Ligeti, Vinko Globokar or Georges Aperghis. Although this was Kagel's first encounter with Cage's theatrical work, he was already familiar with his ideas from Cage's notorious visit to the Darmstadt International Summer Courses some two months before, and he would continue to engage with his work.

Following the event, Kagel composed many of the defining pieces of his instrumental theatre, including *Sonant (1960/...)*, *Sur scène (1960)*, *Antithese (1962)* and *Match (1964)*. On this occasion, I want to focus on his Second String Quartet (1967-74, or the second movement of his String Quartet I/II), since it seems a particularly useful example for an analysis based on theories of embodied cognition.

The composition presents performers with unprecedented difficulties. That is not to say that it is particularly demanding in terms of technical challenges or rhythmic coordination, at least in comparison to the standard of the time. However, the frequent theatrical elements present unique challenges. One way of understanding String Quartet I/II is as a dramatization of the conflicts – mutual resentment, hurt pride, hidden or not so hidden jealousy etc. – besetting many long-lived chamber music ensembles: String Quartet I begins with only the cellist appearing on stage, sitting down in the first violinist's chair, like a cleaner in a multinational corporation trying out the CEO's office chair.<sup>27</sup> Reluctantly, he or she goes to their dedicated chair and starts playing, looking impatiently over their shoulder for the other players to arrive, who can at first be heard from off-stage. During the entire performance, there are strange interactions between the players that cannot be fully explained through the music, and they never sit down in the customary arrangement. Although the second movement (or String Quartet II) mostly dispenses with such choreographed movements, the entry of the performers is again slightly defamiliarized. As the score demands: 'After taking a bow, violinist 1 pulls round chair B, so as to assist violinist 2 in sitting down. Meanwhile, with similar politeness, the viola player assists the cellist (on seat D). Then violinist 1 and the viola player sit down at the same time.' This is fairly unobtrusive, but audience members may well notice the stiff formality of the actions and suspect that something is 'not quite right'. And, indeed, throughout the piece, there are a number of curious events, which can just about be legitimized as musical actions, but that at the same time draw attention to themselves and away from sound production and strictly musical structure. In accordance with the principles of experimental music theatre, this is not role-play: all the actions performed are justified by the context of music-making, even though they occasionally fall outside the frame of musical performance as such and involve the usually hidden aspects, such as rehearsal, warm-up, tuning and entering and exiting the stage.

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<sup>26</sup> Heile, 2016, p. 342; Hans Hubert Schieffer, Hermann-Josef Müller, Jutta Scholl, *Neue Musik in Düsseldorf seit 1945: Ein Beitrag zur Musikgeschichte und zum Musikleben der Stadt* (Düsseldorf: Musikbibliothek der Stadtbüchereien Düsseldorf, 1998), p. 89.

<sup>27</sup> Björn Heile, 'New Music Theatre and Theories of Embodied Cognition', in Robert Adlington (ed.), *New Music Theatre in Europe: Transformations between 1955-1975* (London: Routledge, 2019), pp. 273–293. <https://doi.org/10.4324/9780429451669-13>.

The most complex demands on the players, however, come from the many extended playing techniques and unconventional sound production methods involved. It would appear that Kagel tried to apply Cage's idea of the prepared piano to the string instruments by manipulating the different sound-producing components of the instruments, systematically altering the strings, the bow (or alternative sound excitation devices) and the left hand. The list of materials needed for performance includes matches, paper clips, coins, Scotch tape, metal staffs, knitting needles and a cloth for the strings; serrated wooden staffs, percussion sticks and a plectrum as sound excitation devices; and a thick leather glove for the left hand. This approach to rethink string instruments, systematically considering all aspects of sound generation – with the exception of resonance (i.e. through manipulation of the body of the instrument) – was unprecedented and, to my knowledge, remains unsurpassed. As can be expected, these devices are often used in conjunction with the theatrical elements – playing a string instrument with a thick leather glove or a knitting needle is itself theatrical enough and gives rise to further interactions between the players. It is no surprise, then, that the work has failed to enter the repertoire. Although the Arditti Quartet has recorded it, I am not aware of any live performances. Only the Montreal-based Quatuor Bozzini has the pieces in their repertoire and has also documented them on video.

In my discussion, I want to focus on discrepancies between the actions performed and the sounding result. I believe that it is on the occasions where what we hear does not match our expectations based on what we have seen that we become aware of our embodied responses. For these reasons, any artistic approach that is directed equally at movement and sound, which, as I outlined above, is the foundation of experimental music theatre, needs to drive a wedge between them. Paradoxically, the kind of re-embodiment that Kagel spoke of in the quotation above requires a prior separation of movement and sound.

It is easy to see that the sound manipulation devices in *String Quartett II* have a similar effect: the sound we hear is never quite what we expected. To get a more detailed understanding of the relation between movement and sound, it is useful to refer to the theory and analysis of musical gesture, which is quite well established. Jensenius et al. have distinguished between the following gestures (understood as meaningful movements made by musicians while performing):<sup>28</sup>

- Sound-producing gestures (excitation and modification): e.g. string instrument r.h. excitation, l.h. modification
- Communicative gestures (performer-performer or performer-perceiver): performers signalling to other performers (incl. conducting?) and to audiences
- Sound-facilitating gestures: e.g. swaying motion in upper body
- Sound-accompanying gestures: dancing, foot-tapping, air guitar playing etc. (musicians and audiences)

These are not mutually exclusive; on the contrary, most gestures consist of several components, although one or two may predominate. Jensenius et al. have suggested a way of representing the different components of any gesture three-dimensionally for a musician and a dancer.<sup>29</sup> Their graphic representation shows how the musician's gestures are predominantly sound-producing and sound-facilitating, with relatively minor sound-accompanying and communicative functions, whereas the dancer's actions are overwhelmingly sound-accompanying and, to a lesser extent, communicative – clearly assuming that any sounds that dancers make are entirely accidental and irrelevant.

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<sup>28</sup> Alexander Refsum Jensenius, Marcelo M. Wanderley, Rolf Inge Godøy, Marc Leman, 'Musical Gestures: Concepts and Methods in Research', in: Rolf Inge Godøy, Marc Leman (eds.), *Musical Gestures: Sound, Movement, and Meaning* (London: Routledge, 2010), pp. 23–4.

<sup>29</sup> *Ibid.*, p. 25.

Figure 1: Dimension spaces illustrating the gestures of a musician (left) and dancer (right), in Jensenius et al., 'Musical Gestures'

One limitation of the categorisation is that it only contains gestures performed in the course of sound-production. But of course musicians carry out a great number of actions that are part of the wider event of performance while not being part of sound-production. This includes setting-up and tuning (and retuning) of instruments and putting on or removing mutes (or other sound-modifying tools). These I call 'preparatory gestures'. Finally, there are gestures which I call 'formal gestures', such as arranging sheet music and turning pages; entering the stage, adjusting seating (if used), instrument and posture; taking bows or otherwise acknowledging applause and the like. While the previous group of gestures listed by Jensenius et al. belong to the performance proper (in the sense of sound production), the latter characterize the frame, separated from the performance proper by a metaphysical divide. As we have already seen, in his String Quartet I/II Kagel played with the separation between performance proper and its framing.

The amended table of movement types looks like this.

Sound-producing	<b>Performance</b>
Excitation	
Modification	
Communicative	
Performer-performer	
Performer-perceiver	
Sound-facilitating	
Sound-accompanying	
Preparatory	<b>Frame</b>
Formal	

If we apply **this framework** to Kagel's String Quartet II, it becomes apparent that among the most commonly used devices are what I would like to call 'virtual preparatory actions': in other words, actions that are performed as if they were meant to have an effect on the sound result, although in actual fact their function is purely theatrical. Some of these also double up as sound-producing gestures. For instance, at one point, the cellist blows into the sound-holes of their instrument. This comes across as the kind of thing musicians do to service their instrument, not unlike the horn player clearing out water mentioned by Cage – except that in this case, the action fulfils no discernible function. Instead, it makes an (albeit very faint) sound. So, is the purpose of the action the production of that sound, is it to clean the instrument or is it essentially an *acte gratuit*? As audience members, we cannot be sure, but at the same time, the framing of musical performance requires us to attribute a definitive purpose to every action. After all, it is part of the 'standard protocol' for performance of composed music that any action performed must contribute to the music played, either directly (through sound production) or indirectly (by aiding or preparing for sound production).

The most conspicuous virtual preparatory action consists of the cellist holding their instrument upside down, with the scroll placed on the floor and the spike held aloft. This appears like some kind of in-joke about extended techniques: as the most absurd thing that could be done. And of course, there **is not** really any sound-producing action that is enabled or facilitated in this way. Accordingly, the instrument is only played very briefly like this. It would appear

as if the performer has antagonised the other players, one of whom moves the cellist's bow from the strings with their own bow – with which the piece ends.

Another very interesting group of actions involves a cloth, which is first placed across the strings of the second violin as a virtual preparatory and sound-modifying action, before it is dropped to the floor in a virtual communicative gesture. The moment it falls, a starkly contrasting section in the music starts, so it seems as if the – deliberate – dropping of the cloth is employed as a signal (an obviously absurdly elaborate and impractical one), or, potentially, as if the – accidental – dropping of the cloth somehow changes the nature of the music. Sound-producing gestures are likewise defamiliarized in various ways, with serrated wooden staffs being used as bows and drumming with fingers on strings (excitation) and the use of Sellotape and a coin (modification). In this way, there is another level of non-congruence between what is heard and what is seen; or indeed, the formation of clear expectations is prevented from the start: how can we have any idea what a violin played by serrated wooden staffs sounds like?

Overall, the piece subverts the customary functions of performing gestures and thereby frequently undermines congruence between sound and movement, playing games with our motor imagery. Nothing is quite what it seems: the sound produced is rarely what we expect to hear and the musicians' actions do not have the purpose they suggest (or combine different purposes in bewildering ways) or the consequences we expect. Actions such as those involving the handkerchief, holding the cello upside down or the elaborate sitting-down ritual performed go beyond what is necessary for musical performance (although they build on that) and thereby 'theatricalize' the performance. In terms of theories of embodied cognition, they lead to the non-congruence between performing gesture and sonic result and, consequently, to a 'doubleness' in our motor imagery.

As I pointed out, Kagel developed his 'instrumental theatre', as he called it, in Germany after his experience of Cage's work.<sup>30</sup> While he follows Cage's principle of treating the musicians' sound-producing gestures as a form of theatre, he is far more interested than Cage in manipulating those gestures and complicating the relation between sound-producing movements and resulting sounds. In the case of *String Quartet I/II*, this takes the form of the defamiliarization of playing techniques and performance situation; in other compositions, he focused on the performing gestures themselves. For instance, in *Sonant (1960...)* for Guitar, Double Bass, Harp, and Skin Instruments [i.e. Drums], the performers are instructed to play 'as softly as possible', despite virtuosic technical challenges, resulting in a spectacles of musicians performing near-acrobatic feats on their instruments while producing only minuscule sounds. One performance option in one movement even envisages miming the performance without actually producing a sound (although the parts are precisely notated). It is easy to see how the apparent divergence between movement and sound affects the perception/action coupling on which Cox's mimetic hypothesis relies. In other cases, it is the performance context and framing that is at the centre of attention.

As outlined above, European composers of EMT have typically followed Kagel's example. In many cases directly: the connections between Kagel on the one hand and Dieter Schnebel or György Ligeti on the other, for example, are well documented – which is not to suggest that the direction of influence necessarily always went in one direction. In other cases, it is safer to assume parallel developments with certain intersections and potential reciprocal influence. In another publication, I discussed Luciano Berio's *Sequenza V* (1966) for Trombone Solo,<sup>31</sup> arguing that it makes use of formal gestures (entering the stage, sitting down etc. are

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<sup>30</sup> Cf. Björn Heile, *The Music of Mauricio Kagel* (Aldershot: Ashgate, 2006), pp. 33–68; M. Kassel, *Das Auge hört mit: Mauricio Kagels Instrumententheater von Der Schall bis Zwei-Mann-Orchester* (Schliengen: Edition Argus, 2018); Matthias Rebstock, *Komposition zwischen Musik und Theater: Das instrumentale Theater von Mauricio Kagel zwischen 1959 und 1965* (Hofheim: Wolke, 2007).

<sup>31</sup> Björn Heile, *New Music Theatre*, op. cit.

notated in the score), virtual facilitating gestures (vertical and horizontal swinging of the instrument also notated in the score, which appear to be related to the playing of the instrument but are in fact independent actions) and virtual communicating gestures (rapid head movements without instrument). Like in the Kagel, there is an abstract theatrical plot underlying the piece: in his programme note, Berio referred to Grock, the musical clown. While there are thus distinct similarities between Kagel's and Berio's approaches and while Berio must have known about at least some of Kagel's work, it would be simplistic to assume that he directly followed the latter's example. Berio drew on a wide range of musical, operatic and theatrical traditions mostly closer to home. Nevertheless, the two examples give an impression of the approaches to EMT emerging in Europe at the time, responding to Cage's liberation of theatrical and musical actions but playing closer attention to musical gestures and the disruption of the connections between sound-producing movement and sonic result, with its disorientating impact on the perception/action coupling.

For the remainder of this article I want to turn my attention not to Europe but to Kagel's birthplace, Argentina. Argentina has long been a hotbed of avant-gardist experimentation in music and related forms. Kagel came of age in the Agrupación Nueva Música, which was directed by Juan Carlos Paz, a pioneer of dodecaphony in Latin America.<sup>32</sup> 1961 saw the foundation of the Centro Latinoamericano de Altos Estudios Musicales (CLAEM) as part of the Instituto Torcuato di Tella, under the directorship of Paz's nemesis, Alberto Ginastera. Although, due to Argentina's perennial political and economic instability, the CLAEM only existed for around ten years, it had an outsize impact on composition across Latin America. Not surprisingly, then, there is a rich tradition of music theatre, although most of that is poorly documented and hard to recover, at least from outside the country itself. One particularly influential composer was Gerardo Gandini. Born in 1936, he was five years younger than Kagel – and died five years after him too. He studied with Alberto Ginastera and subsequently Goffredo Petrassi in Rome, before Ginastera employed him as his assistant at CLAEM. In 1991, Gandini became the founding Director of the Centro de Experimentación en Ópera y Ballet (CEOB) of the Teatro Colón – all the while moonlighting as pianist in Astor Piazzola's tango sextet.<sup>33</sup> In addition to many of the classics of twentieth-century music and the international avant-garde, the Centro has premiered many important music-theatrical works by leading Argentine composers, including Alcides Lanza, Marta Lambertini and Marcelo Delgado.

Gandini has composed five operas or chamber operas. However, in keeping with my wider subject I am more interested in his experimental music theatre work, which is to say instrumental music with theatrical elements. ...*l'adieu* for Piano, Two Percussion Players and an Optional Instrumental Echo (1966-67) is an example of variable form, aleatory technique and graphic notation. The performers navigate between fixed and mobile parts, although even the fixed parts contain only basic materials, no fully composed and notated music. The piece is quite typical of avant-garde composition at the time, with which Gandini was then associated.

The aspect of the piece to which I wish to draw attention is announced in the first performance instruction:

The whole piece must be performed as softly as possible and very slowly. The gestures of the performers must be very slow and all must be conceived as a ceremony. The greatest attention must be paid to the visual-theatrical aspect of the performance.

To be sure, as an instruction this is fairly generic and also pretty typical for the time; nevertheless, it does illustrate Gandini's concern for the theatrical aspect of musical performance. Although Gandini probably had little if any direct contact with him, there are

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<sup>32</sup> Christina Richter-Ibáñez, *Mauricio Kagel's Buenos Aires (1946-1957): Kulturpolitik – Künstlernetzwerk – Kompositionen* (Bielefeld: transcript, 2014).

<sup>33</sup> Marta Lambertini, *Gerardo Gandini: música-ficción* (Madrid: Fundación Autor, 2008), pp. 13–27.

interesting similarities with Kagel's *Transición II* for Piano, Percussionist and Tape (1958). One aspect is the instrumentation: Gandini added another percussionist and replaced Kagel's tape with optional instrumental echo. Indeed, the two compositions are sometimes performed in the same concert. More to the point, the mobile sections in *...l'adieu* have a striking similarity to the geometrical and indeed mobile arrangements of materials that Kagel undertook in *Transición II*. The previously quoted performance instruction, on the other hand, is reminiscent of Kagel's *Sonant .../1960*, which has exactly the same instruction 'as softly as possible'.<sup>34</sup>

*Rondando a La menor* for Two Pianos (1991) is at one level an at least outwardly conventional piece for two pianos. Yet it uses a very simple but effective theatrical trick: in a two-piano set-up it is typically not possible to distinguish between the sounds emanating from the two instruments. The piece is full of uncanny echo effects between the two pianos, and time and again, one of the pianists raises their hands, only for the sounds to continue. The explanation is simple: it is the other pianist who is playing, but repeatedly our embodied empathy with the players and with it the connection between watching and listening is disturbed, giving the piece a dreamlike atmosphere.

Another interesting example is *Escuchando a Pierrot chez Madame Ocampo* ('Listening to Pierrot at Madame Ocampo's') (1992) for Percussion Quartet. The Pierrot in the title refers of course to Schoenberg's *Pierrot Lunaire*, and fragments of the original can be heard at various moments throughout the piece; furthermore, much of the work has a delicate nocturnal character. Gandini had previously referenced Schoenberg's *Pierrot* in his *Lunario sentimental* (1991) and, as Omar Corrado has shown,<sup>35</sup> he would make another important appearance in his opera *La ciudad ausente*; Gandini's obsession with Schoenberg has additionally expressed itself in *Arnold strikes again* (1985), among other works. According to Corrado, Gandini has also frequently conducted *Pierrot*, which raises further possibilities. 'Madame Ocampo' refers to Victoria Ocampo, the writer, critic and editor of the seminal magazine *Sur*, who also hosted many of the greatest personalities of the age (from Igor Stravinsky to Indira Gandhi) in her legendary villa. It is therefore not difficult to imagine a scenario in one's mind's eye for the performance mentioned in the title. Whether it refers to something more specific is another matter.

A composition for percussion has always particular potential for empathetic embodied experience. The sound-generation is particularly physical and open – compare, for instance, a piano or organ, where the actual sound generation is hidden. Moreover, most of us have some experience of making sounds with similar means. That is why there is something inherently theatrical about compositions for percussion. Over and above this, however, the performers do not only play instruments but they also speak and whistle. Whereas musical performance in the Western classical tradition has a tendency to shroud the person of the performer in the service of their role – it is assumed that in the best performance one does not notice the mediating presence of the performer at all – any additional, extraneous actions make us aware of the performers' bodies and their actions on stage.

The composer who has possibly been most consistent in his focus on the relation between movement and sound is Damián Rodríguez Kees,<sup>36</sup> giving his works a minimalist, if not purist bent. In a theoretical text, in which he refers to theories of embodiment and embodied cognition, among others, and has cited the tradition of 'instrumental theatre' (without mentioning Kagel by name) as well as the work of John Cage, among others, he has described

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<sup>34</sup> In an email exchange with me, Pablo Fessel explained these similarities with the fact that Gandini's *...l'adieu* has been published by Universal Edition under the editorship of Roman Haubenstock-Ramati, who was also involved with most of Kagel's compositions from the time.

<sup>35</sup> Omar Corrado, 'De museos, máquinas y esperas. *La ciudad ausente* (1994), de Gerardo Gandini' [WWW Document], URL <http://www.casadelasamericas.org/publicaciones/boletinmusica/9/corrado.htm> (accessed 09/11/18).

<sup>36</sup> 'Damián Rodríguez Kees: Biografía' [WWW Document], n.d. URL <https://www.latinoamerica-musica.net/bio/rodriguez-kees.html> (accessed 05/21/19).

his intention as ‘rethinking sound production in corporeal terms and theatrical gesture in sonic terms’.<sup>37</sup> A recent work, *A boca de jarro* (2016) (‘In the Mouth of the Jug’) exemplifies this approach: four percussionists have a metal mug, a pot of water each and a percussion stick each; the mugs and pots are of different sizes, thus creating different pitches and timbres.<sup>38</sup> As can be expected, the piece consists of all manner of sounds that can be created with these means: the mugs (although never the pots) are beaten in every conceivable way, are partially filled with water, water is poured etc. Importantly, though, silent actions are just as important. Indeed, the piece begins with the performers miming beating the mugs in various rhythms. The effect is simple but astonishing: watching, we can feel, experience or hear (internally) the rhythms, both individually and in their interaction. It is as if our own arms are beating along. More and more actual struck notes are interspersed, until we see and hear something akin to conventional music-making (made with metal mugs, however); but throughout the piece, silent beats and struck beats are combined in various ways, resulting in, variously, acoustic rhythms, visual rhythms and aggregate sonic-visual rhythms. As mentioned before, we experience the silent beats no less intensively and corporeally than the struck ones.

The *Poemas para una mano y una luz* (‘Poems for a Hand and a Light’, 1999) are, if anything, even more minimalist. As the title suggests, they consist of nothing more than one hand and a light. The light is alternately on, illuminating the hand, or off. In each of the poems, the hand performs only very few gestures although in many variations. In the first piece, ‘solita y sola’ (‘usual and alone’), the gesture is finger-clicking, in its sounding and non-sounding variety. This is played through in all manner of variations: sounding in the light, sounding in darkness, non-sounding in the light, non-sounding in darkness, fast-slow, etc. Again, it is next to impossible not to feel one’s own hands itching to click along and one’s ear to substitute the clicks that fail to sound. The remaining pieces are a little more complicated since the actual sounds are not shown but are synchronized with the hand movements. The second, ‘Tingle Bells’, features the striking of two small bells and of a wooden block. Like the first piece, this too starts in darkness, with bell sounds. We then see the hand performing swinging gestures, apparently following the movement of the imaginary suspended bells, striking first one, then the other, later both, at their lowest point (as we can see at the end of the video, which features a brief ‘making of documentary’ demonstrating how the pieces were produced, the bells are in fact static, but the hand gestures successfully convey the impression of bells suspended on a swinging rope of around 20cm in length). Every once in a while, however, instead of following the pendulum swing of the imaginary bell, the hand suddenly jerks forward to strike the likewise invisible woodblock (of which there appears to be only one). On other occasions, no sound is triggered, and the hand moves silently. When the hand is in its central position, we cannot know what will happen next: low bell, high bell, both bells, woodblock or no sound at all. As in the previous piece, we seem to feel the action in our own hand and hear it in our inner ear. ‘Hay que pulir’ (‘One has to Polish’) features rubbing sounds, ‘Jamás’ (‘Never’) the striking of a large drum (or possibly kettle-drum) by hand, ‘De otro Pozo’ (‘From the Other Well’) a guiro, seemingly triggered by finger movements. As a whole, the pieces perform a neat illustration of the wonders of animation and empathetic embodied responses.

Cross-modal perception/action coupling is as old as music and it may well be the reason why there is music. But it is continually rediscovered by musicians and composers. EMT is an imaginative way of reinventing the totality of music-making, involving sounds and movements, after the progressive disembodiment inherent in the dominant tradition in Western classical

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<sup>37</sup> Damián Rodríguez Kees, ‘Teatro musical contemporáneo: de lo extremo y fronterizo a la raíz kinestésica del sonido en escena’ presented at the Segundo Congreso Internacional de Artes: Límites y Fronteras, Universidad Nacional de Nordeste, Resistencia, Chaco, Argentina, 2018.

<sup>38</sup> Kees has a YouTube channel featuring many of his compositions, including those discussed here: <https://www.youtube.com/channel/UClJrVUqUrShFsNtiqNEZiw/videos> (accessed 30/05/2019).

music. It does so not just by fusing movements and music but relating them to one another, exploiting the resulting tensions.

Björn HEILE  
Université de Glasgow