New Music Theatre and Theories of Embodied Cognition
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Let us assume that opera is a way of visualising music. This may sound like a rather Wagnerian premise, reminding us of *die ersichtlich gewordenen Taten der Musik* ('deeds of music made visible'), but it responds to a more fundamental principle that appears to have its roots in evolution. Every sound is the result of movement, and as part of our genetic heritage, we constantly analyse all sounds to identify their origins. Without our ancestors' ability to detect the sounds of predator or prey, we wouldn't be here, and we still employ the same skills, if not necessarily for the same purposes. As infants (even as foetuses) we learn to detect sounds, interpret them as movements and imitate them. Music, then, is never 'just' sound; it is movement. Along the same lines, listening, as I will outline in more detail below, does not just involve the perception and cognition of disembodied soundwaves; it is mental or actual bodily re-enactment of sound-producing movements. It is for these reasons, I argue, that we delight in multimodal pairings of music with visual media and movement, whether it is in opera, dance, film, television, music videos or computer games. Indeed, we find it hard not to link the perception of music to visual impulses – and vice versa: witness the urge to employ music in film and television, even where it is not obviously motivated. It may be countered that we're also witnessing a fashion for headphone-listening, the seemingly most abstract and disembodied form of listening. However, it is telling that headphone-listening is so often described as providing a 'soundtrack' to people's lives and consciousness (see, for example, Bull 2007). In other words, music is related at some level to the surrounding environment. As Nicholas Cook put it (pace the philosopher Peter Kivy), 'music is never "alone"' (Cook 1998, 23; see also Cook 2015).

In the following, I want to read new music theatre through the lens of theories of 'embodied cognition', according to which musical perception is governed by the 'mimetic hypothesis', namely that listening involves an actual or imaginary attempt to imitate the sound-producing actions. Although the implications of the theory are pretty much universal, it makes sense to focus on modernist and experimental opera and music theatre. In their emphasis on new, non-hierarchical combinations of text, music and movements (among other elements), these forms can be said to have rediscovered the multimodality that was a hallmark – or at least a promise – of opera from the beginning (Sindoni, Wildfeuer, and O'Halloran 2016; Page 2009) but that was seen as stunted by the conventional dramaturgy of traditional opera, with its emphasis on drama and verisimilitude. In this sense, these forms can be seen as the counterpart to or part of the wider development of 'postdramatic theatre' (Lehmann 2006), which replaced the logocentricity of traditional drama with a renewed interest in simultaneity, parataxis and multi-perspectival perception.[1] At the same time, they responded to the disembodiment of music in the classical concert hall. In other words, what Wagner dreamed of – a *Gesamtkunstwerk*, in which all the other arts externalise the inner movement and dynamism of music – could be said to have been brought closer to its realisation by the cross-modal experimentation of the avant-gardes (Shaw-Miller and Miller 2004; Rebstock and Roesner 2012). There is a crucial difference, however, in that the latter typically jettisoned the reliance on an illusionist aesthetic and on alignment and congruence between media and art forms that were essential for Wagner.

After providing a short introduction to theories of embodied cognition in music, I will discuss their relevance for an understanding of modernist and experimental opera and music theatre,

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[1] As is readily apparent, the concerns of theorists of multimodality and postdramatic theatre are closely related, although they tend to come from different traditions or fields.

closing with an analysis of two case studies, Mauricio Kagel's String Quartet II and Luciano Berio's *Sequenza V*. As I will argue, by elucidating our ingrained expectations of the way music is produced through bodily movements, theories of embodied cognition allow us to better understand the *discrepancy* between the actions performed by the musicians in these pieces and the resulting sounds. In this way, these theories allow us to analyse the failures of communication between the members of the string quartet in the Kagel and the alternately amusing and distressing effect of the 'clowning' exhibited by the trombonist in the Berio.

Theories of Embodied Cognition…

In his ground-breaking *Music and Embodied Cognition*, Arnie Cox (2016, 12) formulates the 'mimetic hypothesis' in the following terms:

- Part of how we comprehend the behavior of others is by imitating, covertly (MMI) [Mimetic Motor Imagery] or overtly (MMA) [Mimetic Motor Action]
- Part of how we comprehend music is by imitating, covertly or overtly, the observed sound-producing actions of performers.

He further establishes twenty principles governing the mimetic hypothesis, many of which are further sub-divided into sub-categories (Cox 2016, 14–15). One of the distinguishing features of theories of embodied cognition is their basis in experimental findings in the neurosciences. We know, for instance, that listening activates the same regions of the brain that are used for motor functions, and that observation typically shows the same patterns of neural stimulation as action. For example, Cox has referred to a study by Gazzola, Aziz-Zadeh, and Keysers (2006), which, on the basis of fMRI scans ('Functional Magnetic Resonance Imaging' – a technique for measuring brain activity by detecting changes to blood flow), demonstrated that the same regions of the brain were activated 'both when performing hand actions [such as reaching for and grasping a peanut or a piece of paper, breaking or ripping the object, and replacing the object] and when only hearing such actions.' According to Cox (2016, 25–26), the implications for music are significant:

> The action of these populations of neurons [in the motor area of the brain] represents an equivalence between goal-oriented (sound-producing) hand actions of musical performers: the sound of the piano, for example, is the sound actions performed on a piano, the sound of hand drums is the sound of drumming actions, and so forth. One of the implications, then, is that whenever we give our attention to such musical sounds, normally we do not simply hear the sounds, but we also feel something of what it would be like to perform the sound-producing actions. (That is, we mimetically represent the sound-producing hand actions, to some degree of fidelity, and such representations have an affective dimension, in what it feels like to perform such actions.)'

Cox's is one of the most recent formulations of the mimetic hypothesis, and the advantage of his book is that it offers a coherent and very readable synthesis of a wide and often diffuse field, and that it embraces both empirical and music-theoretical approaches. It is worth stressing, however, that there is a growing and diverse body of theory from a number of scholars in different fields and working in different countries. Compare for instance the formulation of the mimetic hypothesis proffered by Rolf Inge Godøy (2013, 70):

The motor theory (with various variations) claims that perceiving sound is closely linked with mentally simulating the gestures that we believe have been made in the production of that sound. Some recent neurophysiological research suggests that perception and cognition in general is a matter of simulating the actions we assume are related to what we perceive. … In our context this means that when listening to music (or even just imagining music with our 'inner ear') we may very well mentally simulate some of the sound-producing gestures that we have previously learned go with the music; for example, energetic movements of the arms with ferocious drum sounds, long protracted gestures with sustained string sounds, and so on. These associations of musical sound with sound-producing gestures could be regarded as integral to music perception, leading to the idea that any sound will be included in some mental image of a gestural trajectory, which is what I previously have termed motor-mimetic cognition (Godøy 2003).

To be fair, Godøy's idea of a mental simulation of sound-producing gestures does not appear entirely convincing, and the appendage 'that we have previously learned go with the music' is so general as to muddy the waters (although he has provided more concrete details in some of his other publications). Much of the time, non-musicians can have no concrete idea how sounds are produced. Moreover, most music consists of a multitude of parts and signals, thus, in Cox's (2016, 49–50) words, offering 'multiple mimetic invitations', so it isn't always clear what it is that we may want to respond to. However, the widespread phenomenon of air guitar (and, to a lesser extent, air drum) playing and karaoke demonstrates the impulse to embody the music and the ability of a wide range of listeners, whether trained or untrained, to select between mimetic invitations. While these particular phenomena may be historically, culturally and socially specific (mostly linked to rock music from the 1960s onwards), similar if typically less outward and direct phenomena, are common across cultures and ages. Writing some years after Godøy, Cox (2016, 45–46) provides a useful distinction between 'intramodal' mimesis or 'direct-matching', which refers to a direct imitation of the sound-producing gestures (usually by people playing the same instrument or having the same voice type); 'intermodal' or 'cross-modal' mimesis, which typically involves subvocal imitation (i.e. humming along); and 'amodal' mimesis (abdominal exertions that underlie limb movements and vocalizations).

In other words, whenever we feel the impulse to sing or hum along, play air guitar, dance, tap our feet or nod our head, we engage in mimetic behaviour, whether we actively execute these actions (mimetic motor action – MMA) or suppress them (mimetic motor imagery – MMI). In all these cases, we appear to try to imagine what it feels like to produce the sounds we hear. While not all of us are trained musicians, we all have experience using our voices and producing a range of sounds with our bodies and whatever tools we have at hand, and there is clear evidence that we engage in this behaviour (typically imitating our caregivers) from our infancy and even before (Trevarthen, Delafield-Butt, and Schögler 2013). Indeed, according to the long-standing 'motor theory of speech perception', we learn to speak not by learning to analyse sound patterns but through imitation of the vocal tract gestures producing the sounds (Cooper et al., 1967). Although the theory originally argued that speech processing is special, more recent approaches have shown it to be a general phenomenon of perception (Galantucci, Fowler, and Turvey 2006).

Cox and most other proponents of the mimetic hypothesis are careful to point out that our motor response offers only a partial explanation of the way we hear and understand music: notice the cautious use of 'part of' in his formulation above (although his book does appear to represent an attempt to create a fairly comprehensive theory of music on that basis). Phenomena such as exact pitch and harmony are probably not sufficiently explained through motor responses alone. Nevertheless, the implications of the theory are far-reaching. That we do respond bodily to music is

hardly news, but what the theory suggests – and the empirical evidence for this appears overwhelming – is that this is not an epiphenomenon of music perception that can be ignored in the same way we can suppress the impulse to sing along or dance to music in the concert hall. Instead, it goes to the very heart of how we experience and make sense of music and why we feel drawn to it. There is related evidence that the way we experience rhythm is based on our corporeal experience of locomotion, notably walking (London 2006), and that our perception of relative pitch is metaphorically related to height and to sensations of bodily strain or relaxation (Cox 2016, 85–108). The clear implication of all this is that, to use the famous thought experiment of brains in a vat used in philosophy, without bodily experience, our minds would not be able to understand music and, in all likelihood, would not have invented or imagined it.

…and their Relevance for New Music Theatre

What implications does a perspective based on embodied cognition of music have for our understanding of modernist and experimental opera and music theatre? Somewhat frustratingly, this is hard to say. The theory is very useful in illuminating why opera has such a hold on audiences and why composers and practitioners kept reinventing it in novel ways when it seemed stifled by convention or ridden with clichés. It is our deeply felt impulse to sing along that makes us empathise with the characters on stage, and it is the bodily movement that we perceive in the music that makes its enactment and visualisation before our eyes so deeply satisfying.

Nevertheless, how the theory can be mobilised to explain the differences between repertoires and pieces and analyse specific examples is somewhat less clear. It seems a general theory of the nature of perception more than a heuristic interpretive or analytical tool. Moreover, it is noteworthy that the theory's proponents have generally stayed away from any multimodal art forms, possibly in an attempt to explicate the nuts and bolts of 'purely' musical perception. Furthermore, we quickly encounter an apparent paradox. If music is the result of sound-performing actions and listening to it means imaginatively re-enacting those movements, then any actual movements accompanying the music can only duplicate our own experience, thus rendering them redundant, or, alternatively, conflict with them, in which case they must be irritating. At heart, the issue is closely related to the dichotomy of conformance vs. conflict between music and visual media as theorised by Nicholas Cook(1998). Although Cox (2016, 45–48), for example, allows for degrees of congruence between stimulus (the sound heard) and response, this is not developed much further.[2] Arguably, an analytical method for the study of opera and other multimodal art forms involving music based on theories of embodied cognition would have to develop ways of describing and theorising levels and forms of congruence.

Apart from analysing congruence between sound-producing actions and music, what such an approach should focus on is the power of identification through the voice, by way of, mostly covert, mimesis (MMI) that opera affords. We can identify with operatic heroes and heroines because we can feel our own vocal folds, our tongues, our diaphragms performing the same (or similar) operations as theirs. This experience obviously depends on our experience with singing and, in some instances, vocal training: despite these significant differences, we all have some experience of using our voices. Most of us know that if we were to actually burst out in song, what we would produce would sound nothing like what opera stars are capable of, but this is just a particular case of theatrical illusion as the willing suspension of disbelief (in Coleridge's celebrated phrase). We can feel in our body what it is like to produce those sounds, and, substituting the real person of the

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[2] In a private email to me, Cox has drawn attention to the variability of congruence in his model and has recommended this as one of the areas with the greatest potential for multimodal analysis (which, in a sense, I am pursuing in this chapter). I am very grateful for his very helpful and generous response to my enquiries.

performer for the character they represent, we can imagine what it feels like to perceive the emotions that they express. In other words, although opera is less realistic than most other forms of enacted narrative such as film or drama, it offers potentially more powerful ways of identification with its characters through the peculiar force of mimetic motor action elicited through singing.

Modernist and experimental opera complicates this picture. At issue here is modernism's critique of realism, representation and scenic illusion. From a dramaturgical and wider artistic and cultural perspective these issues matter at least as much as musical style (which tends to be the focus of musicological discussions of opera: copious use of dissonance and 'advanced techniques', whether serial, aleatory, spectralist or electronic, will not make an opera modernist if the music accompanies a conventional drama enacted by singer-protagonists). Although identification is complicated and subverted in such a scenario – Brecht's epic theatre is the most notorious case in point, but the general issue holds true of most if not all modernist theatre – it is not necessarily entirely suppressed. Whereas Violetta in Verdi's *La Traviata* (1853) or Mimì in Puccini's *La bohème* (1896), to name just two nineteenth-century examples, invite our complete identification – or indeed *require* it for us to derive any enjoyment from the spectacle – we can feel compassion for Mélisande in Debussy's *Pelléas et Mélisande* (1902) or Judith in Bartók's *Bluebeard's Castle* (1918), but we cannot know what they experience. According to Elliot Antokoletz (2004, 30–54), Mélisande may be suffering from trauma, so cannot properly feel, never mind express or communicate emotion. But note how, just as in the case of Verdi's and Puccini's heroines, we get a visceral sense of her bodily if not her mental and emotional experience, through MMI: consider only her famous first phrase: 'Ne me touchez pas, ne me touchez pas!', delivered in two sequential phrases of breathlessly hasty, soft note repetitions, followed by a falling third. We can feel our own throats tightening and our muscles tensing or even trembling in terror.[3] In this way, throughout the work, we can physically experience Mélisande's unease, although, like Golaud, we never learn what ails her. She remains a mystery to us, although we can feel – or think we can – what she feels. In this way, modernist opera does not entirely obliterate identification, but it focuses on corporeal, visceral experience, rather than rational understanding or emotional empathy.

If early modernist opera offers resistance to full identification, later modernist and experimental reinventions of opera have typically further subverted the genre's traditional logocentricity and focused on visual, choreographic and postdramatic elements. While it is still possible, for instance, for a study of Alban Berg's *Wozzeck* (1925) to prioritise 'words and music' in a traditional fashion, such an approach would already be more problematic in the same composer's *Lulu* (1937), with its film interlude, among other theatrical devices. It would be quite absurd for a work such as *Einstein on the Beach* (1976) by Philip Glass, Robert Wilson and Lucinda Childs (the nature of the work requires mention of the director and choreographer alongside the composer). Similar arguments can be made about the operatic works of Luigi Nono, Luciano Berio, Salvatore Sciarrino, Mauricio Kagel, John Cage, Helmut Lachenmann, Kaija Saariaho, Olga Neuwirth or Brian Ferneyhough, to name just some. These works should be seen as postdramatic, multimodal art works, in which music, choreography, text, visual elements, action and movements are combined in different and in principle non-hierarchic ways (which is not to say that one or the other element cannot predominate but that there is no pre-existing expectation that it should). Just as we cannot assume that any element is privileged, we cannot expect synchronicity between them as a norm. Likewise, realism, dramatic representation and scenic illusion may be more exceptions than the rule.

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[3] There is a parallel here to Verdi's Violetta, or, put differently, Verdi to a certain extent foreshadows the modernist emphasis on bodily experience, by capturing Violetta's progressive tuberculosis in her vocal part which becomes increasingly restricted in terms of both range and dynamics. Cf. Cox's comments on Dido's lament in (Cox 2016, 216–17)

But that's not to say that in these operas there is no sense of identification and empathy and that we do not, at one level, connect with the personae on stage, not least through mimetic participation. Indeed, this can be intensified to frightening proportions, as happens in some of Salvatore Sciarrino's works, such as *Lohengrin* (1982) or *L'infinito nero* (1998), in which we appear to hear the articulatory organs or bodily sounds of the protagonists amplified by the instruments. In a way, we don't just get a sense of what it feels like to be the figures we see and hear on stage, we get a sense of what it is to be *inside* them. Put differently, the bodily experience afforded by Sciarrino's work is more akin to Francis Bacon than Botticelli: more real – or rather hyper-real – than idealised.

Modernist opera's challenge to identification is not unlike the resistance to mimetic participation of modernist music as a whole. Cox (2016, 50) describes his experience of listening to Brian Ferneyhough's *La chute d'Icare*: 'Upon first listening to this work I was bewildered, but the more I listen to it, the more my experience approaches that of listening to tonal chamber music: I get better at predicting and mimetically participating with ever more details.' This is a good summary of the particular pleasure modernist music affords: a challenge that can be overcome. This music may seem abstract and disembodied – or, as in the case of Sciarrino's work, all too corporeal – but it is never entirely alien to our embodied perception. By contrast, this is what, in my opinion, in an otherwise fascinating contribution, Justin London (2006, 136) misses when he argues that Milton Babbitt's Composition for Twelve Instruments 'fail[s] to create this impression of movement; instead the effect is that of stasis, with each cluster of tones merely succeeding each other, without any sense of "beginning, end, and consummation". We just do not move like that, nor can we hear ourselves (or others) doing so.' Just in case there is any doubt whether this statement implies a value judgement, London (2006, 135) clarifies: 'A negative reaction to this music, and other works like it is not simply musical philistinism. Such reactions are borne out of a deep sense of how musical gestures are (and are not) supposed to go.' The section in question is admittedly quite abstract and difficult to relate to real-world experiences, such as the movements of our bodies or other naturally occurring rhythms and patterns, but the idea that we *cannot* hear ourselves or others move in this way and that there are certain ways in which musical gestures are supposed and not supposed to go appears dogmatic and narrow-minded. The assumptions here would be that a) musical gestures are directly representative of or congruent with physical movement and that b) all our physical movements take place within fairly narrow confines (regardless of our age, health or possible disability). In my view, both assumptions are unwarranted. While we have a strong tendency to relate musical movements to the movements of our own body, these relations may not be entirely congruent and linear, and we are able to relate quite abstract and irregular movements to our bodily experience. Furthermore, our bodies can move in a great variety of ways and we can imagine the movements of animals, plants and machines. As Cox (2016, 211) puts it, '[t]o allow such music [Stockhausen's *Studie II*, on this occasion] to enter and affect us is to take a step, however modest, beyond ordinary human subjectivity and in the direction of the subjectivity of cybernetic organisms.' Even if our body has limitations, our imagination does not.

The pleasure of sections like the Babbitt lies in the attempt to experience different timescales, possibly simultaneously – potentially from the imperceptible movement of glaciers to the heartbeat of a hummingbird, and to try to experience duration without the grid of steady pulse. It is the music's sense of otherness, its resistance to be reduced to our sense of locomotion that makes it interesting.

Musical Gestures in Mauricio Kagel's String Quartet II and Luciano Berio's *Sequenza V*

As I pointed out above, the specific contribution that theories of embodied cognition can make to music is by focusing on varying levels of congruence between what we hear and what we see, between the movements we imagine in response to the sounds we hear and the actual movements,

or vice versa, between the imaginary music that would seem congruent with the movements and the actual sounds produced.

One way of doing so is by studying musical gestures. Jensenius et al. (2010, 23–24) have distinguished between the following gestures (understood as meaningful movements made by musicians while performing):[4]

- 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. Consider, for example, a violinist raising their bow in preparation for a stroke. This would be a sound-facilitating gesture, but it may also act as a communicative gesture in giving a cue to other performers or aiding synchronisation. Or, for a contrasting example, imagine a jazz pianist rocking their upper body during performance. This too is primarily a sound-facilitating gesture, and it too performs a communicative function vis-à-vis other musicians, but it also communicates with the audience, inviting entrainment (synchronised movement), which is an important feature of jazz culture and thus aiding a deeper immersion in the music. Finally, the movements can be seen as sound-accompanying, since not all body movements musicians (particularly jazz and popular musicians) perform necessarily facilitate sound production. It isn't always easy and not necessary to say where one function ends and the other begins; what matters is that the categories are quite clear and distinct, although they are typically combined in practice. Jensenius et al. (2010, 25) have suggested a way of representing the different components of any gesture three-dimensionally (see figure 1).

[4] Other categorisations of musical gestures have been proposed, but the differences are relatively slight and the one presented here serves present purposes well. One problem with the concept of musical gesture is that a gesture is more than just a movement; instead it is a *meaningful* movement. Traditionally, we use the term more or less synonymous with 'hand signal'. Although some theorists have insisted on the importance of the semantic component, the term is often used for something more akin to movement or motion. In accordance with the source used, I refer to the categories listed by Jensenius et al. as 'gestures', although in my discussion I often use the categories as movements. Indeed, my own preferred term is 'action'. The advantage of that term over 'gesture' lies in its not suggesting a semantic function and its advantage over 'movement' lies in its intentional component: it allows us to focus on what musicians are (purposefully) *doing* rather than registering all (incidental) movements that may occur.
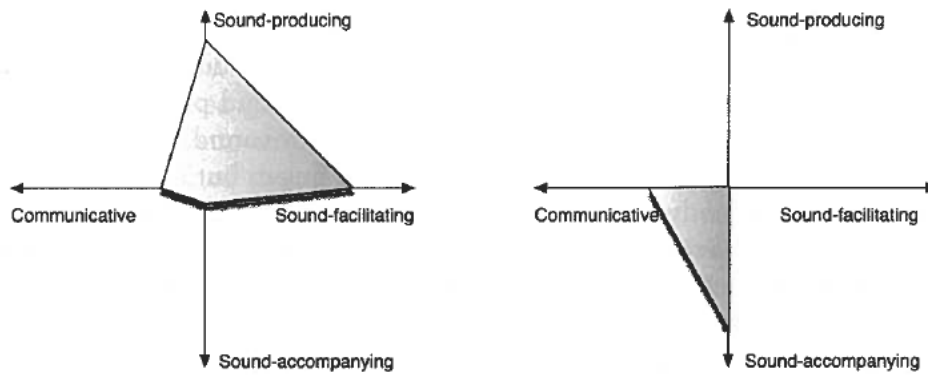
Figure 1: Dimension spaces illustrating the gestures of a musician (left) and dancer (right), in Jensenius et al., 'Musical Gestures'

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 characterise the frame, separated from the performance proper by a metaphysical divide. Although, as outlined, it is common for performance gestures to combine different functions, it is not normally possible to merge the performance with its framing devices: in other words, it is important to recognise that the filing of performers onto the stage and the tuning of instruments or page-turning are not part of the music concerned. This sounds so obvious that it may not seem necessary to mention it, but it is just the result of a convention. There is an interesting parallel to the role of the Kuroko (or Kōken) in Japanese Kabuki: they act as stagehands (aiding in scene and costume changes and the like) and are typically dressed in black, signifying that they are meant to be invisible and that their actions are not supposed to be part of the play (Salz 2016, 70; see also Kirby 1972, 3–4). But for an uninformed observer, their actions are just as much a part of the totality of the spectacle on stage as those performed by the (fully costumed) actors. Over and above this, the wider point here is that, perhaps not surprisingly, experimental forms have a tendency to overstep the assumed metaphysical divide. The amended table of movement types looks like table 1.

Amended list of movement types
- Sound-producing
  - Excitation
  - Modification
- Communicative
  - Performer-performer
  - Performer-perceiver
- Sound-facilitating
- Sound-accompanying
- Preparatory
- Formal

Performance

Metaphysical divide

Frame

Table 1: Amended table of movement types

An analysis of musical gesture in accordance with theories of embodied cognition is most usefully executed in experimental music theatre, more than in operatic forms. I have clarified the distinction between opera and experimental music theatre in an earlier publication (Heile 2016, 335):

> [E]xperimental music theater refers to a type of performance in which theatrical actions are created by music making (playing of musical instruments or other sounding objects, singing). This form needs to be distinguished from other types of music theatre, such as opera and related genres, in which music accompanies theatrical action. There are two primary features that distinguish operatic forms, including modernist and avant-gardist ones, from … experimental music theatre … : first, a constitutive separation between stage and orchestra pit, which has been described as a metaphysical divide (Abbate 1996, 14–19) and, second, the union of singing and acting, whereby dramatic roles are enunciated through the singing voice. In experimental music theatre as defined here, by contrast, the physical and gestural elements inherent in the music making are the action, and there is no (actual or virtual) separation between stage and instrumental ensemble, nor are there dramatic roles.

This is not to say that the categories of opera and experimental music theatre so defined contain all existing or possible music-theatrical forms: they are more ideal types than descriptive classes. It goes without saying that composers have increasingly explored the boundary between them or combined aspects of them. It is worth noting, however, that the first experiments in experimental music theatre by John Cage, and following him, Mauricio Kagel and others, were distinctly anti-operatic and 'purist' in developing the theatrical elements exclusively from musical gestures and avoiding dramatic roles. Combinations of operatic and experimental music theatre followed later; it is as if they could not have been conceived without the non-operatic mode introduced by experimental music theatre. This is particularly true of most British music theatre. Peter Maxwell Davies's *Eight Songs for a Mad King* (1969) is perhaps symptomatic. The eponymous king (George III) is represented by a baritone; the musicians are on the stage sitting in bird cages (although not all recent productions stick to this). In the composer's own words, '[t]he flute, clarinet, violin and cello, as well as having their usual accompanimental functions in this work, also represent, on one level, the bullfinches the King was trying to teach to sing. The King has extended "dialogues" with these players individually […]. The percussion player stands for the King's "keeper" (Davies

2017).' One of the strengths of the work is the way the musicians embody dramatic personae (if that's the term for bullfinches) and the music – or at least some of the music – is legitimated by the action. The problem (as I see it), however, lies in the phrase 'as well as having their usual accompanimental functions'. Much of the time the musicians might as well be in the pit, and the switching between the roles of dramatic persona and musical accompanist is somewhat awkward. Rather than overcoming Abbate's metaphysical divide, the dramaturgical conception of dialogues with individual instruments accompanied by the rest of the ensemble could be seen to accentuate it. To be fair, what makes the work fascinating is the play with different levels of reality and fantasy, since the performers can be seen to represent figments of George III's hallucinations, but that only partially addresses the dramaturgic problem of 'accompanying music'. In similar, a lot of music theatre, particularly in the British tradition, has placed the ensemble on the stage but has shied away from drawing radical dramaturgical conclusions as regards the musicians' roles.

It is interesting in this context, too, that many composers gravitated towards more operatic conceptions of music theatre in later parts of their career. This is particularly true of Mauricio Kagel, who largely abandoned experimental music theatre after its apotheosis in *Staatstheater* (1970). In that respect, his *Quatre degrés* (1977), of which 'Dressur' is the most widely performed piece, is a last and somewhat half-hearted attempt, while his 'Theatrical Illusion' *Die Erschöpfung der Welt* (1978) and the 'Lieder-Opera' *Aus Deutschland* (1979) represent new, more operatic (or indeed oratorical) directions – although they were informed by his earlier experiments. Although there may have been institutional reasons for this, the title of the Chair he acceded to in 1974 – Professor for New Music Theatre (seemingly abandoning his earlier insistence on 'Instrumental Theatre') – is significant in this context too. This development is largely mirrored by Luciano Berio, György Ligeti, Harrison Birtwistle and others – even John Cage may be mentioned in this context, if we consider the trajectory from *Theatre Piece* (1960), though *Song Books* (1970) to the *Europera* series (1987-91), for example.

It seems obvious that a focus on gesture is most promising in cases where musicians' movements themselves are at the centre. However, related approaches can be promising for other genres, in which the stage action is coupled with and responds to music and vice versa, such as dance and opera. The justification for comparing experimental music theatre and opera despite their generic differences lies in the influence that the former arguably exerted on the latter. Although the 'constitutive separation between stage and orchestra pit' largely remains in place (despite its occasional transgression through on-stage music which has been a favourite operatic device from Monteverdi's *Orfeo* onwards) even in works by Sciarrino, Lachenmann and others listed above, the postdramatic emphasis on the non-hierarchic interplay between different media in these works owes a lot to the example set by experimental music theatre and other avant-gardist forms, even if lines of direct influence may sometimes be hard to draw.

The first example is Mauricio Kagel's String Quartet II (1967), specifically a video-recorded performance by the Montréal-based Quatuor Bozzini.[5] In the piece, Kagel plays with a variety of performing gestures, frequently overstepping the metaphysical divide between performance and frame. Indeed, the work begins with formal gestures: the musicians' entries and interactions while sitting down are carefully choreographed. This may not be obvious to an unsuspecting audience member, although the fussiness of the whole procedure is noticeable and would alert most people that something is 'not quite right'. Furthermore, that effect is heightened if the piece is performed after Kagel's String Quartet I, which is an option, since that work choreographs and dramatizes the entry and sitting down of musicians even more elaborately: indeed, the whole piece revolves around

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[5] I am very grateful to the Bozzini Quartet for sharing this video with me, which is currently not publicly available.

the casual, individual entries of the musicians like for a rehearsal, and till the end they fail to reach their conventional positions (Zenck 2002; see also Heile 2006, 54–56). Indeed, Walter Levin (Spruytenburg 2011, 280–83), the first violinist of the LaSalle Quartet for whom the composition was written, has suggested that the piece is a 'satire' (*Persiflage*) of the Quartet and tailored to its idiosyncrasies, with the cellist, Jack Kirstein, occupying the chair normally reserved for the leader etc.[6]

Among the most commonly used devices in String Quartet II 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 (see ex. 1 for the score passage and fig. 1 for a screenshot). This comes across as the kind of thing musicians do to service their instrument; a parallel would be a brass player clearing out water – 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).

Ex. 1: Mauricio Kagel, String Quartet II, rehearsal number 13, by kind permission of Universal Edition. Translation of instructions: first violin – '1st violin covers the left hand and fingerboard of the 2nd violin with a cloth (at least 50 x 50 cm)'; second violin – '1st violin lays a cloth on LH and fingerboard [...] from here on the prescribed pitches should be regarded as approximate. The performer goes on playing, unperturbed, beneath the cloth.'; cello – blow into other sound hole [...] simile: breathe in several times'

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[6] I would like to thank Clemens Merkel for alerting me to this book and providing me with a scanned copy of the relevant section.

Fig. 1: The Bozzini Quartet during performance of Mauricio Kagel's String Quartet II, around rehearsal number 13.

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 isn't 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 (see ex. 1 and fig. 1 for the placing of the cloth on the violin and ex. 2 and fig. 2 for its dropping). 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.[7] 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

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[7] Walter Levin (Spruytenburg 2011, 281) has explained this passage thus: 'In the course of the piece, Henry Meyer [second violinist of the LaSalle Quartet] plays a wonderful melody [*Kantilene*], but I take a towel to cover his fingers and the violin because I don't want to hear it, but he continues playing.'

serrated wooden staffs sounds like?

Ex. 2: Mauricio Kagel, String Quartet II, rehearsal number 14, by kind permission of Universal Edition. Translation of instructions: viola – 'Having got to the nut of the bow, the right hand grips the cloth. The upbow movement is then vigorously continued with an upward thrust. The performer "freezes", with arm raised (and the cloth in his [sic] hand). Immediately afterwards: bring arm down slowly. […] let CLOTH drop.'

Fig. 2: The Bozzini Quartet during performance of Mauricio Kagel's String Quartet II, around rehearsal number 14.

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. In this way, the establishment of 'stable performance', in which the musicians play their instruments in more or less customary fashion, producing more or less the results we would expect, is constantly undermined in different ways – whether the gestures performed subvert what I above called the standard protocol or whether they produce sounds that appear non-congruent with the actions performed. 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 'theatricalise' the performance. Furthermore, the way many of the gestures such as the actions involving the cloth and, to an extent, holding the cello upside down can be understood both functionally as performing gestures and at the same time as some kind of dream-like and at the same time deeply unsettling surreal theatre can be encapsulated with the term 'metaxis' – 'a state of in-between-ness and a continual process of mediation between two states (Linds 2006, 114)' (Heile 2016, 347). In terms of theories of embodied cognition, it is the non-congruence between performing gesture and sonic result that leads to the 'doubleness' in our perception characteristic of metaxis.

My second example is Luciano Berio's *Sequenza V* for Trombone Solo (1966). It is a fairly well-known, frequently played piece, and a significant number of performances can be found on online sharing sites such as YouTube. In his programme note, Berio has related the composition to the clown Grock. The score specifies a number of actions to be performed by the player, the costume (in the most general terms) and the overall style (Berio 1968, Preface):

> Walking on the stage and during the performance of section A the performer (white tie, spot from above etc.) strikes the poses of a variety showman about to sing an old favorite. Inspired, he extends his arms, he raises or lowers his instrument [indicated in the notation itself] with movements which should appear spontaneous, he hesitates. Just before section B he utters a bewildered 'why?' and sits down without pausing. He must perform section B as though rehearsing in an empty hall.

Although that is not sanctioned by the score, a performance tradition has arisen whereby the piece is played in clown costume (Webb 2007; Cf. also Halfyard 2007).[8] There is an interesting parallel here with Mauricio Kagel's *Match* (1964) for Three Players (two cellists and a percussionist), with which *Sequenza V* shares a number of aspects, and which has similarly been performed by costumed players – the two cellists as tennis players and the percussionist as umpire.

The (admittedly far from clear) performance instructions are interpreted in diverse ways by performers, from nearly straight concert performances to overt clowning. Unfortunately, very few recent performers appear to have taken the trouble to research Grock's persona, costume and performance style, instead opting for a fairly generic idea of 'clowning' that, furthermore, is probably of rather more recent origin (possibly based on memories of the performers' own childhood) than Grock's hey-day during the 1920s and 30s (the 'classic' performances of Dempster, Globokar and Sluchin do not currently seem to be available on video). Although Grock did not shy away from fairly broad comedy, many of his routines and his general persona were quite subtle and understated, and much of his trademark style is reflected in Berio's work. An exception among recent performers who seems to have based their interpretation on a study of Grock's work is Christian Lindberg, whose attire and performance style seem more 'authentic', although the heavy

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[8] Abbie Conant has set up a very useful website presenting materials on *Sequenza V*, including videos of Grock in performance: <http://www.osborne-conant.org/Grock.htm> (accessed 28 June 2017).

use of makeup around the eyes is not quite accurate (Grock usually wore makeup around the mouth but less around the eyes).[9]

If a costume is worn, the performance comes close to the very definition of 'non-matrixed representation' according to Kirby (1972, 4–5). As he explains, like 'non-matrixed performance' this form of performance does not involve acting in the sense of impersonation, but the performer is placed in a representational framework through external features, such as costume or stage décor. This is exactly what happens in *Sequenza V* if a clown costume is worn, as a consequence of which the whole performance will be viewed differently. This representational framework is heightened by a number of actions the player has to perform. Like in Kagel's String Quartet II, some of these actions masquerade as performance gestures, even though they don't fulfil any strictly musical function and in some cases actually create significant additional difficulties. The first of these are formal gestures: the walking on[to] the stage and striking of poses mentioned in the preface to the score. While some of these actions, such as walking onto the stage, appear to frame the performance, others, such as the raising and lowering of the instrument, uttering of the word 'why?' (followed by a baleful pedal note Bb) and sitting down are part of it; when the poses are to be struck is unclear: there doesn't seem to be any opportunity for this during the performance itself. As for section B, although the character of the music is sharply contrasting – depressive as opposed to the mania of section A – and seated playing is certainly unusual for a solo piece for trombone, it is not clear how a performer can convey the impression of rehearsing in an empty hall, particularly since the musical material is not overly reminiscent of rehearsals and avoids obvious references such as repeated passages, scales or arpeggios.

Another important category are virtual facilitating gestures, in particular exaggerated vertical swaying of the instrument (the raising and lowering of the instrument mentioned in the preface). The most obvious connection to the trickery associated with clowning (and indeed Grock's particular type of humour) go further in externalising the mechanism underlying MMI. At several points, the trombonist visibly prepares for a note only to fall silent; at others, sounds are made seemingly invisibly taking audiences by surprise. These musical jokes are obviously aided by the inherent humour of the trombone, which, with its curious shape, seemingly obvious but often misleading mechanism (whereby pitch seems to be controlled by the slide although embouchure is equally important) and propensity for glissandi, is an ideal clown instrument (although it was rarely if ever played by Grock). At other moments, the performer mimics the instrument vocally, changing between sung and played notes so rapidly that it can be hard to distinguish between them. Finally, in a virtuosic passage preceding the apparent breakdown following the utterance of 'why?', what we hear and what we see becomes less and less congruent, as the performer frantically moves the slide up and down, while producing little sound.

In addition, there are virtual communicating gestures. Before imitating the trombone sound vocally, the performer is to move his or her head sideways rapidly. This is of course inaudible and, of all the performances I have seen, only Dave Day carries out the score's instructions.[10] The effect is slightly unsettling: there is no way the gesture can be sound-producing or –facilitating, so, when interpreting it in the framework of musical performance, we can only understand it as communicative – but of what and to whom? On a higher level, the gesture adds to the frantic nature of the performance in the first section (A) of the piece, with the performer visibly and audibly

[9] Lindberg's performance is available here: <https://www.youtube.com/watch?v=OnfApTtzJmk> (accessed 28 June 2017).

[10] Day's performance is available here: <https://www.youtube.com/watch?v=ZqlUhN7TbAk&spfreload=10> (accessed 23 June 2017). Although at times very effective, the performance is slightly undermined by overly extrovert clowning and a similarly excessive costume, contrasting with Grock's rather more subtle art.

struggling with their instrument and all the different tasks assigned to them – walking, playing, singing, moving the instrument up and down, moving the head.

As has been seen, like Kagel's String Quartet II, *Sequenza V* plays with the customary function of musical gestures, and, like Kagel's *Match*, it also involves simple representation: where *Match* assigns the performers the roles of tennis players and umpire respectively, the reference to Grock establishes a representational framework, even though the primary level of musical performance is never in doubt. In both pieces, this representational framework is subtly confirmed by a number of musical elements and gestures that are difficult to reconcile with 'straight' musical performance, but, again, these are relatively subtle and mostly confined to the beginning. What is perhaps most striking about the Berio is how the element of clowning is mostly represented through non-congruence between sound and movement, with movements that do not result in sound and sounds that do not seem to be the result of movement. It is our strong expectations of congruence between these levels that makes the piece effective, if not as straightforward musical humour, then as an affectionate if unsettling tribute to Grock and other musical clowns.

Conclusion

The categorisation of musical gestures by Jensenius et al. or my extension of their taxonomy can aid the analysis of the actions in performances of experimental music theatre, facilitating a distinction between actions that serve a conventional musical purpose and those that have a primarily theatrical function. More to the point, it can differentiate the different elements in actions that serve dual purposes and show how theatrical gestures are based on virtual sound-facilitating gestures – such as the swaying of the trombone in Berio's *Sequenza V* – virtual preparatory actions – such as the blowing of the cello's sound holes in Kagel's *String Quartet II* – or virtual communicative actions – such as the turning of the head in the Berio or the falling cloth in the Kagel. It is the doubleness of these elements – their masquerading as performance elements when they're clearly something else – that, in earlier work, I explained with the term 'metaxis'.

These elements also enable a mobilisation of theories of embodied cognition. What pieces such as those by Berio and Kagel play on is the partial congruence between sound and its response, what is seen and what is heard, what is real and what is imaginary. Seen from this perspective, what Berio and Kagel play with is motor mimetic imagery: the sonic expectations we have if we see certain movements being performed or the movements we want to perform ourselves or see being embodied on hearing certain sounds. The analyses here are offered as preliminary approaches. Future work may have to consider more precise ways of analysing movement than the categorisation of musical gestures, such as Labanotation or motiongrams (Jensenius 2012). Even the methods and tools developed in sports and exercise science may be useful for this purpose.

While these approaches have particular potential for experimental music theatre, specifically based on instrumental performances, another promising approach to the study of more operatic traditions of new music theatre would consist of analysing the opportunities for identification based on MMI proffered by the human voice. Combining these approaches, on the basis of theories of embodied cognition, would offer a rich toolkit for the investigation of a great variety of work within new music theatre.

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