

**Music and  
Consciousness**  
Philosophical,  
Psychological, and  
Cultural Perspectives

Edited by

David Clarke

Eric Clarke

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2. A screenshot from the model similar to that displayed in Figure 9.1 can be seen in context in an online poster (see the directory [kaleidoscopeBeynon2005](#) in the Empirical Modelling Projects Archive), and a variant of the interactive model can also be accessed online via the Empirical Modelling Web Eden webpage.
3. See the online JUGS poster in the directory [kaleidoscopeBeynon2005](#) in the EM archive.
4. For more background, see the biography of Edelman available at: [www.notablebiographies.com/supp/Supplement-Ca-Fi/Edelman-Gerald-M.html](http://www.notablebiographies.com/supp/Supplement-Ca-Fi/Edelman-Gerald-M.html) (accessed 6 July 2010).

## Chapter 10

# Music, language, and kinds of consciousness

Lawrence M. Zbikowski

### Introduction

Let's imagine two situations in which you and I communicate with each other. In the first, I say 'Here is a waltz by Mauro Giuliani.' In the second, I play a waltz by Mauro Giuliani.

One of the first things that may strike you is the way I've stretched the notion of communication. To tell the truth, my use of the word is not very heavily freighted—I intend it simply as a covering term for a sequence of interpersonal exchanges between two people. Running a close second is the question of just who Mauro Giuliani is, something almost certainly outside your knowledge unless you are a guitar aficionado or a student of minor Italian composers of the early nineteenth century. What may never enter the picture are the two very different kinds of consciousness associated with these contrasting situations.

The first kind of consciousness involves a cascade of mental images prompted by the words 'Here is a waltz by Mauro Giuliani' (or 'Hier ist ein Walzer von Mauro Giuliani', or a rendering of the statement in any other natural language; I should emphasize that 'image' in this context is conceived quite broadly, and extends far beyond vision to include any sensory information). Having heard these words, you might well summon a scene in which I present you with a score, a recording, or a performance of the piece; or explain who Mauro Giuliani is; or give some account of why I would want to trouble you with the work and its composer. Your thoughts might also turn to other waltzes that you know, to memories of your first waltz with your aunt, to the last good Italian meal you had, or to reflections on the general state of my sanity.

The second kind of consciousness involves a cascade of mental images prompted by my performance of the work. Although the work that I would play is not a long one (the score is given in Example 10.1), in most cases this cascade will unfold steadily over time, guided by the music and transformed by events like the repetition of the opening material that begins in bar 5 or the introduction of new ideas that begins in bar 9. If you are a dancer, your thoughts may also be informed by the sequence of movements prompted by Giuliani's waltz, by strongly embodied memories of the physical experience of dancing the waltz, and by your attention to the formal articulations of the music (such as the shift from waltz to trio) that would inflect the larger course of your steps. Of course, it is also possible that once you recognize the waltz as a bit of pleasant Biedermeier

**Example 10.1** No. 15 (Tempo di Valzer and Trio) from *La Tersicore del Nord, contenente una prescelta raccolta di pezzi ballabili per chitarra sola* (1828), Op. 147, by Mauro Giuliani (1781–1829).

music your attention will wander, and you will become occupied with technical aspects of my performance of the piece or with memories of similar (and perhaps better) waltzes by other composers of the period. In the last case the mental images that would occupy your thoughts would not be substantially different from those prompted by language, but in the first two cases—in which the cascade of mental images is a direct response to the succession of musical events proper to Giuliani's waltz—the thoughts with which you are occupied will be of rather a different sort than those summoned by language. This would be so not simply because you were occupied with patterned non-linguistic sound, but because the dynamic aspect of these thoughts—the contours of their cascade—would reflect key aspects of musical organization.

In this chapter I would like to explore the idea that the kind of consciousness associated with attending to music is different from the kind of consciousness associated

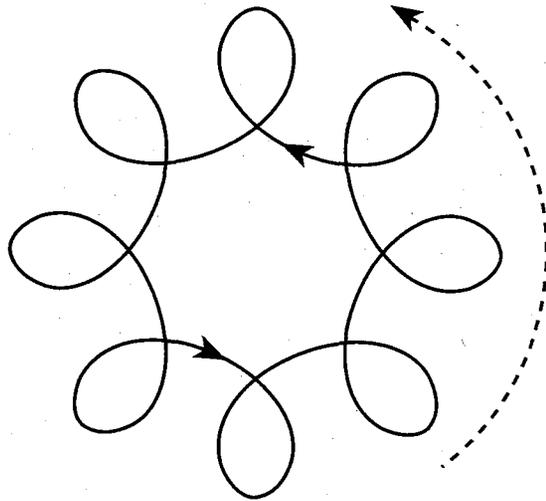
with attending to language. In the first section that follows I shall offer a preliminary view of how music shapes consciousness, with particular attention to the relationship between music and movement epitomized by Giuliani's waltz. In the second section I shall provide a brief sketch of aspects of consciousness that support the distinction that I should like to draw between attending to music and attending to language. This sketch approaches consciousness as a biological phenomenon, one that is also informed in important ways by memory function and by culture. In the third section I shall return to Giuliani's waltz and describe in a bit more detail how music shapes our conscious experience, and how the means it uses are different from those of language.

### The early nineteenth-century waltz: content and context

Although writing a waltz would, on first glance, appear to be a fairly straightforward endeavour, it was not something that A.B. Marx took for granted when he introduced the topic in the course of his discussion of free composition in *Die Lehre von der musikalischen Komposition* of 1837–8. From Marx's perspective, the waltz was representative of a genre of music closely associated with actual physical movement, a genre that included marches and that was distinct from genres focused on melody. As such, it was paramount that the composer understand the specific movements of the dance so that the music could be shaped accordingly. Marx thus began with the steps of the dance: 'The waltz has two movements: first each pair of dancers turns itself in a circle around its own centre; second the pair progresses with these continuous turns in a greater circumference until it reaches its starting place and the circle is closed. Each little circle is performed in two-times-three steps and is, as it were, the motive of the dance' (Marx 1837–8, 2: 55). The result of these movements is a distinctive circular path that the dancers describe through successive repetitions of their smaller circles, a path represented diagrammatically in Figure 10.1.

These circular movements are perhaps the most important feature of the dance, and one that Marx believed had to be clearly supported by the music: 'At the very least the waltz must bring into prominence this basic motive of movement. Each bar, or, better, each phrase of two bars, must answer to the dance motive marking the first step firmly, and also the swinging turn of the dance. Where the bars do not point it out they must still favour it, by a melody which spiritedly turns away from the first note' (1837–38, 2: 55).

All of these features are quite evident in Giuliani's waltz from *La Tersicore del Nord*. First and foremost, the two-bar motive of the dance pervades both waltz and trio. In some cases—as in bars 17–20 of the trio—the grouping of the bars is suggested by changes in melody and harmony: bars 17 and 18 have a melody derived from an inverted-turn figure (F $\sharp$ –E–F $\sharp$ –G–F $\sharp$ ) over a D3 pedal bass that obscures the change of harmony; bars 19 and 20, by contrast, have an arching melody harmonized in thirds and supported by single bass notes (A3 and D3) that mark a clear change in harmony. In other cases two-bar groupings are suggested by changes in compositional strategy. In the opening of the waltz, for instance, bars 1 and 2 are organized around a brusque statement of the dominant seventh of A major answered by a descending scalar passage over the tonic. Bars 3 and 4, by contrast, are organized around an ascending scalar



**Fig. 10.1** Diagram showing the pattern of the dancers' path while waltzing, as described by A.B. Marx. Figure reproduced from Yaman, S. (2002) *Revolving Embrace: The Waltz as Sex, Steps, and Sound*, with permission from Pendragon Press.

bass harmonized in tenths, with the topmost voice (on E4) reduced to an accompanying role. In other cases the contrast between two-bar groups may be less pronounced (as in bars 9–16 of the waltz, or bars 25–32 of the trio) but, as Marx recommends, the melody turns away from the first note of the bar through devices such as appoggiaturas (bars 9–10, 13–14), running scalar passages (bars 25–28), or a rest on the first quaver (bars 16 and 32, a device also used in bars 7, 24, and 40). Perhaps most important in this regard, however, is the gesture with which Giuliani opens the waltz: by creating an agogic, harmonic, and registral accent on beat 2 of bar 1 Giuliani thrusts the listener forward into the space that will be filled by the descending passage of bar 2, and thereby suggests the impetus generated by the swirling turn of the dance.

In sum, then, Giuliani's waltz conforms quite well to the compositional design described by Marx, a design predicated on the notion that the main purpose of the waltz was to guide the dancers' steps. It is worth remembering, however, the performance context within which the piece would have been heard during the early nineteenth century. Although works for the guitar were given a place in concert settings (Heck 1995), the instrument was better suited to the bourgeois salon, within which its subdued voice could more easily be heard. In this setting it might be used in small instrumental ensembles, or to accompany song, or to perform short solo pieces. It might also be used to accompany the dancing with which such gatherings often concluded (Hanson 1985: 119). Giuliani's waltz could, of course, have been used to accompany actual dances, but the layout and organization of *La Tersicore del Nord* suggest that the 'choice collection of dance pieces' it offered was intended for listening rather than dancing. Consisting of 16 pieces distributed across three volumes, it is only No. 15 that is identified as a particular genre of dance. Among the rest of the works

there are those that could be used as contredanses, but others belong to no specific dance genre. It seems likely, then, that the pieces of *La Tersicore del Nord* were aimed at listeners rather than dancers.<sup>1</sup> As such, the works served to evoke the scene and circumstances of the dance, to summon a reminiscence of the vibrant ballrooms where, amid the circling dancers, a new form of social interaction, predicated on shared experience and physical movement, was developing (Hanson 1985: 150–68).

During the early nineteenth century, then, the waltz as a musical genre was thought of as being in an intimate relationship with the waltz as it was danced in the ballrooms of Vienna and other metropolitan centres. On the floor of the ballroom or within the more modest confines of the bourgeois salon, the music provided a template onto which dancers could map their bodily movements. Even when used only for listening, however, the music of the waltz still invited corporeal engagement, although one imagined rather than enacted.

I would like to propose that the real or imagined corporeal engagement prompted by dance genres in particular and music in general is indicative of a kind of experience that is markedly different from that in which one's thoughts are guided by language, and that these different kinds of experience are associated with different kinds of consciousness. The next section will set out some of the features of consciousness that support this distinction, with particular attention to relationships between consciousness, memory, and culture.

### Consciousness, memory, and culture

I should like to start with a slightly obscure but still useful distinction, between *awareness* and *consciousness*. To be aware of something is, in some measure, to take note of it: for instance, you are aware, in some measure, that you are reading a chapter from a book on music and consciousness. Consciousness is quite closely affiliated with awareness—were you unconscious (as the term is typically construed) you would not be aware that there was a book on music and consciousness to be read, much less that you were reading a chapter from it—but complications quickly ensue. Had you started playing David Starobin's recording of Giuliani's *Zwölf Walzer für die Gitarre* Op. 57 as an accompaniment to your reading and been lulled to sleep by it, some part of your cognitive faculties would continue to register the presence of music in the room. When the recording came to an end, those same cognitive faculties might signal alarm at this change in your proximate environment and stir you to wakefulness. You might then become aware that you had dozed off, now conscious of a gap in your conscious experience. This points to a special kind of awareness—an awareness that we are aware—that is of the substance of consciousness as it is typically construed.

Let me see if I can tease out the implications of this example in just a little more detail. Awareness is generally thought of as being under cognitive control (Prinz 2005: 364). In the case of the cognitive faculties that kept track of aspects of your environment while you slept, these would not count as awareness for the simple reason that they are not subject to a control mechanism which could direct them elsewhere: you could not shift those faculties from keeping track of Starobin's recording, to noting the surface and resistance of the chair you were slumbering in, and then go back to

Starobin's recording. Awareness, then, involves having various mental images derived from perceptual and proprioceptual cognitive activity, and being able in some fashion to control which images are at the centre of attention. The capacity for such awareness is what Gerald Edelman (1989: Ch. 5, 1992: Ch. 11, 2006: Ch. 2) calls primary consciousness, or what Antonio Damasio (1999: Ch. 3, 2003: Ch. 5) calls core consciousness; the mark of such a capacity is a kind of phenomenological presence that is lacking from unconscious states. In addition to having this capacity, humans also have the rather more remarkable capacity that they are aware *that* they are aware—that is, they have the capacity to reflect on their own thought processes, to realize that they *have* thought processes. This capacity to take thought as an object for awareness is key to what Edelman calls higher-order consciousness, and what Damasio calls extended consciousness. Although there are certainly differences between Edelman's and Damasio's characterizations of different sorts of consciousness, for the sake of simplicity I shall, in what follows, adopt Damasio's terms—core and extended consciousness.

Although any number of writers have explored the issue of consciousness, it is no accident that the two I have just cited both come to the topic from neuroscience. While it is still somewhat exceptional for neuroscientists to concern themselves with consciousness (a topic that is often regarded as an abstruse and unrewarding), among those who do there is now broad agreement that consciousness is biological in nature, and Edelman and Damasio have made significant contributions to the description of the brain structures that contribute to consciousness. The perspective they offer also comes with two important entailments: first, that humans are almost certainly not the only species that is conscious (although other species may be limited to core consciousness); and second, that consciousness is an evolutionary adaptation. That is, having consciousness (and, in the case of humans, extended consciousness) gives a species competitive advantages, not the least of which is the capacity to focus on just those mental images that are most relevant to a given environmental situation.

Sorting out the evolutionary advantages of having extended consciousness is destined to remain a project much more speculative than discovering the brain structures that contribute to having consciousness, if only because the emergence of extended consciousness in our species occurred in remote prehistory. That said, the psychologist Merlin Donald has offered an account of some of the factors that may have influenced the development of extended consciousness, and his approach is useful for thinking about how musical consciousness might differ from other sorts. Among the factors that Donald believes is crucial is the role of culture in human societies—indeed, he argues that culture, construed as knowledge that is shared between members of a social group, provided the means to accelerate the evolutionary development of our species by taking advantage of and then emphasizing adaptations in cognitive structure (Donald 2001: Ch. 7). More specifically, the process of sharing knowledge basic to culture required being able to keep track of both the actions of others and our own actions. It is just this ability to split awareness—between self and other, but also between past and present, between an action and its broader significance—that is one of the prerequisites of extended consciousness.

According to Donald's perspective, being able to keep track of multiple processes required developing much more sophisticated memory systems. In general, the cognitive functions basic to memory systems are regarded as essential to consciousness—indeed, Edelman's catch phrase for core consciousness is 'the remembered present'. Because memory functions will be central to the view of consciousness I want to develop here, I would like to consider briefly three aspects of memory.

First, although it is sometimes convenient to think of memory as a kind of storage system, memories are actually highly dynamic cognitive constructs that are constrained by the biological mechanisms through which they are maintained. Put another way, every time we revisit a memory we change it slightly, strengthening certain of the synaptic connections proper to the memory, weakening others. One of the challenges faced by biological memory systems, then, is to develop means to *stabilize* memories while still allowing them to change as environmental circumstances change. In general, cultural practices—including those associated with language and music—offer our species an additional means to stabilize memories, a point to which I shall return below.

Secondly, for a number of years it has been common to distinguish between three separate types of memory, each with its own temporal frame and cognitive mechanisms. The briefest of these, with a duration of perhaps two to three seconds, comprises various sensory memory systems that function as components of perceptual processing; there is fairly robust evidence, for instance, for a visual memory store often called iconic memory, and for an acoustic storage system that Ulric Neisser called echoic memory (1967: Ch. 8). At the middle level of memory systems is what has come to be called working memory, which provides a buffer around 10–15 seconds long within which information provided by perceptual processing can be evaluated (Baddeley 2007). There are any number of situations where buffers like this are important, but one ready example is provided by the task of comprehending language, which often requires taking in a certain amount of information, evaluating it, and, subsequent to this process, figuring out what to do with it. It is perhaps also good to note that part of Merlin Donald's argument about the evolution of consciousness was that keeping track of the knowledge basic to culture required a further compartmentalization of working memory, allowing us to monitor our own actions and those of others, to keep in mind actions performed in the immediate past as well as those with which we are presently occupied, and to attend to linguistic as well as other modes of communication (Donald 2001: 257–8). Coordination of these multidimensional streams of thought represented a cognitive development that made more involved systems of learning, and thus more complex forms of culture, possible. Finally, the last type of memory is what is typically called long-term storage, although it should be kept in mind that 'long term' is a relative notion, and refers chiefly to the sort of changes to synaptic connections that are the biological basis of memory. These kinds of memory are all, of course, intimately related to one another, but also appear to involve different brain structures for their support.

The third aspect of memory that I would like to consider, one suggested by Donald's argument for multiple kinds of working memory, is that there is good evidence that human cognition makes use of a number of different *memory systems*—these systems

being thought of as distinct from the three different types of memory just discussed. In the course of reviewing this evidence the psychologist David Rubin offers six questions to illustrate different sorts of memory systems:

- 1 *What is your name?*
- 2 *What is the colour and shape of winter squash?*
- 3 *How many windows are there in your home?*
- 4 *Is the first note of your national anthem higher than, lower than, or the same as the second?*
- 5 *Where is the letter 'a' on your keyboard?*
- 6 *How do your feelings when you have a manuscript accepted differ from your feelings when you have a manuscript rejected?* (adapted from Rubin 2006: 278)

The first question, which requires the retrieval of linguistic information, seems the paradigm of memory. Note, however, the recall process associated with the second question, which seems very different from the first, not the least because it involves tactile and visual information. Of a different sort is the third question—as Rubin notes, while there is a strong visual component to this question, to answer it many people will take an imaginary walk through their home as a way of making an inventory of the windows therein. The fourth question takes us quite a distance from the first, and of course involves the sort of auditory information with which musicians are well familiar. The fifth question definitely seems to involve motor skills, and when it is asked listeners may well summon an imaginary keyboard on which to enact the solution. The sixth question is of yet a different sort, and engages with a memory for emotion that can be as vivid as it is elusive. Although memory systems connected to audition will clearly be important for music, I would like to propose that systems connected with motor function and emotions are also important. That is, musical practice, especially as a cultural phenomenon, includes sounds, kinaesthetic experiences, and the emotions associated with both.

Again, my interest in touching on various memory functions here is restricted to what these functions can tell us about consciousness. What seems most evident is that, to the extent that consciousness relies on memory, it is not monolithic, and is shaped by both short-term processes such as working memory and long-term processes that allow us to retrieve information from the relatively distant past. Further, the different kinds of memory systems outlined by Rubin's six questions would seem to indicate that there are conscious states that are quite different from one another—as different as remembering the colour and shape of winter squash is from remembering the opening of a national anthem.

One piece remains to complete the sketch of musical consciousness I would like to draw, and that is an account of the function of music within human cultures. This is relevant not least because it provides a way to pull together some of the ideas about consciousness and memory that I have set out. In my recent work on musical grammar (Zbikowski 2008; in press), I have found it useful to contrast the function of music with that of language. Drawing on the work of the developmental psychologist Michael Tomasello, I take the position that the primary function of language within

human culture is to direct the attention of another person to objects or concepts within a shared referential frame (Tomasello 1999: Ch. 5). The primary function of music, by contrast, is to represent through patterned sound various dynamic processes that are common in human experience. Chief among these dynamic processes are those associated with the emotions (which, following Damasio, can be construed as sequences of physiological and psychological events that subtend feelings (Damasio 1999: Ch. 2, 2003: Ch. 1)) and the movements of bodies—including our own—through space. The invocation of such movement brings us back to the steps of the waltz, which Marx thought so important to understanding the organization of its music. As I proposed above and have argued elsewhere (Zbikowski 2008), the music for the waltz provides a sonic template onto which dancers map their steps, and thus represents a sonic analogue for the dynamic process of the dance itself.

Let me now see if I can pull these various strands together, and if not create a whole cloth of musical consciousness at least set out a relatively robust network of concepts. Without being overly specific about what consciousness *is*, we can conceive of it as a consequence of biological processes that humans share to some extent with other species, and that give a competitive advantage to those species that have it. One of the chief manifestations of these processes in humans is an expansion of memory function, including a diversification of working memory which made it possible for our species to keep track of a number of different domains of experience simultaneously. These domains include those focused on tactile and visual images, on movement, on emotions, on sound, on the sort of abstract symbolic structures basic to language, and on thought itself. Our awareness of mental images proper to each of these domains, and our memories of these images, can contribute to the sense that each is associated with a somewhat different kind of consciousness. The consciousness of the dancer, for instance, might include an awareness of the motor movements specific to the dance, of the feel of the dance floor and of her partner's body, and of the temporal frame set out by successions of musical sounds. By contrast, the consciousness of the listener who knows the dance might have to rely on memories of motor movements and tactile sensations, but would still take in musical sounds that provide a frame and context for the dance. But what of the listener who has never danced the dance? Here I would like to suggest that the same musical structures that serve as sonic analogues for the movements of the dancer provide the basis for musical understanding *even if one does not know the dance*. To explore this point further, let us now return to Giuliani's waltz from *La Tersicore del Nord* to examine some of the structures through which it shapes musical consciousness.

### On structuring consciousness through music

In the following brief sketch I shall focus on aspects of Giuliani's waltz that connect with different memory systems of the sort explored by Rubin, including systems associated with 'musical' relationships (such as pitch structure), motor function, and emotions. The intent here is not to provide an exhaustive account of the memory systems activated by the waltz (which would be a quite different project) but to suggest how they contribute to formation of a kind of consciousness that is specific to music.

## Metrical and tonal structure

It is easy enough to look at the notation for Giuliani's waltz and observe that it is in triple metre, but it is perhaps more interesting to think about the musical materials through which such a metre is projected. For instance, although triple metre is typically thought of as consisting of a strong (accented) first beat followed by two weak (unaccented) beats, with each beat marking the initiation of an approximately equal durational span, there are moments in Giuliani's waltz that do not support this way of thinking. In bar 1, for example, beat two is at least as strong as beat one (given the agogic accent on the second chord of the bar); in bar 4, there is little to make the first beat stand out from the surrounding beats (the E4 of the upper voice being not particularly prominent); and in bar 8 there is again an agogic accent on the second note in the bass. What is perhaps much more important for marking off spans of durational units comprising three beats are the regular changes of harmony: harmonies change in an alternating pattern for almost the entirety of the waltz. The two exceptions occur in bars 8–9, when a tonic harmony is followed by a tonic harmony, and in bar 15, which includes both a tonic and a dominant harmony. This compositional strategy is also evident in the trio, with two differences: first, the consistent change of harmony falls into a larger, four-bar pattern (tonic–subdominant–dominant–tonic) which has as its consequence the uncharacteristic repetition of a harmony in bars 20–21, 28–29, and 36–37; and, second, bar 25 begins with contrasting material in what will eventually become the key of the dominant (representing a higher-level change of harmony). In both waltz and trio harmonic changes are often marked by a single note in the bass followed by two beats of rest (as in bars 9–14 of the waltz) which, while typical of the genre, here serves to reinforce the established sense of triple metre.

These features, together with aspects of melodic organization that group bars in pairs (Marx's 'waltz motive'), create a contextual framework relative to which we hear the progress of musical events. Thinking only in terms of eight-bar spans, for instance, when bar 1 follows bar 8 (if the repeat sign is taken) it initiates a reprise; when bar 9 follows bar 8, however, it takes the listener into new musical territory. The point is not simply that bar 1 contrasts with bar 9, but that our appreciation of this relationship—an appreciation that supports ideas about whether the music is 'staying in the same place' or 'moving forward'—is facilitated by the framework provided by the rhythmic structure.

The tonal organization of the waltz supports this framework and adds another layer of relationships. Bar 1, for instance, introduces dissonance (the compound seventh E2–D4, and the augmented fourth D4–G#4) whose resolution is found in the C#4 and A4 of bar 2. Bar 9, by contrast, is organized around a consonant harmony, but the melody begins with an appoggiatura F#4, a pitch foreign to the tonic chord but yielding (as Marx would say) 'a melody which spiritedly turns away from the first note'. Although much has been written about the inherent instability of the dominant, Giuliani leaves nothing to chance: the dominant chord in both the waltz and the trio is consistently destabilized, either through metric placement (as the first bar of a two-bar waltz motive) or by the inclusion of a dissonant seventh. Strategies such as these show that the point of repose represented by tonic harmony is not simply a given, but is established through a careful treatment of musical material.

The metrical and tonal features of Giuliani's waltz thus provide a set of interrelated frameworks according to which a listener can judge the progress of musical events. Bar 16, whether sounding for the first time or the fourth, marks the consummation of metric processes (the completion of a two-bar waltz motive, the conclusion of an eight-bar phrase, and the completion of a sixteen-bar dance form) as well as tonal processes (the last of a sequence of alternating dominants and tonics, preceded by the only disruption of the regular alternation of these harmonies in the entire work). There are, of course, other aspects of metrical and tonal organization that inform these processes (including the way the beat is subdivided, and the contrapuntal relationships between the melody and the bass) that not only help to flesh out the frameworks I have outlined but also help to anchor them in memory. With respect to metrical and tonal structure, then, my proposal is that the memory systems we draw on—which are the same as those we use to answer Rubin's fourth question ('*Is the first note of your national anthem higher than, lower than, or the same as the second?*')—are guided by frameworks specific to musical organization, which are invariably dynamic and relational. Although it may well *seem* that the musical knowledge we keep in memory is static, to the extent that it deals with actual musical events (as distinct from abstract conceptualizations of such events) it is in truth shaped by tonal and metrical frameworks that define and articulate temporal spans. Such spans are one of the defining characteristics of musical practice, and are reflected in our notions of musical departure, return, and progress.

## Sonic analogues for physical movement

My preliminary discussion of Giuliani's waltz was guided by Marx's argument that the musical organization of a waltz had to conform to the steps of the dance; as I proposed above, the music thus provides a sonic analogue for the dynamic process of performing the waltz. In truth, the relationship between music and dance is in most cases much looser: some of the gestures or steps of the dance may have no correlate in the music (as in the case of bar 1 of Giuliani's waltz, in which there is no corresponding musical event for the third step of the waltz), and aspects of the music will not be represented in the dance (there is, for instance, no convention through which the dancers would mark the conclusion of an eight-bar unit). What is perhaps more important for the perspective I wish to develop here is that musical materials have the *potential* to serve as analogues for motor movement. Thus listeners who know nothing of the waltz could still map a sequence of bodily movements—which might, of course, have nothing to do with the steps of the dance—onto the template provided by Giuliani's music. Although the metric organization of the music certainly supports such a mapping (providing the listener with a predictable pattern with which movements can be correlated), tonal structure too plays a part: the sense of departure and return that fixed pitch relationships facilitate can also serve as a framework for regulating physical movements. The conclusion of the waltz (marked by the tonal close of bar 16) would thus suggest a conclusion of physical movement, but even the completion of eight-bar phrases delimited by tonal arrivals might suggest ways that physical movements could be articulated (a suggestion which, again, is not necessarily taken up in any explicit way by most who dance the waltz).

### Sonic analogues for emotion processes

Any thorough discussion of emotion would, of necessity, take us far afield. My thought here is not to attempt such a discussion, but simply to note a few correspondences between the music of Giuliani's waltz and emotional states. The tempo of the waltz in the early nineteenth century was brisk; this, combined with major-mode harmonies, a relative lack of rhythmic disruptions, and an absence of all but the most conventional of harmonic dissonances make Giuliani's waltz a good match for a positive emotional state—though this match might be almost purely intellectual: were you in a particularly foul mood you could still correlate the waltz with a positive emotional state even if such a state were not for you. The waltz also offers a means to more directly change emotional states: were you to surrender repose, rise to your feet, and dance through Giuliani's waltz and trio, your emotional state would almost assuredly change (one would hope, for the better). A similar change might occur were you to only *imagine* moving to the waltz while listening to it but, lacking a physical component, the effects of such an exercise would almost certainly be less pronounced and of shorter duration than were you actually moving to the music.

### Structuring consciousness through music

Although Marx focused on the conformance between the music of the waltz and the steps of the dance, the dynamic processes for which Giuliani's waltz provides sonic analogues are not limited to those proper to the dance floor. The music further offers, through its metrical and tonal structure, analogues for processes such as departure, return, and moving forward. Through its summoning of more abstract processes such as these, as well as more concrete processes associated with physical movement, the music also provides analogues for psychological processes associated with an energized emotional state. In sum, then, attending to Giuliani's waltz activates memory systems connected with musical relationships, motor function, and emotion, all of which give rise to a cascade of mental images—with a strongly kinaesthetic component—that is markedly different from the network of mental images engendered by language. Put another way, were I to play this waltz for you and were you to attend to the succession of musical events it comprises, the result would be a kind of consciousness distinct from that of language, a kind of consciousness occupied with dynamic processes rather than relationships among objects and events.

### Conclusions

I have argued that the kind of consciousness associated with attending to music is different from the kind of consciousness associated with attending to language. This difference reflects the different memory systems exploited by music, systems which are for the most part much more focused on the salient features of dynamic processes than on lexical knowledge or relationships between objects and events. That music should exploit such systems is a consequence of its function within human cultures, which is to provide sonic analogues for various dynamic processes that are common in human experience.

An appropriate question—but one whose full answer is outside of the reach of this chapter—is why human cultures would have found a need to analogize such processes. Part of the answer can be found in the ballrooms and salons of nineteenth-century Vienna: dynamic processes such as those associated with the waltz are an integral part of complex forms of social interaction that are key to the construction of culture. That is, the rituals of the dance floor are organized around bodily movements that, in Paul Connerton's term, incorporate social memory:

Both commemorative ceremonies and bodily practices . . . contain a measure of insurance against the process of cumulative questioning entailed in all discursive practices. This is the source of their importance and persistence as mnemonic systems. Every group, then, will entrust to bodily automatisms the values and categories which they are most anxious to conserve. They will know how well the past can be kept in mind by a habitual memory sedimented in the body. (Connerton 1989: 102)

Music, by providing sonic analogues for the bodily movements of ritual, adds a further layer to this habitual memory, not least because of the unique form of experience it engenders. It is not surprising, then, that Merlin Donald connected this form of experience through what he called kinematic imagination to the species of consciousness that is specific to humans, one intimately connected with the cultural interactions that typify human societies (2001: 271–4).

The kind of consciousness summoned by music, then, is not an epiphenomenon, nor is it a poor substitute for the kind of consciousness summoned by language. It is instead a testament to what it means to be human in the fullest sense of the word.

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### Note

1. Thomas Heck notes that as a composer of *Ländler* and waltzes Giuliani was quite prolific, producing over 200 (1995: 185). It is telling that Heck does not include *La Tersicore del Nord* in his comprehensive list of collections of Giuliani's dance music.

## Chapter 11

# Music perception and musical consciousness

Eric Clarke

### Introduction: defining (musical) consciousness

Is there such a thing as 'musical consciousness', what are its defining or characterizing features, when do people experience it, and what is its relationship to other kinds of consciousness? On the one hand, music's complex and changing relationship to the rest of human experience seems to place it in a special realm, where the idea of a distinctively musical consciousness, or a range of musical consciousnesses, seems justified—even necessary. On the other hand, its entanglement with everyday life makes a specialized musical consciousness seem either superfluous, or the pretext for a profusion of other kinds of consciousness: would we also need to identify and investigate a poetic consciousness, a narrative consciousness, a football consciousness, a driving consciousness? If the last of these seems to stretch the point, from another perspective it might seem perfectly reasonable: the experience of driving is quite distinctive (it can be differentiated from cycling, or operating a lathe, for example), even if it also overlaps with a variety of other experiences (flying a plane, watching a grand prix). If there is a resistance to the idea of a driving consciousness, perhaps it is only because driving is thought too mundane to justify such an apparently lofty term—implying that an acceptance of different kinds of consciousness is as much as anything to do with implicit social, cultural, even aesthetic values.

These remarks indicate the way in which 'consciousness' is used in both more generic and more narrowly specific ways.<sup>1</sup> 'Consciousness' (without an article) is used as a broadly inclusive term, to distinguish either between those organisms that do seem to have it, and those that don't (people on the one hand and flatworms on the other); or between people who at different times in their lives are, or are not, possessed of it (awake versus comatose). And 'consciousness' preceded by certain kinds of modifier (e.g. 'visual', 'linguistic', 'somatosensory') is used to identify different kinds, or components of human experience. The *Oxford English Dictionary* (OED) lists a number of definitions of consciousness that highlight these distinctions, with three of them being particularly revealing. The OED's definition 5a is broad and general in its reach, but confined to an individual: 'The totality of the impressions, thoughts, and feelings, which make up a person's conscious being'. 5b restricts this to a particular domain of human experience: 'Limited by a qualifying epithet to a special field, as the moral or religious consciousness'. And 5c opens the term out beyond the domain of