David Clarke and **Eric Clarke**, eds.
Music and Consciousness: Philosophical, Psychological, and Cultural Perspectives.
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Patrick Rebuschat, Martin Rohrmeier, John Hawkins, and **Ian Cross**, eds.
Language and Music as Cognitive Systems.
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Here are two very similar and, at the same time, very different books. They tackle similar themes and have a similar premise: that music and the *experience* of music might somehow have a positive impact on aspects of consciousness. Moreover, they insist (though in differing degrees) that some progress might be made by exploring this issue at the art-science interface. There is certainly plenty of intuitive plausibility to support this: music seems to latch on to aspects of consciousness that other phenomena miss. Moreover it appears to have well-confirmed therapeutic uses in a variety of mental conditions, especially those relating to language processing, communication, and for those on the autistic spectrum. Music also appears to be essentially linked to temporal ordering and duration, as does consciousness. However, they tackle this basic premise in very different ways: one (Clarke & Clarke, eds.) along a more 'continental' axis (that is, broadly concerned with critical theory and phenomenology), the other (Rebuschat *et al*., eds.) is decidedly analytic in orientation and stays much closer to scientific aspects. I begin with the former.

The book consists of 20 chapters and a fairly detailed, helpful preface. The book has its origins in an interdisciplinary conference on music and consciousness held in 2006, though the chapters are expanded versions of the original talks, and many more have been added. I discuss a small selection of these, targeting those most likely to be of interest to philosophers. The most interesting (and plausible) of these invoke *time* and *experience* as the thread connecting music and mind; others are simply grasping at straws in their attempt to forge some kind of connection between music, consciousness, and their pet subject.

The first five chapters focus on the phenomenology of music (invoking Husserl, Derrida and Lacan). Whenever I see the name of Derrida, I know that gibberish will be close by (or, at best, triviality clothed in incomprehensible language)! This is all too true in several of the opening chapters. Perhaps I am being unfair, but try as I might I could not extract much sense from them, and inasmuch as I could, the claims (especially those concerning the specious present) were indeed obvious, or else would have benefited from the input of the psychologists who also contributed to the volume. For example, the opening chapter, "Music, Phenomenology,

Time Consciousness: Meditations After Husserl", by David Clarke, appears to make the simple point that hearing a musical work at an instant calls essentially upon memory to experience the structural features of the work. That seems obvious as it stands, and there are plenty of studies on time perception that could have made this point more coherent and rigorous.

The chapter by Eugene Montague (far better focused than the previous chapter) further probes the temporal link between music and consciousness. Montague defends (37-42) the view that the bodily movements carried out during a performance of a musical work provide a (missing) link between the inner, subjective experience of the work and the objective features (the concrete pitches, oscillations, and so on). To my mind this puts far too much emphasis on what is surely an inessential feature: Chopin's etude Op. 25/1 is written for piano (and is intended to work the fingers, after all), but this could as well be rendered on a synthesizer. If the piano sound is thought essential, then surely a player piano counts as performing the piece (a novice might not be able, subjectively, to tell the difference between a player piano version and a 'real' performance). Montague argues that the 'gesture patterns' that one has to go through to play this piece are analogous to the 'phases' that make up time consciousness. He notes, as if in defense of this claim, that the same would be true if the piece were played on a "dummy keyboard" that made no sound (38). Two things: firstly it is surely unremarkable that the same gestures will (or could) be performed regardless of whether the piano sounds (so long as the keyboard action is realistic and responsive); secondly, that this is true presumably undercuts the central claim that *music* is somehow bound up with time consciousness. The point seems to be that *any* bodily physical process that a human might engage in can be seen as analogous to the temporal ordering of consciousness inasmuch as it is a serial ordering of events: walking down the street, making a cup of tea, or any other action. I will readily admit that music and bodily motion *can* go together, of course – and are sometimes considered to be a 'package deal' depending on their function, as with tribal rituals for example—but music and dance or movement are clearly quite separate categories despite the fact that they might happen to be linked in certain parts of human history. (I should point out that in Chapter 14 Andy McGuiness and Katie Overy provide a superb account of ways in which motor actions are linked to emotional responses and the linking of subjective states of distinct individuals via the mirror neuron system.)

The closing sentence will give readers a sense of the third chapter: "music is perhaps merely technical sound, perhaps a sonic exteriorization of creatures, subject to an uncertainty that exceeds the boundaries of sentient consciousness" (61–62). Claptrap. The subsequent pair of chapters are somewhat more readable. Chapter four considers the notion of social conventions surrounding the way music is *listened* to (in closed concert halls, preceded by absolute silence, and so on) and the notion of social conditioning of how music is heard. The next chapter makes a broadly similar point, though focusing on something that might be considered less subject to social convention and conditioning: free improvisation.

These chapters are followed by three chapters that view music through the lens of Eastern Philosophy (two Buddhist and one Hindu respectively). There is a cluster of interesting chapters on music and altered states (including drug-induced states). Some of these restrict music to some bodily gestures once again. The chapter by Ansuman Biswas (comparing music to meditation) in my view makes an absurd restriction of the goal of music to "aesthetic beauty" (108). Unless

one broadens the notion of aesthetic beauty to the point where it encompasses pretty much everything (in which case as a goal it is meaningless), this strikes me as simply wrongheaded: music can be harsh, violent, and messy just as much as harmonious, serene, and contemplative. The subsequent chapter on a Buddhist theme, by Bethany Lowe, makes some strange claims about the nature of consciousness, such as the claim that it doesn't face the 'hard problem of consciousness' because it denies materialism, stating that "consciousness could be seen as arising logically prior to the bodily system" (112). Clearly, that isn't going to silence any philosopher, since we have replaced a hard problem with a really hard problem: how does this new mode of relationship between mind and matter work? I might note that there is no attempt to build bridges to other perspectives in these chapters – indeed, there is a general animosity expressed with regard to scientific materialism (especially apparent on pp. 125–167; but one can even find it in the essays written by the editors). It turns out that 'consciousness' in many of these chapters is not really what most philosophers and scientists mean by consciousness, and so the talk of connections between it and music doesn't have any sense to me: they appear to substitute in thin notions of both.

The remaining selection of chapters is, on the whole, of much higher quality; and, in marked contrast to the earlier chapters, they adopt a genuinely interdisciplinary approach, forging links between the cultural, philosophical, and psychological (also neuroscience and computing). These chapters are more closely linked to the second book reviewed here. The chapter by Jorg Fachner on the relevance of the experience of music to altered time perception under the influence of drugs is wonderfully clear and insightful, and perhaps has lessons on the 'specialness' of musical experience since time distortion effects appear to be especially strong for music listened to under the influence of certain kinds of drug. A chapter by Ruth Herbert contains a discussion of her studies of people's listening habits in the sense of their association of particular acts and situations with particular works and kinds of music (such as choosing a piece to fit a particular walking route)—though the central theme of the chapter is the notion of trance states and the idea that music can induce mini-everyday trances. I would have liked to have seen something on the historical aspects of this kind of functional listening, since it must be a relatively recent phenomenon relying on the appropriate technology—if true, has it, for example, resulted in a generation of people with altered minds (altered in a very specific way by this kind of frequent engagement with music)? The subsequent chapter discusses related issues, while the final chapter is essentially just an analysis of Monteverdi's *L'Orfeo*, with no real connection to the rest of the book (save some Jungian themes thrown in).

In many ways I find Clarke & Clarke a missed opportunity. The idea that there is a potentially deep connection between consciousness and music has much to recommend it, but the approach taken here was not as fruitful as it might have been. Many of the chapters are just plain nonsense couched in highfaluting language. But there are a couple of gems that manage to shine through in the later chapters. Moreover, one has to expect some unsuccessful skirmishes in as interdisciplinary a collection as this. However, I kept help wishing that musicology would leave continental philosophy behind in favour of clear thinking. It is a little embarrassing that the scientists come out of this book looking like better philosophers than the professional philosophers.

The Rebuschat *et al.* collection is not really intended for a philosophical audience, and is aimed instead at musicologists, psychologists, linguists, and neuroscientists. However, its themes are philosophical enough to be fit for review here. The book contains some 33 chapters grouped into four main parts (with a fifth part containing a solitary concluding summary essay – this is a fine essay on the general methodological issues involved in a science of music and musical activity that directly addresses the kinds of sociological, phenomenological, and ethnographic chapters from Clarke and Clarke, ed.). The key idea is that music and language appear to be uniquely human capacities, so that it is sensible to consider their potential interrelations and to consider how this might impact on theories of mind and brain. The focus, then, is on the understanding of music (and language) as biological phenomena that evolved much as language did (for communication of a sort distinct from communication through language). The opening part ("Structural Comparisons") features chapters that focus directly on this issue, looking at direct resemblances between the respective phonological structures of music and language (that is, the units of sound and their combination). An initial chapter "Grouping in the Stressing of Words, in Metrical Verse, and in Music", by Fabb and Halle, forms the basis for further elucidations, criticisms, and developments in four subsequent chapters – this is followed by a brief response by Fabb and Halle. This format (involving a "target essay" followed by several chapters engaging with the target essay, followed by responses—though often too brief—from the author/s of the target essay) is repeated in the other parts and gives the book a strongly coherent feel.

From the first part I will simply mention one interesting proposal by Ian Roberts according to which music and language are so close as to share one and the same computational system. This he argues using Chomsky's ideas. He also claims that this might lend some credence to Darwin's belief that language evolved from a musical proto-language. The second part focuses exactly on such evolutionary issues concerning the place of music (or more specifically, *rhythm*) in human evolution (and it's absence from other species). Tecumseh Fitch sets the issues up very nicely with the statement "why can't dogs dance?" (73). Rhythm is distinctly human and bound up with language: Tecumseh Fitch uses rhythm to forge a link with Darwin's idea. The skill that enables dance is the coordination ("pulse extraction") of motor output with some auditory process (a beat). Such coordination has a clear social role to play: indeed, a later chapter ("The Significance of Stones and Bones", by Mithen) suggests that such coordination can enhance social bonds, and therefore can be adaptive. Much of the discussion is focused on making Tecumseh Fitch's proposal testable (including comparing it with archeological data). I think the confluence of disciplines that could have a role to play here make Tecumseh Fitch's proposal particularly special.

Part 3 focuses on issues of learning and processing in language and music. The target essay by Bharucha, Curtis, and Paroo ("Musical Communication as Alignment of Brain States") makes the case that the deep social aspects of music can be understood in terms of a model of communication involving the synchronization of brain states between subjects (their model involves a connectionist simulation). According to Bharucha et al., music can communicate a variety of things: affect (or emotion), structure, and a sense of motion. In communicating such things, via alignment, greater social cohesion is fostered and group identity forged (139). A chapter by Geraint Wiggins ("Computer Models of (Music) Cognition") is the most overtly philosophical of the book, discussing the nature of models, representation, and scientific theories.

In it he tears through the model of Bharucha et al., pointing out that the central notions (including comparison of vectors in different brains) are not sufficiently specified to allow for predictions, nor is the model explanatory. Bharucha et al. concentrate solely on Wiggins' objections in their response, arguing that a certain lenience should be allowed for such models given that cognitive modeling is still in its infancy. Whether their model is up to the task they set it, I think it is fair to say that the general notion of alignment is a good and fruitful one; I think it is likely that there are other forms of computational modeling (from the theory of spontaneous order generation) that could fit the bill.

The final (substantive) part looks at neuroscientific aspects. Here there are two target essays. "Language, Music, and the Brain", by Aniruddh Patel, describes a 'resource-sharing' framework for investigating the relationship between music and language. The idea is that neuronal overlap can occur for processes involving music and language. As Patel points out in her response chapter, the lack of functional magnetic resonance imaging studies comparing music and language processing is disappointing and could clear a lot of these issues up (or at least sharpen them up) (248). In any case, correlations between active areas for both kinds of processing tasks is, of course, a clear and simple prediction of Patel's idea. This data could then be used to isolate specific (cognitive) mechanisms underlying specific tasks. One possible mechanism mentioned by Patel (but also mentioned in several other recent books) is a predictive component that expects (or guesses) some future tonal or linguistic pattern. Such interesting topics could easily have consequences for philosophical debates in cognitive science and philosophy of language.

The second target essay in Part 4, "Music, Language, and Modularity in Action", by Isabelle Peretz, describes a modular framework for music and language processing. Again, a significant emphasis is placed on generating testable consequences from these proposals. In the case of Peretz, it is suggested that that the notion of modularity could have therapeutic value. Peretz bases her modularity hypothesis on certain discoveries in genetics. She argues that certain genes are causally implicated in certain aspects of language – this is based on the fact that mutation of certain specific genes (in particular the FOXP2 gene) can lead to language disorders. Also, certain disorders of pitch recognition are hereditary. She develops numerous ways to go about conceptualising and testing this idea. However, there is some fairly tough criticism (some of a philosophical nature) from the commentators. For example, Besson and Schon argue that the relationship between genes and behaviour is incredible complex because of the network aspects of genes and their interaction with environmental factors. Given this, a causal story is very difficult to tell (this denies 'micro-modularity' at the level of genes). They also discuss Fodor's destruction of cognitive modularity. I find their arguments convincing. But regardless, there is plenty of novel material that will interest philosophers in part 4, and I expect philosophers could play a crucial, constructive role in this material.

To sum up: both books cover themes that will be of interest to philosophers of music (and, though less so, language)—if not present philosophers, then certainly philosophers of the future. The changing notion of music (as a cultural phenomenon, with a biological basis, connected to language, perhaps involving movement, and so on) will have ramifications for naturalistic philosophers of music (much as the philosophy of mathematics is slowly being impacted by the study of mathematical *practice*). I can recommend both books, but only

Rebuschat *et al.* (eds.) without reservation: the philosophical (phenomenological) chapters in Clarke and Clarke (eds) were rather disappointing.

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