

Joseph A. Goguen & Erik Myin

Editorial Introduction

Music raises many problems for those who would understand it more deeply. It is rooted in time, yet timeless. It is pure form, yet conveys emotion. It is written, but performed, interpreted, improvised, transcribed, recorded, sampled, remixed, revised, rebroadcast, reinterpreted, and more. Music can be studied by philosophers, psychologists, sociologists, mathematicians, biologists, computer scientists, neuro-scientists, critics, politicians, promoters, and of course musicians. Moreover, no single perspective seems either sufficient or invalid. This situation is not so different from that of other arts, but perhaps more intense, due to the pervasiveness of pop, the inaccessibility of much contemporary classical music, the strong cultural associations of many styles (e.g., hip hop, salsa, twelve tone, heavy metal), the infusions of technology, and the combination with lyrics.

Although this is a challenging situation for researchers, it is also exciting, and advances in experimental technique, such as fMRI, and in theory, such as metaphor and blending in cognitive linguistics, have made it more so, fueling a surge of interest, and mobilizing a very diverse set of ideas, approaches and methods, e.g. see Assayag *et al.* (2002); Benzon (2001); Spiro (2003); Zatorre & Peretz (2001); Zbikowski (2002). Certain aspects of the resulting positions can be visualized on a linear spectrum. At one end we find positions characterized as representational, modular, realist, reductionistic, or internalistic. At the other end are positions described as nonrepresentational, holistic, non-reductionistic, externalist, or embodiment-oriented. Of course, this crude projection onto a single dimension fails to capture many subtle distinctions; moreover, theoretical options that seem incompatible do get combined, and mixed positions are often vigorously defended. The difficulties of classification are amplified by a variety of other associated metaphorical oppositions, including western versus eastern, and context-free versus contextualized. It will be convenient to refer to the end points of this spectrum as east and west, without intending any religious or political connotations. On the other hand, this classification does reflect ancient, deep divisions within western culture, that remain very intense and productive to this day.

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Hence, though we hope it is not completely misguided, the following attempt to place the papers of this volume on this spectrum should be taken with more than a grain of sceptical salt, or even regarded as merely rhetorical. With this caveat, we place the papers by Tervaniemi and Brattico and by Bruce Katz near the western end. Tervaniemi and Brattico apply cognitive neuroscience to music perception. From within a standard representational framework, they address questions such as whether musical perception requires attention, and whether and at what stage of neural processing, cultural knowledge comes into play. Two (among many) intriguing results reported, are that increased complexity of musical sound facilitates processing, and that musical knowledge gained from experience enters at early and often unattended levels of processing.

Katz's paper defines a numerical measure of musical preference based on the degree of synchrony of a neural net model of musical cognition. This measure is separately applied to harmonic, melodic, and rhythmic patterns abstracted from three bodies of data (for western popular and classical, and for Turkish art songs), and is shown consistent with some simple regularities noted by music theorists. A number of interesting differences among the three styles and three dimensions are also discussed.

The paper by Neus Barrantes-Vidal combines some of the perspectives discussed above. Its basic hypothesis is that underlying both madness and creativity is a constellation of personality traits that, in their advantageous manifestation, lead to creativity, while in their disadvantageous form, make a person vulnerable to psychosis. The author offers the additional conjecture that this possibility for beneficial expression, might be a factor in keeping what alternatively turns out to be a — possibly genetic — vulnerability for psychosis in the population. One innovative aspect of the paper is its break with traditional dichotomous thinking about personality traits and mental (dys)function.

Hagendoorn moves us further east, but not beyond the midpoint. This paper approaches dance from a neuro-cognitive perspective, and in particular, attempts to explain how emotion can be aroused by dance. Although it is not about music as such, it is intriguing how its themes of emotion, embodiment, and anticipation connect with other papers in this volume, e.g., those of Tervaniemi and Brattico, and of Goguen. This paper also contains an excellent review of relevant experimental evidence, and a fascinating treatment of dance, drawing on the author's experience as a choreographer.

Erich Harth's short paper is an elegant attempt to reconcile the scientific method of reduction with more cultural concerns, by appeal to an extension of reduction to include 'downward' causation as well as the traditional 'upward' causation.

Moving further eastward, the paper by Joseph Goguen presents its reflections on music as an alternative theory of qualia, in which, contrary to most other treatments, qualia are seen as deeply contextual and social. Throughout, the author sketches, sometimes in broad strokes, sometimes in considerable depth, how a future theory of musical experience could be articulated, using concepts and methods from phenomenology, cognitive linguistics, and non-linear dynamical

systems theory. Although rigorous use of the latter might seem to place this paper far to the west, the author claims otherwise.

The paper by Amy Ione explores relationships between art and music in the work of the painters Vasily Kandinsky and Paul Klee. Both were pioneers in abstract expressionism, both worked at Bauhaus, and both were knowledgeable about and inspired by music. Kandinsky was (apparently) a synaesthete, as well as a mystic who aspired to a unified science of the arts, whereas Klee was less grand in his aspirations, creating what can be seen as small experiments in colour and arrangement.

Vijay Iyer, being both a theorist and a well-regarded composer/performer, provides a compelling case for music as an embodied and culturally embedded experience. Focusing on temporality, Iyer shows how in improvisation, music literally becomes 'the sound of human action', and he illustrates this with his own experiences of improvisation in ensembles led by Cecil Taylor and Roscoe Mitchell.

The paper of David Borgo is a brilliant exploration of relations among technical, cognitive, and social aspects of jazz improvisation. Both an ethnomusicologist and jazz improviser, Borgo also deploys blending and cross space mappings from cognitive linguistics, to describe how jazz musicians respond to social conditions and to prior landmark performances, emphasizing in particular the important notion of signifyin(g), and how it differs from signification. This takes us very near indeed to the eastern pole.

Some reasons to place music in the western area include its similarity to language, which has been a basis for strong claims (e.g. from Chomsky) about innateness and modularity of mind, as well as influences from theories such as neural reductionism and behaviourism. Some reasons to place music near the eastern pole include the inevitability of action whenever music becomes concrete, the importance of rhythm and its relatedness to processes of bodily coordination (e.g., in walking and dancing), the social aspects of musical performance, and the role of emotion in music. It may be that east is east and west is west and never the twain shall meet (as claimed by Rudyard Kipling); perhaps there are even good theoretical reasons for such a supposition, e.g., that musical phenomena are so inherently heterogeneous, that one method is more suited for some aspects, and another for other aspects.

But there are also reasons to suppose that the east/west dichotomy can be overcome. For example, something like Harth's proposal for downward causation or Searle's emergentism (Searle, 1997) might eventually become sufficiently developed as to constitute a viable method for the humanities. Further out is the late Heideggerian proclamation of the 'end of philosophy' (Heidegger, 1972), in which thinking time and Being overcome the long history of thinking beings 'in the manner of representational thinking which gives reasons', thus revitalizing pre-Socratic insights that transcend the traditional oppositions with which we have been playing in this introduction.

In any case, we can safely predict that music theory will remain far from equilibrium, in a dynamic instability and evolution that mirrors its subject, and we hope that this volume will play some role in that ongoing process.

References

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