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The Memetics of Music: A Neo-Darwinian View of Musical Structure and Culture. By STEVEN JAN. Ashgate. 2007. pp. xvi + 278. 24 figures; 42 music examples. £55.00 (hbk).

ACCORDING to Steven Jan, a University of Huddersfield musicologist, '[g]iven that memetics has assimilated a broad and deep theoretical base from its sister discipline evolutionary biology, it is inclined—on the grounds of the axiomatically rigorous and empirically endorsed authority of the latter—to make strong *a priori* claims about the nature of culture' (p. 20). In this dense, thoughtful, and challenging book that often takes considerable risks, Jan advocates a neo-Darwinian, neo-organicist perspective on music.

Having adopted the (anthropomorphically 'selfish') gene as the basic unit of natural selection (as opposed to species, group, and even the individual organism)—and thus the 'gene's eye view' of nature—Dawkins (1976, 1989) then coined *meme*, as a fragment of culture, 'a unit of cultural transmission, or... *imitation*'. Dawkins's examples included tunes, concepts, and fashions. The meme (or 'memeplex') of *memetics* was subsequently 'replicated' in the mostly partisan works by Dennett, Lynch, and Blackmore. Whether or not one agrees with Gould's assessment of memes as a 'meaningless metaphor' depends in part on whether one accepts the notion of broad applicability of the 'maximally abstract' logical structure of 'universal Darwinism' (Dawkins, Dennett, Plotkin), in which 'cultural evolution is not (weakly) analogical to biological evolution... but is (strongly) parallel to it as an equal... member of a set of replicator systems operating on earth... (such as DNA molecules, alphabetical characters, musical sounds...), themselves subsumed by the cosmic ambit of universal Darwinism' (p. 14).

Ambitious new (sub-) disciplines, and perhaps especially memetics, seek new domains for replication-population-infestation. Memeticists are attracted to music because of the comparatively pure syntactic nature of the information contained in musical memes (especially as symbols in a printed score); but it is doubtful that music theory, analysis, and historiography need memetics.

The book has seven chapters. The first contains a survey of theories of evolution from Lamarck to the neo- and ‘universal’ Darwinism and a discussion of nature–culture analogies (including Schenker). Here the origins of memetics are sketched. Chapters 2 and 3 are a complex exposition of Jan’s views of memes in music. Memory processes and neural networks that are presumed essential for the storage and propagation of memes are discussed. The musical meme is defined in terms of the geno/‘memotype’–pheno/‘phemotype’ analogy and such ‘replicator’ traits as longevity, fecundity, and copying–fidelity. Corollaries of such traits are posited as meme particularness, co-indexation, and segmentation—concepts derived from the Gestalt theory of perception and operationalized by Narmour (1990) in his implication–realization model. A possible link between memetic concepts and Meyer’s (1989) hierarchical analysis of musical style is also outlined. A key general point is that a musical meme—three components, ‘such as melodic pitches or durations in a rhythmic relationship’ (p. 61), being a meme’s lower threshold—must ‘package itself’ so as to have sufficient perceptual salience and yet avoid corruption during replication by being short and simple. By numerous detailed musical examples from the ‘common–practice’ era (especially the classical Viennese period 1770–1830), Jan demonstrates how discrete fragments, particularly of pitch and rhythm, are replicated in the works of generations of composers. Throughout, the individual meme—and not the musical work in which it has ‘replicated itself’ for opportunistic reasons—is considered the unit of analysis. However, Jan also provides a fascinatingly detailed technical account of hierarchies of overlapping memes stretching from various passages’ foreground to the deep background and encompassing the *Ursätzen*.

Chapter 4 deals with the dynamic aspects of musical memetics: the inter–opus—and ‘inter–(composers)’–brains—transmission of memes through imitation; their spread horizontally through social and virtual communities, and vertically through a music–memetic/cultural hierarchy often symbiotically linked with verbal–cultural memeplexes (the metaphors of

infection, thought contagion and epidemiology are freely marshaled); and ‘mutation’, defined as partially failed imitation or inaccurate transmission (miscopying), generally due to the constraints and limitations of human cognition. Some mutants may have a greater implication–realization potential (*i-rp*) than their antecedents and this is carefully and formally tabulated in terms of Narmour’s system; *i-rp* values are, for example, tracked in the speculative ‘mutational–evolutionary history’ from Palestrina to Wagner of the famous ‘*Tristan* chord’ (or memeplex). Gaussian functions are proposed to capture the relationship between *i-rp* and perceptual–cognitive salience and memorability, respectively.

In chapter 5, Jan deals with ‘structural memes’—music archetypes such as the sonata form—and generally with cumulative memetic selection (allegedly responsible for bridging the huge ‘space’ between Renaissance dance music and *Eroica*—Jan’s examples) and the evolution (meant in the strong sense) of large-scale design in music (with no reference to Cage, of course). In the process, and relying on Narmour’s reasoning and scholarship more than on memetics, Schenker’s background–out/down music–piece development (*Auskomponierung*) is cogently criticized. There is also an interesting discussion of ‘allelic competition’ in its instantiations in the variations form and *ars combinatoria* of the late eighteenth century (the sophisticated contemporary analogues are software programs such as *Band in a Box*). Like Dawkins (simulated “hypervolumes”) and Dennett (invoking Borges’s *The Library of Babel*), Jan’s fancy flies into science fiction with the Library of Aristoxenus, containing all existing and all possible works – an infinite array of potentially immortal musical memes. Finally, Chapters 6 and 7 are concerned with “issues and methodologies” in the relation between memetics and musical analysis – Huron’s *Humdrum Toolkit* (2002) is favored as an analytic device – and with a 20–point summary of music–memetic propositions.

Despite occasionally relying on secondary sources, Jan is often remarkably astute about concepts in cognitive science, psychology, semi-

otics, and linguistics. Although he is at times more partisan (not to say dogmatic) than Dawkins, Dennett, and Blackmore regarding memetics and Darwinism, Jan's judgement is generally sure and his breadth commendable—and one cannot find fault with his erudition and meticulousness in matters of music theory and analysis.

In the book, Jan develops a vast nomenclature for musical memetics, as well as an 'analytical symbology' for musical memes. But this conceptual juggernaut is in truth only a parasitic growth on the painstakingly developed, splendid body of music theory and analysis. None of the book's considerable musical substance profits from the memetic approach; when large portions of the book are re-read, consciously omitting memetic interpolations, reinterpretations, and renaming, the musical substrate loses very little. All the musical examples are well known to non-memeticist musicologists. The Schenker critique does not require memetics. Nor does Jan's anti-Schönberg argument for limited complexity on the grounds of human cognitive constraints: after all, psychologists from Wundt to Berlyne and beyond have proposed modified Gaussian functions for the relationship between complexity and aesthetic/hedonic appeal. Music-theoretic and analytic, historiographic, and music-psychological work of Meyer, Dahlhaus, Lerdahl and Jackendoff, Narmour, Huron, Deutsch, and Gjerdingen (all cited) can live happily without memetics; music's relatively secluded formal existence and its own logic (Schönberg) have resulted in a cumulative knowledge base that perhaps surpasses all other domains of culture. Finally, the memetic approach to music is not just superfluous but logistically impractical: for example, who and why would want to catalogue (even by computer) countless musical memes for Aristoxenus' library without theory to guide the search and given that the discovery of both the horizontal and vertical memetic spread will inevitably bring diminishing returns?

Whereas Paley's creationism and the homunculus in the 'Cartesian theatre' are rightly thought by Jan and others to have the fatal flaw of infinite regress, memetics can be said to suffer from a kind of infinite 'progress'—

the positing of ever new and larger *ad hoc* 'verbal-conceptual' memplexes, composed, for example, of various 'criticism memes,' or perhaps the invocation of a 'find-an-innovative-contrast' meme for the creation of (unmentioned) serial or minimalist approaches.

A separate critical essay should be written about the absence of *agency* in musical memetics—the almost total neglect by Jan of composers' will, choice of compositional material, creativity, and the conscious response to aesthetic, social, and economic incentives. Of course, an exclusive reliance on the 'meme's eye view' precludes concerns with such 'epiphenomena'—which makes this analytic stance essentially akin to the black-box view of the mind in Skinner's *Beyond Freedom and Dignity*. Jan gives extremely short shrift to composers' original ideas—only in passing references to 'nascent entities' and '*de novo genesis*'. This is consistent with the overall approach, but is it useful for the purported goal of a dialogue with traditional musicology and aesthetics? Even the consistency of ignoring agency is far from complete, because Jan (after Blackmore) emphasizes the key role of imitation in memetic transmission, which is almost impossible to conceptualize in humans without conscious choice.

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