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Book Reviews

CONTROLLING CREATIVE PROCESSES IN MUSIC, edited by Kopiez, R. and Auhagen, W. Frankfurt am Main: Lang, 1998. x + 245 pp. ISBN 3-631-33116-9. £29.

This small volume is No. 12 in a series entitled *Schriften zur Musikpsychologie und Musikästhetik*. It is the outcome of an international interdisciplinary conference on *Regulation of Creative Processes in Music*, held in 1996 in Berlin. There are 11 contributions, most of them in English but three in German, and a CD with sound examples.

In their brief preface, the editors propose "a new approach to the topic of creative processes in music" that includes not only composition but also "recent developments in other fields, such as performance research, cognitive psychology, computer music, and real-time improvisation" (p. viii). They further add that "[t]he idea of 'control' or 'regulation' in creative processes is a link between the disparate disciplines" (p. viii). However, they provide no further explanation of the conceptual underpinnings of this new approach.

Fortunately, the first chapter, by Helga de la Motte-Haber, is instructive in that regard. The author points out that traditional conceptions of creativity, which appeal to subconscious "inspiration" (mainly in persons of genius), have given way to rational approaches that focus on novel rules and techniques. She traces the beginning of this development back to the 18th century, when artists gained increasing autonomy from traditional norms, and adopted imagination and originality as their primary goals. The continuous drive towards novelty in music eventually exhausted the resources of tonality and made composition so subjective that it became removed from human life and estranged from any kind of norm. In reaction to this, some composers of the early 20th century, such as Hindemith, Krenek, and Stravinsky, aimed for an "objective" music in which ingenuity of technique took the place of inspiration. According to de la Motte-Haber, a truly innovative theory of creativity was pursued only by Varèse, who completely eliminated subjective expression in his music by adapting his compositional techniques to the sonic materials. In the second half of the 20th century, despite a great diversity of approaches, creativity has been manifest mainly in the invention of new techniques that are specific to individual composers or compositions. Unfortunately, most of the following contributions to this book do not live up to the promise of de la Motte-Haber's succinct but informative, well-worded, and highly pertinent introduction.

Chapter 2, by Jörg Langner, Reinhard Kopiez, and Bernhard Feiten, deals with "multiple tempo hierarchies" in music performance. Its relevance to the topic of creative processes is unclear. Langner *et al.* have developed a model consisting of a bank of oscillators covering the range of rhythmic periodicities in music. The model, implemented as computer software, detects periodicities in a "loudness curve" derived from the acoustic waveform of a musical signal and displays these periodicities as an "oscillogram" – an unfortunate choice of term, as an oscillogram already denotes a display of signal amplitude. The authors first demonstrate how the model works with some very simple periodic signals, and then provide some more complex examples. One of these is a rhythm in 7/8, grouped

as 2 + 2 + 3 with accents on the first note of each group. The "oscillogram" initially shows periodicities corresponding to eighth- and quarter-notes, but during the last group it shows several new periodicities instead of the quarter-note period, one of which corresponds, not surprisingly, to a dotted quarter-note. The authors claim that "the tempo, with respect to [the] accented notes, slows down with the occurrence of the group of three" (p. 29). I have difficulty seeing what is gained from talking about a change of tempo in this context.

In a subsequent example, they feed the model a section from Honegger's composition *Pacific 231*, in which a series of eighth-notes is followed by a series of eighth-note triplets for which the score prescribes a somewhat slower tempo. After this change, the "oscillogram" shows two new periodicities, one corresponding to the now slower quarter-notes, the other corresponding to the now faster eighth-notes. The authors conclude that "[t]he tempo speeds up and slows down simultaneously (!)" (p. 30). It seems to me that they have just rediscovered the existence of rhythmic hierarchies. The notion of "multiple tempo hierarchies" is controversial, as it does not include a notion of the tactus or most salient rhythmic level, at which "the" tempo is usually defined (see *e.g.* Parncutt, 1994). In the Honegger example, the tempo (tactus) has clearly slowed down; what has speeded up is the rate of events in the music. No bank of oscillators is needed to demonstrate this trivial fact. There is no reference to Todd's (1994) "rhythmogram", a similar but more sophisticated system of multi-level rhythmic analysis. The authors' rather fantastic discussion does not increase my confidence in their work. For example, they say that "[o]ur neuro-psychological oscillation model implies that body movements can be triggered by musical events", but it is far from clear why the model implies that or in what sense it is neuro-psychological. And what does all this have to do with the control of creative processes?

The following contribution, by Guerino Mazzola and Jan Beran, is problematic in a different way. Mazzola and co-workers have developed the RUBATO workstation, a highly sophisticated system of automatic score analysis that makes possible the expressive shaping of a computer performance according to extracted structural parameters – what they call the "rational composition of performance". An example of such a rationally composed performance, of Schumann's *Kuriose Geschichte* from *Kinderszenen*, is presented at the end of the chapter and as a sound example on the CD. The superiority of this performance over a preceding "deadpan" rendition is unquestionable, though it contains some infelicities, such as exaggerated dynamic contrasts and an insufficient reduction of amplitude following an appoggiatura. However, it remains unclear what exactly has been accomplished. The system evidently can produce infinitely many rationally composed performances, most of them probably quite bad, and it is up to the user to tweak the parameters until the result sounds reasonable, which is exactly what the authors did. It would have been instructive if they had discussed the remaining shortcomings of the performance and how they might be overcome within the constraints of their system.

The main part of their paper is concerned with an application of the RUBATO model to performance timing data obtained from Repp's (1992) study of Schumann's *Träumerei*. The presentation is both terse and jargon-laden, which makes it almost impossible to figure out what was done and why. Last year the authors kindly sent me a more detailed report of this work, which they also cite

in the references. However, while the *what* became somewhat clearer after study of that manuscript, many questions about the *why* remained. To give just one example: the RUBATO model conducts an automatic motivic analysis in the course of which 3,299 motives were identified in the score of *Träumerei*. According to the authors, "[t]his amounts to constructing a hierarchy of motivic meaning, and realises Réti's ideas on immament [*sic*] motivic analysis" (p. 46). However, Réti surely would have been surprised by the large number of motives discovered. What Mazzola and Beran fail to show is that their analysis accomplishes its purported goal in a meaningful way that is in accord with traditional notions of motivic structure. It is impossible to determine this from their graph of "melodic weights", which is merely a confusing swarm of points. In the final analysis of the timing data, no less than 57 independent parametric functions derived from the score were entered into a regression model, so that it is not clear how surprised one should be that 65–85% of the variance in the data was explained. The RUBATO model may well be an impressive achievement, but Mazzola and Beran prefer to dazzle their readers with complex terminology and uninformative figures instead of guiding them patiently through the rationale of their methods. Also, they make no attempt to relate their work to the topic of the book.

I was delighted to encounter a reasonably straightforward empirical study in the next chapter, by Wolfgang Auhagen and Veronika Busch, though my pleasure did not last very long. These authors asked whether the perception of tempo is influenced by the articulation and phrasing of a performance. They synthesized three versions of eight musical excerpts from J. S. Bach's works for violin or 'cello solo: a deadpan version; a version in which phrasing was added; and a version in which accents and and special bowing were added. Participants used the method of adjustment to find their preferred tempo of each excerpt and also judged that tempo on a scale. Unfortunately, the results were not simple. Effects of articulation and phrasing were found for some but not all pieces, and these effects differed from piece to piece. Instead of conducting additional experiments for clarification, the authors chose to present their complex data in more detail than necessary. And, once again, it is far from clear what tempo judgement has to do with creative processes.

In the following contribution, Shuji Hashimoto and Hideyuki Sawada discuss their computer performance system as an example of "Kansei technology", apparently a growing trend in Japan. Kansei means "sensibility" or "emotion". The author's system recognises distinct manual gestures from data transmitted by an electronic glove. These gestures can then be translated into parameters of performance expression. This seems like an elegant and useful application of sophisticated technology. However, the creativity aspect again gets short shrift. Is the author's creativity in developing their system to be admired here, or is the reader invited to imagine how performance artists might do creative work as users of the system?

The next chapter, by Elena Ungeheuer, is an exercise in obscurity. The author clearly is not a scientist (the editors describe her in the preface as "a specialist in electroacoustic avant-garde music"), and her invocations of the "Lee effect" – better known to Anglo-American readers as "delayed auditory feedback" – and of Alfred Tomatis's controversial work in voice therapy are unconvincing. Much of her paper pretends to deal with feedback processes in speech and music, but

the arguments seem rather muddled to me. All this is leading up to a discussion of an experimental "speech composition" by Jacques Rebotier (in French), excerpts of which are included as sound examples on the CD. The reason for focusing on this composition was that, in contrast to some other works of a similar nature, it "was highly accepted by [the author's] students" (p. 123). The excerpts seem rather silly concoctions to me, entertaining at best, but hardly of great artistic value. Are they meant to be examples of creativity? Is any arbitrary conjunction of sounds the result of a creative process? Ungeheuer concludes that "as long as we recognise ourselves in the phenomena of feedback, we have already left ourselves to the modulating power of time" (p. 127). Amen.

Temporary relief comes from Uwe Seifert's level-headed discussion of the prospects of intelligent tutorial systems in German musicology and music pedagogy. A weak link to the topic of the book comes from Seifert's claim that scientific knowledge is a major innovative force in contemporary society and that, therefore, there is a need for people who can think creatively (whatever this may mean specifically). Intelligent tutorial systems, hypermedia, and the internet may foster such cognitive creativity, though Seifert stresses the need for further experience and research. He discusses various sociological factors that stand in the way of rapid development and makes clear that musicology and music pedagogy in Germany have barely begun to explore the new technologies. It would have been useful to provide some examples of creative thought in science or musicology and draw comparisons with artistic creativity. Surely, it would be disastrous if these fields strove towards the radical individualisation of technique that has taken place in the arts.

The following contribution, by Ross Kirk and Andy Hunt, is an engaging description of several computer tools for the manipulation of MIDI data as well as graphic data. The most interesting aspect of their enterprise is that it is inspired by the "control intimacy" that musicians possess with their instrument. Kirk and Hunt are developing computer systems that allow users to control several visual or auditory parameters at once and that may exhibit nonlinear behaviour. Effective use of these systems may require extensive practice, and the authors evidently hope that the resulting expertise and control intimacy will lead to creative applications of these new tools.

Jean-Claude Risset, a veteran of electronic music, subsequently puts in some words of caution in view of the increasing availability of real-time computer synthesis: Composition requires much thought and patience and should be free from real-time constraints. He goes on to describe briefly his own composition, *Duet for One Pianist,* in which a computer responds to and transforms in various ways the pianist's actions on a Yamaha Disklavier. No sound examples are provided, but some readers will be familiar with this work, which has been demonstrated at several conferences in recent years and also has been recorded on a commercial CD.

The longest chapter is by Tamas Ungvary and Michael Kieslinger, although it is written in the first person singular (by Ungvary). It provides a rather elaborate and abstract description of the considerations that led to the development of a "composition and performance station" over a number of years. The complex layout of its various controllers was inspired by the metaphor of an airplane cockpit. The controllers include several sentographs, pressure-sensitive buttons used

originally by Clynes (1977) to study the space-time forms of basic emotions. Ungvary, like Kirk and Hunt, appeals to the notion of control intimacy and believes that pressure-curve control imparts expressivity to electronic music. Several sound examples of music created on the system are provided. Unfortunately, I cannot derive any meaning or pleasure from these sound effects and therefore am unable to judge their aesthetic merit. I wonder who can.

The book concludes with an interview with the composer Arvo Pärt, conducted by Helga de la Motte-Haber. It provides some limited but interesting insights into Pärt's compositional techniques, as well as a good illustration of the rational, rule-governed approach that de la Motte-Haber, in the initial chapter, found to be characteristic of musical creativity in our time. What I found most significant in this interview, however, is a passage in which Pärt says that, after generating music according to certain rules, he chooses from what he hears and discards much: "But it is good that there is clearly a criterion that enables me to make a value judgement. . . . However, I cannot say much about this criterion, for here ends the reality of words and explanations" (p. 235, my translation from German).

Pärt's comment suggests that there is still a distinction to be made between productivity and creativity. According to the traditional view, only those artists are considered creative or "inspired" who produce works of lasting value. Mozart and Beethoven were highly creative in this sense, but Salieri and Czerny much less so, even though they were highly productive. True creativity presupposes productivity (or "generativity" nowadays), but it also requires additional quality control by the creator and, ultimately, by an audience (if any) that considers the result interesting and original. The chapters of this book, in so far as they are concerned with creative processes at all, focus on production but not on quality. The computer systems of Kirk and Hunt, and Ungvary and Kieslinger, facilitate the generation of complex sound structures, but they do not guarantee that these structures have any aesthetic value. And as long as there is no aesthetic value, there is no real creativity. Of course, aesthetic value judgements are not a simple matter, since there are no generally accepted criteria any more. Aesthetic perception, like compositional technique, has become fragmented and individualised. Nevertheless, it seems to me that the concept of creativity needs to be linked with that of quality. If creativity is equated with mere production, this amounts to admitting that the quality of the product can no longer be determined.

In summary, this is a very uneven collection of articles, and researchers interested in creativity will find little in it to hold their attention. The volume would have benefited from contributions by philosophers, musicologists, and psychologists who are experts on creativity. The editors seem to have exercised little control over the contributions, several of which, as I noted, have little relevance to the topic of the book. De la Motte-Haber is the only author who has anything interesting to say about creativity. There is also a considerable number of typographical errors, and the English of several authors is unidiomatic and occasionally misleading (as when Ungeheuer talks about "vocals", meaning vowels). One can only hope that future conferences on creativity will elicit more substantial and relevant contributions from the participants.

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