

SYMPOSIA

SYMPOSIUM 1: Creation and Perception of a Contemporary Musical Work: 'The Angel of Death' by Roger Reynolds

Symposium: Creation and Perception of a Contemporary Musical Work: the 'Angel of Death' by Roger Reynolds

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Proc. Page: 14-14

This symposium presents seven papers on various aspects of a unique project involving the interaction of musical creation and psychological experimentation. It concerns a specific musical object, a chamber concerto for piano, chamber orchestra and computer processed sound, commissioned by Ircam and premiered in the Agora Festival in Paris in June 2001 and repeated at the University of California at San Diego in April 2002. The global form and the musical materials of the piece were conceived to provide, in addition to their artistic goals, specific opportunities for testing hypotheses concerning the perception of musical similarity among materials and between original and musically varied materials within the context of a piece, the role of instrumentation on recognition of materials, and the experience of musical form through time. Preliminary recordings of the thematic materials allowed perceptual experimentation to begin while the piece was still being realized in its details. The compositional process itself was archived by way of sketches, notebooks and interviews over three years of development. Real-time experiments were conducted in a concert situation at the world premier concert in Paris and at the American premier in San Diego. The uniqueness of this project is that it involves an in-depth analysis of the creation and perception of a single musical work at many different levels.

A brief introduction to the project organized around the creation of a piece of contemporary music will be provided. Roger Reynolds will then present his approach to composition generally and to the composition of *The Angel of Death* in particular. A full recording of one of the versions of the piece will then be played so that the audience can familiarize itself with the object of study. Stephen McAdams will present an analysis of problem-solving strategies employed in certain aspects of the compositional process, the analysis of which is based on extensive interviews made with the composer (McAdams & Reynolds).

The next four papers treat various aspects of the perception of and memory for the thematic materials used in the piece. Sandrine Vieillard will present a study on the perceptual categorization of thematic materials for two different versions written for piano solo and 16-member chamber orchestra (Vieillard, McAdams, Houix & Reynolds). The similarity relations among different subsections of the themes are found to be based, in many cases, on surface features of the performed music, and demonstrate the richness of the web of relations among the materials that was available to the composer in the subsequent composition of parts of the piece involving transitions from one theme to another or combinations of themes. Emmanuel Bigand will then present a study on the effects of this change of instrumentation on the memorization of musical materials both from the Reynolds piece and from a symphonic poem by Liszt (Bigand, Vieillard, Madurell, McAdams & Poulin). For the contemporary materials, musically trained listeners were more affected by timbre change than untrained listeners, but the pattern of results was more similar across the two groups for tonal music. A study of the perceptual structure of the musical materials will be presented by Emmanuel Bigand in which the relations of similarity and the temporal trajectory implied by the music itself are examined (Bigand, D'Adamo, Madurell & Poulin). A refined comprehension of the material structure is demonstrated in both musicians and nonmusicians with a segmentation task, and for listeners sensitive to similarity relations among subsections of the materials, intuitions about the time-directed nature of the materials can be demonstrated. Since musical similarity might play a strong role in the establishment of relations across time in a piece in which the materials are varied or developed, a study of how original thematic materials can prime or refresh the memory traces for trans-

formed materials in the case of specific classes of electroacoustic transformations used by Reynolds was performed and will be presented by Sandrine Vieillard (Vieillard, Bigand, Madurell, McAdams & Reynolds). For the transformation types used, intervening original materials can reinforce these traces and the refreshment seems limited to one of the two classes.

Finally Stephen McAdams will present a study of the perception of and emotional reaction to the whole piece through time in a live concert setting (McAdams, Smith, Vieillard, Bigand & Reynolds). Listeners responded continuously in real time at the world premier concert and ratings of familiarity and emotional force demonstrate strong relations to the musical structure.

Compositional Strategies in the Angel of Death for Piano, Chamber Orchestra and Computer Processed Sound

Roger Reynolds; University of California at San Diego, USA

Time: Thurs 18 8.30 am, Stream: A Proc. Page: 15-18
Venue: New South Global, Webster Level 1

A composer describes his concerns in relation to a 34-minute musical work (*The Angel of Death*) composed in consultation with perceptual psychologists. This work has served as an experimental object suited to the testing of a range of issues of interest to composers as well as psychologists: Are musical materials and the formal structure of a piece heard as the composer anticipates? Thematic sources of the work are described in relation to a basic formal design that was realized in two contrasted ways: **Sectional** (strongly characterized parts with clear boundaries) and **Domain** (an interwoven presentation of materials which minimized formal articulation). The resulting two parts can be performed in either order, but a computer component enters at the end of the first, co-existing with the second. The author speculates on the potential significance of various objective findings to the necessarily subjective world of musical art.

Presentation of 'The Angel of Death' Sound Recording

Time: Thurs 18 9.00 am
Venue: New South Global, Webster Level 1

Problem-Solving Strategies in the Composition of the Angel of Death

Stephen McAdams¹, Roger Reynolds²; ¹CNRS, France; ²University of California at San Diego, USA

Time: Thurs 18 9.30 am, Stream: A Proc. Page: 19-20
Venue: New South Global, Webster Level 1

Strategies involved in solving compositional problems were studied during the planning and composition of the piece *The Angel of Death* by Roger Reynolds. The interactive context in which the piece was composed provided extensive opportunities to see how objectively conceived pre-compositional framing of tasks either did or did not play out as the actual prescription of detail began. In addition, the modular and layered approach that this composer normally follows made it possible to observe and reflect upon where his envisioned intent became a part of the final work, and when (and how) he altered his course as the work unfolded.

Perceptual and Cognitive Criteria Used in the Categorization of Thematic Excerpts from a Contemporary Musical Piece

Sandrine Vieillard¹, Stephen McAdams¹, Olivier Houix¹, Roger Reynolds²; ¹Ircam-CNRS, France; ²University of California at San Diego, USA

Time: Thurs 18 10.00 am, Stream: A Proc. Page: 21-24
Venue: New South Global, Webster Level 1

Two free categorization experiments were conducted to specify the cognitive processes implicated in the understanding of similarity relations in contemporary musical materials composed by Roger Reynolds for *The Angel of Death*. Listeners were asked to listen to 34 excerpts from the piano (Exp.1) and chamber orchestra (Exp.2) versions of the thematic materials for the piece and to

group those judged to be similar. They were then to explain the similarities between the sections in each group. In the two experiments, results of clustering and verbalization analyses show that the average number of groups was relatively close to the number of themes created by the composer. The perceptual classification criteria depend, for the most part, on the surface features of the materials.

Effects of Instrumentation on the Memorization of Musical Materials

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Time: Thurs 18 2.00 pm, Stream: A Proc. Page: 25-26

Venue: New South Global, Webster Level 1

The present research investigates the effect of timbre (instrumentation) on the memorization of musical excerpts in contemporary and tonal music. The findings suggest that musically trained listeners attempt to memorize contemporary music by focusing on surface features linked to instrumentation. Musically untrained listeners focused on more abstract features of the contemporary pieces (presumably melodic contours, rhythm) resulting in an advantage of nonmusicians over musicians in a recognition test when the timbre is changed. Both groups however managed to memorize tonal musical excerpts with the help of features more abstract than timbre (presumably, melodic contour, rhythm, harmony), resulting in less decrease in memory performance when timbre is changed, notably in musicians.

A Preliminary Investigation of the Perceptual Structure of Musical Materials in the Angel of Death

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Time: Thurs 18 2.30 pm, Stream: A Proc. Page: 27-29

Venue: New South Global, Webster Level 1

The purpose of this study was to investigate the perceptual structure of the 5 themes of Roger Reynolds' *The Angel of Death*. We attempted to characterize how listeners follow the musical progression of each theme and whether or not they perceived the temporal implications of each section of these themes. The experiment was split into two parts. In the first part, participants performed three tasks. One of them consisted in tracking on-line the musical ideas developed in each theme. In the second part of the experiment, participants were presented with several excerpts coming from these themes and were required to indicate whether both excerpts came from the same theme. In the case of a "yes" response, they had to specify which excerpts occurred first in time ("time order" task).

Can Listening to Excerpts of Original Versions of Contemporary Musical Materials Facilitate Recognition of Their Transformed Versions?

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Time: Thurs 18 3.00 pm, Stream: A Proc. Page: 30-33

Venue: New South Global, Webster Level 1

The perception of similarity between materials from a nontonal musical work entitled *The Angel of Death* by Roger Reynolds was examined. The implicit relation between themes and their electroacoustic transformations was tested with two recognition tasks. The first experiment studied the priming effect and the second investigated the refreshment effect of themes on their transformations. The results of Experiment 1 revealed no priming effect. However, in Experiment 2, there was a partial significant facilitating effect of the theme-transformation relation for the recognition task, depending on the type of transformation used. Although they reflect a difficulty in recognizing excerpts, these findings suggest that the memory of certain transformations can be reinforced by intervening exposure to the original version.

Real-Time Perception of a Contemporary Musical Work in a Live Concert Setting

*Stephen McAdams*¹, *Bennett K. Smith*¹, *Sandrine Vieillard*¹, *Emmanuel Bigand*², *Roger Reynolds*³;

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Time: Thurs 18 3.30 pm, Stream: A

Proc. Page: 34-37

Venue: New South Global, Webster Level 1

At the world premier performance in Paris of *The Angel of Death* by Roger Reynolds listeners continuously rated their perception of or emotional reaction to the piece as played in two versions. One rating scale concerned the perception of novelty or familiarity of the musical materials over the course of the piece, while another one concerned the experience of emotional force generated by the music. While the individual temporal profiles provided by the two scales presented a great deal of variability between listeners, strong relations between the mean profiles and the musical structure were found for some subsets. The results are discussed in terms of the perception of similarity relations between thematic materials and their musical variations and the temporal form of emotional experience in contemporary music heard in a live concert setting.