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Linda M. Arsenault: Iannis Xenakis's Achorripsis: The Matrix Game

The piece produced as a result of following the process outlined in this paper is another example of art defining itself by the walls it must push against. Like poets working within iambic pentameter or terza rima, Xenakis works within the bounds of a game whose rules he must first compose himself.

The first part of the paper describes the creation of these rules. The overall structure of the composition is a 28x7 matrix. The exact form of the matrix was chosen arbitrarily, and corresponds roughly to a musical score: the columns of the matrix represent a chunk of musical time, approximately 6.5 measures, and the rows correspond to pitches. In each cell of this matrix are sprinkled the atoms of the composition, called "sound events." A sound event is a musical density, composed of a combination of 0 through 5 sounds played over the duration of the cell.

Once the dimensions and semantics of the matrix and the sound events are defined, the task remains to distribute the sound events throughout the matrix. Xenakis determined the particulars of this distribution by drawing from a Poisson distribution with fixed parameters. From this he determined, for each kind of sound event, how many times it must appear over the course of the 28 timesteps, in each row, and in each column.

Once all of this is done, the game can be played. Operating within the computed constraints, the precise form the composition eventually takes emerges the way the solution to a Sudoku puzzle emerges. There are a variety of possible solutions (compositions) one could arrive at from playing the game.

In any constrained medium it's worth asking how much choice remains to the artist. In this particular case, Xenakis himself decided the form the game would take, but even once the rules were defined, what does it mean to successfully play the matrix game? Aside from the freedom of choice involved in distributing the sound events throughout the matrix according to the rules, the composer still faces the task of precisely defining the sound events themselves. What rules might he use to do so?

This raises an important question that goes back to a discussion we had early in the semester regarding "found objects." It's simplistic to believe too strongly in the pre-eminence of the thing found and diminish the role of the finder. The found object, like the piece composed by playing in the matrix game, will still emerge as the result of some aesthetic process working at a higher level than the game itself. Or, if it doesn't, the piece will be of little interest, the same way one might meet the requirements of a terza rima poem via a succession of approximations: gibberish, isolated words, syntactically correct constructions, artful language. Terza rima is indifferent to the distinctions between these "poems", and in just this way the matrix game is indifferent to any of its permutations of correct solutions.

There is an undeniable cleverness in the geekery required to invent something like the matrix game. I suppose it's just the joy of puzzles, which is the joy of solving any tricky problem. The problem I have with these endeavors is that it's easy to lose sight of the larger purpose, or what seems to me \*should\* be the larger purpose, which is to create something valuable, interesting, aesthetically pleasing to contemplate. Put another way, I can understand the satisfaction of solving a difficult crossword puzzle, but it's a passing joy, and there's certainly no joy for a bystander observing a solved puzzle. The question is, is there any joy for the auditor in hearing Xanakis's creation, or was all the joy his own in his working through the problem?

It's difficult to formulate exactly the distinction we should make between the artifice of construction and the pleasure inherent in the finished piece, but I think this distinction is a much more interesting and fundamentally important thing in music than simply playing games.