

Music 680, Fall 2007: Special Topics in Music - Compositional Algorithms  
Class 2: September 17, 2007 - Serialism I: Stockhausen

cultural contexts for serialism

the Schoenberg - Webern - Messaien lineage; Cage as the algorithmic and parameterizing outsider  
postwar reconstruction and the *Stunde Null*  
the CIA, Darmstadt, and artistic abstraction as a form of defense against communism

Stockhausen, Darmstadt, and *Kreuzspiel*

"the shock of the encounter with Messaien and Goeyvaerts is all there in the leap from the from the Sonatina for violin and piano, completed soon before, to *Kreuzspiel*... written in the immediate aftermath. One might even speak of a conversion, specially when what exhilarated both Stockhausen and Goeyvaerts was the spiritual dimension of their work: the possibility of liberating, more than creating, sound structures which would have nothing human in their composition, which would be images of divine unity. Since at this point Stockhausen was a devout Catholic, the form and title of his first piece after the Darmstadt experience cannot have been accidental, through the 'crossplay' is also a direct extension from Goeyvaerts' method...."

"...this is, already, a characteristic Stockhausen piece, not only in its perfect digestion of its models but also in its intriguing introduction of discrepancies, its delighted newness, and its brio. ...The discrepancies include disturbances to the pitch pattern when a pitched attack coincides with one in the percussion: Stockhausen may have been concerned to make some connection between the two streams...."

"It cannot be contemplated that the crossplays described are to be followed by the listener: their effect, rather, is of a ruthlessly channelled disorder, of unseen hands moving notes according to unknown rules, as if one were observing a complex game with no prior knowledge of its etiquette. Where order is glimpsed - for instance in repetitions of intervallic motif - it will likely be adventitious. *Kreuzspiel* flies free from the thematic-harmonic continuity that Schoenberg had wanted to preserve, and does so not by punishing that continuity, as Boulez had done, but by ignoring it."

register as a crucial counter-example here? Morgan's "concern for large-scale processes"

"(..His [Stockhausen's] strategy was to draw up a scheme, follow it through, and then look at the results. Such an approach to composition would justify the use of such terms - much vaunted at the time - as 'experiment' and 'research', and would partly explain the pattern of Stockhausen's output, which to some extent has continued: a pattern of one-offs)."

[all these quotations are from Paul Griffiths *Modern Music and After*]

Boulez, serialism, and complexity: "Schoenberg Is Dead"

"The last point of equilibrium, opus 23 clearly is the inauguration of serial writing, into which the fifth piece - a waltz - introduces us: each of us may be permitted to meditate on that very 'expressionistic' meeting of the first dodecaphonic composition with a type-product of German romanticism ('Prepare oneself for it by serious immobilities,' Satie might have said)."

perceived conflict between tonal forms / conventions (including thematics) & serial technique though note that these issues are still in play in the *2nd Sonata*

"The confusion between theme and series is explicit enough to show his impotence to foresee the sound-world that the series demands."

Boulez' teleological view of history at the time....

"Every composer outside the serial experiments has been *useless*."

*Structures Ia*

Boulez' insistence on the composer's hand:

"Thus the global serial structure may be seen from a double point of view: on the one hand the activity of serial combination, with structures produced by the automatism of numerical relations; on the other hand, directed and interchangeable combination, where arbitrary choice plays a much larger role. The two ways of regarding the musical structure can obviously provide an extremely effective dialectic of musical development."

borrowing from Cage the notion of generalizing the series:

"It is obvious that in terms of rhythm, one can use rhythmic possibilities."

Ligeti's analysis

the row form borrowed from *Mode de valeurs et d'intensities*

the fixity of pitch relative to rhythm and especially dynamics

two pianos as an acoustic necessity

two bundles of serial threads proceeding independently

rapid decay permitting sophisticated pointilistic textures

forty-eight serial threads

one for each transposition and form of the initial series (for both pitch and duration)

each thread is "homogenous in its dynamics and modes of attack"

combined into "bundles" of one, two, or three simultaneous threads per piano

for a total vertical density from one to six threads

and distributed in fourteen total sections

Ligeti notes Boulez' deviations from the serial plan:

"An exaggeration of serial thought would here establish a series of degrees of error:

1. faultless;
2. quite small deviation (the dynamic alterations);
3. rather more radical deviation (interchange of modes of attack);
4. very radical deviation (disturbance of the course of the durations).

But such 'error-series' could only be functionally evaluated if they were built into the overall architecture in a truly organic way - which is not the case here."

organizing patterns

thread-density; tempo; movements towards certain types of serial combination

choices left to the composer

register: intended to avoid octave relationships where possible

(which becomes a major constraint in dense areas)

also preferring note-repetitions as a kind of structural "knot"

commentary

"So the 'poor old serialist' is no more a captive than the tonal composer chained to his cadences; now as ever, the vital thing is how far, and in what way, one can tug at one's chains."

"The adding together of regular processes gives a wholly irregular result, of very elegant flexibility."

"This ascetic attitude, akin to compulsion neurosis, is self-limitation from choice - as if the composer were taking himself for a walk on the end of a lead; yet Boulez had to break away from it, in order to throw himself into something completely opposed (but internally related). And so he created the sensual feline world of the *Marteau*."

*Le Marteau sans maître*

and the generalization of serial technique beyond analyzability  
addressing the parenthetical form through interlocking cycles rather than through aleatorics  
as a response to *Pierrot Lunaire*

more Common Lisp programming  
(let) and local variables

the Common Music algorithmic composition environment (atop Common Lisp)  
(cd "Documents/teaching/680-fall-2007") ; directory change for saving MIDI files

```
(defun series (values start-time)
  (if (null values) nil
      (let* ((current-value (car values))
             (current-rhythm (float (* 1/12 (+ current-value 1))))
             (cons (new midi
                    :time start-time
                    :keynum (+ 60 current-value)
                    :amplitude current-rhythm
                    :duration current-rhythm)
                  (series (cdr values) (+ start-time current-rhythm))))))
  ; need to handle transposition!
```

```
(events (series (list 0 1 2 3 4 5 6 7 8 9 10 11)) "test.mid") ; monophonic line
(events (list (series (list 0 1 2 3 4 5)) (series (list 6 7 8 9 10 11))) "test.mid") ; two-voice polyphony
```

```
(defun rotate-left (values)
  (attach (car values) (cdr values)))
```

```
(defun attach (element values)
  (if (null values) (list element)
      (cons (car values) (attach element (cdr values)))))
```

```
(defun rotate-right (values)
  (cons (last-element values) (all-but-last values)))
```

```
(defun last-element (values)
  (if (= (length values) 1)
      (car values)
      (last-element (cdr values))))
```

```
(defun all-but-last (values)
  (if (= (length values) 1)
      nil
      (cons (car values) (all-but-last (cdr values)))))
```

more complex serialism  
transposition  
(and), (or), (not)