The Music of John Cage

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Example 4–2  Winter Music, example of notation
(a) as notated

(b) possible interpretations

combinations of the individual pieces. In Winter Music, not only can different pages of the score be combined in different ways, but within a page no order is imposed on the chords. But an even more important indeterminacy results from the use of ambiguous clefs: these produce a configuration of notes in each chord that can change from performance to performance. Any given performance of any chord is but a “snapshot” of it in one of its possible states. The result of this change was that Cage no longer made music out of simple “atoms” or blocks, but now made his works out of little mechanisms or mobile structures that were to be fixed only for a single performance. In the case of Winter Music, this simple alteration in his use of clefs made for a vastly more flexible product.

Concert for Piano and Orchestra and related works

Of the indeterminate works that Cage began composing after Winter Music, the most important was the Concert for Piano and Orchestra (1957–58). He called it a “concert,” and not a “concerto,” because all the players – pianist and instrumentalists alike – act as soloists, their parts being totally independent of one another. In this piece, Cage’s exploration of indeterminate notations accelerated and intensified, producing a work that was rich with possibilities for further development. Its piano solo is a collection of eighty-four different methods of composition and notation, and served as a source, either directly or indirectly, for virtually every composition Cage composed from 1958 to 1961.

The Concert consists of a Solo for Piano and separate solos for three violins, two violas, cello, contrabass, flute (doubling on alto flute and piccolo), clarinet, bassoon (doubling on saxophone), trumpet, trombone, and tuba. In addition, there is a
completely independent part for the conductor, who acts as a sort of human stopwatch, the movement of his arms imitating a sweep-second hand. His part consists of a table of timings by which he translates the true clock time into an "effective" time for the performers. Thus, for example, he may be told by the score to signal to the performers with his arms that they should play fifteen seconds' worth of their parts (the effective time), but over an actual period of one minute.

The instrumental parts were composed using a point-drawing system similar to that of the Music for Piano. The major difference is that in these orchestral parts, the notes are of three different sizes; differences in size represent either differences in dynamics (smaller meaning softer) or duration (smaller meaning shorter), or both, the decision being left to the performer. Each note is to be separated from the others by silence. Before composing each part, Cage consulted with the performer in order to ascertain what sorts of different playing styles, timbres, and unusual effects could be obtained from the instrument. Tables of these were made and the I Ching used to apply specific timbres and so forth to specific notes. Example 4–3 is taken from the Solo for Flute, and demonstrates the astonishing variety of playing techniques used, even within a short time span. In this brief excerpt one finds: non-vibrato playing, double- and triple-tonguing, microtonal variations (indicated by arrows), slapping the keys of the flute, fluttetrooking, various dynamic changes, multiphonics ("intervals"), whistling, singing, and a change of instrument from piccolo to alto flute (all the notations are carefully explained in the score).

Most of Cage's compositional attention was paid to the Concert's Solo for Piano. The solo is sixty-three pages long, with fragments of music scattered throughout and frequently crossing page boundaries. The location of the notations on the pages was randomly determined, as was the rectangular space allowed for each. The process of composing the piano solo was based on the premise of continuously inventing new notations and new methods of composition. For each musical fragment in the score, the first decision made (via the I Ching) was whether it would use a wholly new method of composition, a repeat of a method already used, or a variation on a method already used. As a result of this procedure, Cage was forced to invent new methods of composition as he went along, and through the course of the sixty-three pages, some eighty-four different types appear. These are identified in the score by letters: the first twenty-six are lettered A to Z, the next twenty-six AA to AZ, then BA to BZ, and finally CA to CF. This continuous invention of new notations results in a score that is striking in its diversity of graphics, even within just a single page, as illustrated in Example 4–4. Detailed instructions on the interpretation of these notations are given in the performance notes for the score.

The notations of the piano solo are diverse, yet most are subsumed under the same model of composition we found in discussing Winter Music: the compositional methods have produced drawings that have then been translated into musical terms. The piano solo is, in effect, sixty-three pages of changes rung on this
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Example 4-3  Concert for Piano and Orchestra: Solo for Flute (excerpt)
Example 4-4  Concert for Piano and Orchestra: Solo for Piano (excerpt)
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simple model, with particular emphasis placed on making indeterminate frames of reference for the drawings. The best way to understand the Solo for Piano is through a close examination of the various notations, but rather than explore in detail the workings of each of the eighty-four notation types, I will limit myself to a representative sampling. What follows are a few observations that can be taken as an introduction to the types of notation found in the Concert – not a strict taxonomy (which, given the diversity and inventiveness of the solo, would surely be inadequate), but rather an informal field guide to the rich world of this remarkable score.

The first stage of composition – making the drawing – remained relatively unchanged in the Solo for Piano. Simple points are the most common graphic tokens used (presumably derived from paper imperfections), and straight lines and freely-drawn curves appear as well. Closed curved shapes are used in a few notations, such as T (Example 4–5), where the outlines represent the changing contours of clusters (the numbers in this notation refer to dynamics, with smaller numbers representing softer dynamics).

In some notations, Cage superimposed several unrelated drawing actions in order to keep any one of them from strongly shaping the result. In notation AM, for example (Example 4–6), the compositional process is two-layered: first the drawing of the notes on the staff, then the placement of the vertical lines above and below the staff. According to the performance instructions, the music between each pair of lines should take up the same amount of time, so that the time relations implied by the distances between notes are altered: a pair of notes may actually occur closer together or more distant in time than they appear on the page, depending on the distance between the markers. Another way of transforming a simple notation is to have one graphic action limit the results of

Example 4–5  Concert for Piano and Orchestra: Solo for Piano, notation T

Example 4–6  Concert for Piano and Orchestra: Solo for Piano, notation AM
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Example 4-8 Concert for Piano and Orchestra: Solo for Piano, notation W

Another example of this is in notation O (Example 4-7), where there are two drawings superimposed: one of curves and one of straight lines. Notes are inscribed on the curves, but only in the spaces between the straight lines (in performance, these notes are read from left to right, and the curves themselves are ignored). Finally, the results of a simple point-drawing process are modified in some notations by grouping the points into larger gestures, as in notations W and AH. In W (Example 4-8), the notes connected by lines are to be played legato, while the rest are staccato; in AH (Example 4-9), the pianist is to follow the lines connecting the notes in the direction of the arrows (clefs are ambiguous here).

While the drawing processes used in the Solo for Piano are relatively simple, the means of translating these into musical notations are diverse and frequently complex. Musical staves are the most common and the simplest sort of translation, these frequently being made indeterminate through the use of ambiguous clefs, as in Winter Music. In fact, notation B is identical to the notation of Winter: Music. Another simple means of turning points into musical notes is to

Example 4-9 Concert for Piano and Orchestra: Solo for Piano, notation AH

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Indeterminacy (1957–1961)

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to a rectangle around them, using their positions in vertical and horizontal lines to determine the values of any two musical variables. In notation BY, for example (Example 4–10), the points represent noises of any sorts, with their relative pitch (high or low) given by their placement vertically within the space; the horizontal dimension here, as in most such notations, represents time.

In notations involving a fixed number of discrete possibilities, Cage uses a sort of "grid" to convert points into specific choices. In AC (Example 4–11), the points represent noises of three types: those made on the inside of the piano, those made on the outside, and "auxiliary" noises made off the piano. A three-row grid is used to sort the points among the three types. Similarly, grids are used in notation BD (Example 4–12) to represent the discrete choices of dynamics (the points represent notes of any sort), and in notation BE (Example 4–13) to represent the fingers, hands, or arms with which to play (the nature of the events played is not given). Notation Y (Example 4–14) is a more complex use of this same device. Here the eight hands are used to articulate eight pitch ranges, all different to one another (the choice of pitch ranges is made by the performer). The size of these ranges changes: the numbers beneath the grid give the number of pitches in each range at various points in time, these times given in seconds by the numbers above the grid. This is another example of multiple compositional actions altering a basically simple process (the drawing of points within the grid): the changes in range size, the random placement of these horizontally, and the randomly-assigned time values all work together to alter drastically the musical meaning of the configuration of points originally produced.

All the notations examined so far have used two-dimensional spaces. Other notations use several different reference lines or axes to interpret points in terms of more than two parameters. In BJ (Example 4–15), the distances of the point from each of the four sides of the rectangle represent the pitch, duration, dynamic, and timbre (from simple to complex) of the note. This notation is indeterminate in that which side represents which parameter is decided by the performer. Other, more involved examples of this sort of multi-dimensional notation will be discussed later in conjunction with Variations I and Variations II, the two works that extend this principle to its most refined, pure state. One last projection used in the Solo for Piano merits our attention, if only for its novelty: in notation BT (Example 4–16), outlines of a grand piano are used to convert points into sound events. The location of a point gives the location on the piano where the sound is to be made.

The ambiguous projection of points, lines, and curves into musical space is the primary means by which indeterminacy is arrived at in the notations of the Solo for Piano, but it is certainly not the only one. In some notations, directions external to the basic musical signs modify their interpretation. In notations AC and BE, for example, a number indicates how many of the given notes are actually to be played. Indeterminacy is produced here in that the choice of notes is made by the performer. Notation D (Example 4–17) gives another example of
Indeterminacy (1957–1961)

Example 4–12  Concert for Piano and Orchestra: Solo for Piano, notation BD

Example 4–13  Concert for Piano and Orchestra: Solo for Piano, notation BE

Example 4–15  Concert for Piano and Orchestra: Solo for Piano, notation BJ

Example 4–16  Concert for Piano and Orchestra: Solo for Piano, notation BT
such modifications need to be read exactly as in its performance. Each chord is a number of tones, with single notes falling in the direction of the arrow. "Repet" refers to the point of notation, arrow-and-number ways. Notation E is earlier one – in the example.

Some notations have more aspects only the dynamics would fulfill the "partial" notation. Notation BE (which gives the location of the perfect dawing) – can be seen.

The extravagance of the notation is a more difficult way of notation. Not only to an equal importance to Cage’s work is his notation of the instrument necessary since the onset to David B. diversity and virtuosity of the precision and inventiveness of textural mark of Cage’s style.

Several works can be seen in Bôl for Voice 1 (1951).

Example 4.18: Concert for Piano and Orchestra. Solo for Piano, notation D.
Indeterminacy (1957–1961)

The notation of the chords is to be as nearly as possible in Winter Music. The arrows and numbers below each chord modify their performance in time. Here, rather than being struck all at once, the notes of a chord are to be arpeggiated, with the numbers beneath the chords giving the number of notes to be played at a time (e.g., “1, 1, 1, 2” means to play three notes, followed by two notes together). The vertical arrows give the direction of arpeggiation (up, down, or both in alternation), while the horizontal ones refer to time and the tendency of the tones to sound sooner, later, or at the point of notation. The performer must choose the notes to conform to the arrow and number notations, which in many cases can be realized in several ways. Notation D is also a clear example of a notation that is a variation on an extreme — in this case B, the Winter Music notation.

Some notations achieve indeterminacy by simply omitting information about the dynamics of the sounds are given — any sounds of the required loudnesses would fulfill the notation (even sounds not made on a piano at all). Many such notations give information on how to play, but not what to play, as in notation BE (which specifies the fingers, hands, or arms to play with) or BT (which gives the location of the action). Notations such as AR (Example 4–18) — in which the performer is told to “play in any way that is suggested by the drawing” — can be seen as extreme forms of this style of indeterminate notation.

The extravagance of the Solo for Piano was made possible by David Tudor’s meticulous way of working: Cage knew he could entrust such an idiosyncratic score only to an equally idiosyncratic performer. The importance of Tudor’s abilities to Cage’s work is immediately apparent if one compares the Solo for Piano to the instrumental solos of the Concert: the relative simplicity of the latter was necessary since they were to be performed by players Cage barely knew. Listening to David Tudor’s renditions of the Solo for Piano, one hears how the diversity and virtuosity of the score can be realized in performance. One hears the precision and inventiveness of Tudor’s playing, while still being aware of the spaciousness of text, the separation of sounds from each other that is the hallmark of Cage’s style of the 1950s.

Several works can be seen as “descendants” of the Concert for Piano and Orchestra. In Solo for Voice 1 (1958), for example, the method used to produce the orchestral

Example 4–18 Concert for Piano and Orchestra: Solo for Piano, notation AR.
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parts of the *Concert* was used to make a vocal piece. *Fontana Mix* (1958), *Variations I* (1958), and *Variations II* (1961) are all based on notations found in the *Solo for Piano* (since these works extend these notations dramatically, they will be discussed later). Because all these works have a loose family relationship, Cage allowed for their simultaneous performance. Thus, for example, in May of 1958, simultaneous performances of *Solo for Voice 1* and the piano solo, clarinet, trumpet, trombone, and tuba parts of the *Concert for Piano and Orchestra* were programmed as *Concert for Voice, Piano, and Four Instruments*.

Another major work that belongs – at least in spirit – to this period of notational experiments is *Atlas Eclipticalis* for orchestra (1961), commissioned by the Montreal Festival Society. In his early compositional notes for the piece, Cage indicated that he was trying to compose a version of *Winter Music* for instruments, and there are similarities between the pieces. In both, events contain from one to ten notes, divided randomly into two groups. Whereas in *Winter Music* this division is between the two clefs, in *Atlas Eclipticalis* it is between short and long durations. Example 4–19 is an excerpt from one of the cello parts, and shows the notation used. Pitches are given unambiguously, although the notation is somewhat unusual – rather than use accidentals, Cage altered the spacing of the staff lines to reflect the number of semitones between them. The relative size of notes gives their amplitudes. The numbers above the events divide the notes with regard to durations: the notation 6–3, for example, means to play either six short notes and three long ones, or three short notes and six long ones.

The compositional process used in *Atlas Eclipticalis* was very similar to other Cage used at this time: the random inscription of points followed by the superimposing of the staves to create musical notes. In this case, however, the points were to come from the large star charts of the *Atlas eclipodes* 1950.0.4 By placing tracing paper over any of the thirty-two star maps in any of several different orientations, Cage was able to trace the star locations, thus producing random points. The brightness of stars is shown in the maps by their size, which translated into the size of notes in Cage’s score. The maps also show the spectral class of the stars by their color: by tracing only stars of one color at a time, Cage was able to reuse the same part of a map without duplicating the pattern of points.

The structure of each of the eighty-six orchestra parts is identical: four pages with five staves each. The location of events on each page of a part, and then the individual notes within each event, were both determined using the star charts. In performance, the score can be played in whole or in part by any number of players up to a full eighty-six-member orchestra. The systems are to be read left to right proportionally in time, but the tempo is not given: the conductor determines the duration of each system and then signals the passage of time to the performers. *Atlas Eclipticalis* can be performed simultaneously with *Winter Music*, thus reflecting their compositional similarities. In addition, Cage indicates that contact microphones can be attached to some or all of the instruments, thus amplifying their sound.