The Boulez–Cage Correspondence

edited by
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Dear Pierre:

Your second letter arrived\(^1\) and I hasten to reply, for it has been, naturally, on my mind to write to you for many months. The long letter you sent with the details about your work was magnificent, but I think that it is at least partly due to it that I have not written sooner, for I was concerned to write a letter worthy to be read by you, and I didn’t feel able. All this year (in particular) my way of working has been changing, and together with that changing I was involved in many practical commitments (performances, etc.), and when your first letter came,\(^2\) it caught me in the midst of activity and at a point where my way of working was still unformed (and needing to be formed). This seems now to have happened; at least I am writing a long piano work\(^3\) (unprepared) which will carry me through October or November, and I doubt whether anything radically new will enter my technique until I finish this particular piece, so that I feel free now to tell you what I have been doing, and what it was that led to this new work.

In Paris I began the String Quartet, and interrupted the writing of it to do the Calder film which you heard. The Quartet uses a gamut of sounds, some single and some aggregates, but all of them immobile, that is staying always not only in the same register where they originally appear but on the same strings and bowed or produced in the same manner on the same instruments. There are no superpositions, the entire work being a single line. Even the tempo never changes. The continuity (what I call method)\(^4\) is uncontrolled and spontaneous in all except the 3rd movement, where it is strictly canonic, even though there is only one ‘voice’. Such ideas as the following occur; direct duration limitation with retrograde or inverse use of the gamut or vice versa. This gives some interesting results since the gamut to begin with is asymmetrical. The sound of the work is special due to the\(^5\)

\(^1\) In fact, Cage had not replied to the letter of 30 December 1950 (no. 26), and the following one (no. 27) began with a reminder of this.

\(^2\) I.e. no. 26.

\(^3\) This refers to *Music of Changes* (1951).

\(^4\) Cf. Cage’s terminology presented in no. 5.

aggregates and to using no vibrato. It has been performed twice and is being recorded by Columbia, and next Friday will be done again on a program with your 2eme Sonata and some music of Feldman.

You ask for details about the Calder music,\(^5\) particularly the section of noises. What I did was very simple, to record on tape noises actually produced in Calder’s studio in the course of his work. The sounds which have the regular accelerandos are produced by large flat rectangles of metal bringing themselves to balance on narrow metallic supports. With about “two hours” of tape I satisfied myself and then proceeded to choose those noises I wished and cut and scotch-tape them together. No synchronizing was attempted and what the final result is is rather due to a chance that was admired. Unfortunately I did this at the last minute (after the music for prep. pn. had been recorded); had I done it at the beginning, I rather imagine I would have made the entire film in this way (using also sounds recorded from nature).

After finishing the Quartet I wrote Six Melodies for Vn. & Pn which are simply a postscript to the Quartet and use the same gamut of sounds (but, naturally, with different timbres). Then I began to write the Concerto for prep. pn and chamber orchestra (25 players). A new idea entered which is this: to arrange the aggregates not in a gamut (linearly) but rather in a chart formation. In this case the size of the chart was 14 by 16. That is to say: 14 different sounds produced by any number of instruments (sometimes only one) (and often including percussion integrally) constitute the top row of the chart and favor (quantitatively speaking) the flute. The second row in the chart favors the oboe and so on. Four rows favor the percussion divided: metal, wood, friction, & miscellaneous (characterized by mechanical means, e.g., the radio). The last four favor the strings. Each sound is minutely described in the chart: e.g. a particular tone, subdivided on the 2nd string of the first vn. with a particular flute tone and, for example a wood block.

I then made moves on this chart of a “thematic nature” but, as you may easily see, with an “arithmatic” result. This entire first movement uses only 2 moves, e.g. down 2, over 3, up 4, etc. This move can be varied from a given spot on the chart by going in any of the directions. The orchestra (in the first mov.) was thus rigorously treated, while the piano remained free, having no chart, only its preparation, which, by the way is the most complicated I have ever effected and has as a special characteristic a bridge which is elevated from the sounding board of the piano to the strings and so positioned as to produce very small microtones. In the 2nd movement the piano has a chart provided for it having the same number of elements as that for the orchestra (which latter remains the same). This movement is nothing but an actually drawn series of circles (diminishing in size) on these charts, sometimes using the sounds of the orchestra, sometimes using the sounds of the piano. (In all of this work the rhythmic structure with which you are familiar in my work, remains the basis of activity.)\(^6\)

\(^5\) Here Cage is replying to the last letter received, no. 26.

\(^6\)
In the 3rd and last part of the Concerto (the entire work is in one tempo) the
two charts metamorphose into a single chart upon which moves are made. This
metamorphosis is brought about by use of a method identical with that used by the
Chinese in the I Ching, their ancient book of oracles. Three coins are tossed: if 3
heads appear it is a 6 (♀) (female moving towards male); if 2 heads & a tail, it is
a 7 (♂) (male, not moving); if 2 tails & a head, it is an 8 (♀♂) (female, not moving);
if 3 tails (♂♂) it is a 9, (male moving towards the female []). I then
established that the piano was male, the orch. female and proceeding by tossing
coins found what sounds (7s & 8s) remained from the charts of the 2nd mot. and
which ones (6s & 9s) had to be freshly invented (a 6 became a piano sound taking
the place of an orch. sound & a 9 vice versa[]), or an actual aggregate in time
came about, that is to say a series of sounds, some orchestral, some piano, taken as
a single element in the chart. This is an extension of the aggregate idea and was
suggested by the manner in which Chinese characters are indexed, that is,
according to the number of brush-strokes required to write them, so that a
character with 8 brush strokes is, of course, not 8 characters but only a single one.
By making moves on the charts I freed myself from what I had thought to be
freedom, and which actually was only the accretion of habits and tastes. But in the
Concerto the moves brought about the new freedom only in so far as concerned the
sounds. For the rhythmic structure was expressed by means of terti-control (3
sounds in 2 measures, 5 in 4 etc.) and the idea underlying this is distant from the
idea underlying the moves. Another characteristic of the Concerto which disturbed
me was the fact that although movement is suggested in the metamorphosis-idea
underlying it, each part is like a still-picture rather than like a movie. And another
point I must mention is that the orchestra moves almost always in half-notes.

This work was not finished until last February because I interrupted it to write
Sixteen Dances for Merce Cunningham. I used the chart ideas but for a combination
of pn, vn, flute, cello, trumpet and about 100 percussion instruments played
by 4 players. The chart now became 8 × 8 (having 64 elements) disposed Fl, Tpt,
perc., perc., pn, vn, Vn, Cello. The size of this chart is precisely that of the chart
associated with the I-Ching, but rather than using it in the I-Ching manner I
continued to make moves on it as on a magic-square. When it was necessary to
write a piece with specific expressivity, e.g. a ‘blues’ (because of Merce’s intention
I simply eliminated all those sounds that didn’t apply to a scale suggesting
blues (having chromatic tetrachords): After each pair of the dances, 8 elements
disappear and 8 new ones take their place, so that the sounds at the end of the
evening are entirely different than those at the beginning. At each point, however,
situation presented is a static one.

At this point my primary concern became: how to become mobile in my thought
rather than immobile always. And then I saw one day that there was no
incompatibility between mobility & immobility and life contains both. This is at
the basis of the manner of using the I-Ching for the obtaining of oracles. That is,
if you tossed the coins, one tosses five times more, obtaining a hexagram, e.g. 6, 9,
8, 7, 7, 7 becomes

which on recourse to the chart, gives the number 6 moving towards the number 25.
If a hexagram appears which is without 6s or 9s only one number is obtained. I
then devised the following ways of working. Having established a rhythmic
structure, I provide myself with the following charts:

1 for tempi (64 elements; 32 active, 32 inactive)
1 for superpositions (as in the case of the present piano piece from 1 to 8)
8 for durations (64 elements)
8 for aggregates (32 sounds, 32 silences)
8 for amplitudes (16, the other 16 keep preceding loudness)

Of these last three classes of charts 4 are immobile & 4 are mobile (immobile =
remains & is capable of repetition, mobile = disappears once it has been used,
bringing a new sound to its position in the chart[]). This relation of mobile-
immobile changes whenever a mobile number (odd) is tossed at the beginning of an
intermediate rhythmic structure point.

With regard to durations I had become conscious (through having settled so
consistently in the Concerto on half-notes) that every note is a half-note but
travelling as it were at a different speed. To bring about greater distinctions of
speed I have changed the notation so that I now use, for instance:

\[
\begin{array}{c}
1/7 \\
2/5
\end{array}
\]

as a simple duration and measure it out on the space of the mss. with a ruler. For
the present piano work I also control the sound-aggregate charts in the following
way: 4 in any direction (vertical or horizontal) give all 12 tones & in the case of
mobility, 4 in time bring all 12 tones (repetitions allowed & no series present).

I interrupted the writing of this piece to write my Imaginary Landscape No IV
for 12 radios\(^6\) using exactly the same ideas. Every element is the result of tossing
coins, producing hexagrams which give numbers in the I-Ching chart: 6 tosses for
a sound, 6 for its duration, 6 for its amplitude. The toss for tempo gives also the
number of charts to be superimposed in that particular division of the rhythmic
structure. The rhythmic structure is now magnificant because it allows for different
tempi: accelerandos, ritardarits etc. The radio-piece is not only tossing of coins
but accepts as its sounds those that happen to be in the air at the moment of
performance. The chart for sounds in this case aggregate tunings: e.g.

\(^6\) Imaginary Landscape No. 4 (March No. 2) for twelve radios (twenty-four players and
conductor); 1951.
I have some recordings of this and will send you one; you will also shortly receive your recording by Tudor. He has been very busy and on tour and then finally ill in a hospital. & so has not yet sent you a record. He was moved by your letter to him but he has a curious inability to write letters; if you ever receive one from him it will be something of a miracle.

I miss you terribly and should love to come to Paris; but I have no money to do so and am only living from day to day. How I hope that we will soon see each other again! Tudor speaks of coming to Paris next 春. You would enjoy each other profoundly, I am sure. One day your father wrote to me from Ohio, & I have always regretted that we failed to meet.

You can see from my present activity how interested I was when you wrote of the Coup de Des of Mallarmé.7

And I have been reading a great deal of Artaud. (This because of you and through Tudor who read Artaud because of you.)

I hope I have made a little clear to you what I am doing. I have the feeling of just beginning to compose for the first time. I will soon send you a copy of the first part of the piano piece. The essential underlying idea is that each thing is itself, that its relations with other things spring up naturally rather than being imposed by any abstraction on an ‘artist’s’ part. (see Artaud on an objective synthesis) This is all written in a great hurry, & forgive me; I have to leave to give a concert of music in the Colgate University, up north. Will write soon again. Very affectionately, John.

P.S.
I asked Varèse (many months ago) about the Ionization, as you asked me to do. He says that there is only one set of parts and that he has to keep it here. However, one could get the score easily from New Music Edition 250 W. 57th St. N.Y.C.

Maro & Anahid Ajemian will be in Europe next fall and winter playing recitals and Křenek’s Double Concerto6 he wrote for them (with orchestra). Perhaps Désormière wd. like to do it. (Although I don’t personally like the piece).

I have not been very well and am still not; there are so many things wrong that I don’t know where to ask the Doctor to begin.

Merce and I went on another concert tour last month to San Francisco, Denver, Seattle, etc. I always take your music with me (spreading the gospel).

Please don’t forget to send me the Quartet as soon as it is available. My devotion to your work does not diminish but rather grows. David says his playing

1 See no. 13, note 1.
6 This refers to the Concerto for two pianos of 1951.

of your Sonata is improving and that it will be better than ever. He is a magnificent pianist.

We all wish either that you were here in New York or we were all with you in Paris. It would be a marvelous life.

Always yours,
John

29
Letter from Pierre Boulez to John Cage
between 22 May and 17 July 1951

Dear John,
I have just seen Christian Wolff. We talked a long time, and he got me to see the latest dispatches from New York. It was all very exciting and made me regret all the more that we don’t see [each other] more often. I must write you a long letter soon on the subject of your last letter.2 I found it incredibly interesting. We are at the same stage of research. I hardly have any time at the moment, since I am in the middle of work. I will write at the beginning of August.3 A bientôt – and your as always.

PB
Dear John
Just a minute to say hello,
I’ll write later in detail
about what happens or whatever
Christian [Wolff]

1 This letter was probably written in July, to judge from Cage’s reply (no. 30).
2 This is the letter of 22 May (no. 28), in which Cage gave many details concerning his works.
3 Boulez indeed wrote in August, but in reply to Cage’s request for an article (no. 30).
morton feldman

What determines the initial conception of my Projections and Intersections is a weight either reminiscent or discovered. Weight for me does not have its source in the manipulation of dynamics or tensions but rather resulting from a visual-aural response to sound as an image gone inward creating a general synthesis. The notation is presented graphically where each box is a clock-time duration.

Projection: The player is allowed to choose any sound designated for either High, Middle or Low. Duration and pitch are given and entrance is exact. Dynamically it is low throughout.

Intersection: The player is allowed to choose any sound designated either High, Middle or Low. The player may make any entrance within a given clock time duration but must hold until end of given duration. The player is free to choose any dynamic at any entrance but must maintain sameness of volume. What is desired in both the Projections and Intersections is a pure (non-vibrating) tone.

1 These statements were published, with the bracketed section of no. 31, in Transformation: arts, communication, environment, 1/3 (1952), pp. 168-72, under the title, "Four musicians at work" (see no. 31, note 4). They were preceded by the following introduction:

John Cage, when asked to report on current musical activities told us, "At the present moment, several kinds of music are appearing that give the impression of being new. The following statements by four composers report what is happening! Recorded works of Cage are: Amores I and IV and Three Dances (Disc), Sonatas and Interludes (Dial), String Quartet in Four Parts (Columbia). A recent work is Imaginary Landscape No. IV for 12 Radios. Morton Feldman and Christian Wolff live in New York City, and have works published by the New Music Edition. Pierre Boulez lives in Paris, is published by Amphon and Heugel & Co.; he has written articles in Polyphony and Contrepoints.

Cage's contribution was reprinted in Silence, pp. 57-9, with none of the music examples reproduced here.

What brings about this unpredictability is the use of the method established in the I-Ching (Book of Changes) for the obtaining of oracles, that of tossing 3 coins 6 times.²

Charts are made of an equal number of elements (64) which refer to Superpositions (1 chart) (how many events are happening at once during a given structural space); Tempi (1 chart); Durations (n, the number of possible superpositions, in these works, 8 charts); Sounds (8 charts); Dynamics (8 charts).

Where there are 8 charts, 4 at any instant are mobile and 4 immobile (mobile means an element passes into history once used giving place to a new one; immobile means an element, though used, remains to be used again.) Which charts are which determined by the first toss at a large unit structural point, an odd number bringing about a change, an even number maintaining the previous status.

The Tempi and Superpositions charts, however, remain unchanged throughout the entire work.

In the charts for sounds, 32 of the elements (the even numbers) are silences. The sounds themselves are single, aggregates (cf. the accord sometimes obtained on a prepared piano when only one key is depressed), or complex situations (constellations) in time (cf. the Chinese characters made with several strokes). Sounds of indefinite pitch (noises) are free to be used without any restriction. Those of definite pitch are taken as being 12 in number. In any chart for sounds (there being 32 sounds two squares (4 times 4) exist, one above the other. Reading horizontally or vertically one reads all 12 tones. In the case of the mobility of sounds (disappearance into history) 4 in succession also produce the 12 tones, with or without noises and repetitions. In the case of “interference” (the appearance of a sound having characteristics in common with the characteristics of the previously sounded situation) the characteristics that produce the interference are omitted from the newly appearing sound or cut short in the situation that has previously sounded. In the radio piece, numbers on a tuning dial are

² In the version published in Silence, the rest of this column and the music example from Music of Changes are omitted and replaced by the following paragraph:

Three coins tossed once yield four lines: three heads, broken with a circle; two tails and a head, straight; two heads and a tail, broken; three tails, straight with a circle. Three coins tossed thrice yield eight trigrams (written from the base up); chien, three straight; chien straight, broken, broken; han, broken, straight, broken; ⁶ broken, broken, straight, straight; ⁶ broken, broken, straight; tué, straight, straight, broken. Three coins tossed six times yield sixty-four hexagrams (two trigrams, the second written above the first) read in reference to a chart of the numbers 1 to 64 in a traditional arrangement having eight divisions horizontally corresponding to the eight lower trigrams and eight divisions vertically corresponding to the eight upper trigrams. A hexagram having lines with circles is read twice, first as written, then as changed. Thus, chien-chien, straight lines with circles, is read first as 1, then as kun-kun, 2; whereas chien-chien, straight lines without circles, is read only as 1. (Silence, pp. 57–8)

written instead of sounds, whatever happens being acceptable (station, static, silence).

In the charts for dynamics only 16 numbers produce changes (1, 5, 9, etc.); the others maintain the previous status. “These are either dynamic levels or accents (in the piano piece), levels, diminuendo and crescendi in the radio piece. In the piano piece, combinations of dynamic levels (e.g. p) indicate accents; in the case of a sound complex in time this may become a diminuendo or (by retrograde interpretation) a crescendo, or derived complex.

In the charts for durations there are 64 elements (since silence also has length). Through use of fractions (e.g. 1/3; 1/3 + 3/5 + 1/2) which are measured following a standard scale (e.g. 1.21 cm. equals 1), these durations are, for the purposes of musical composition, practically infinite in number. The note stem appears in space at a point corresponding to the appearance of the sound in time, that is if one reads at the tempo, or changing tempo indicated. Given fractions of a quarter, half, dotted half and whole note up to 1/8, simple addition of fractions is the method employed for the generating of durations. Because addition is the generating means employed, the durations may be said to be ‘segmented’ (e.g. ½ + 1/3). These segments may be permuted and/or divided by 2 or 3 (simple nodes).

A sound may then express the duration by beginning at any one of these several points.

A way of relating durations to sounds has been thought of in the course of this work but not in it utilized: to let 4 durations equal a specified length (on the chart, horizontally or vertically and in mobility four in succession) – this specified length being subject to change.

The chart for Tempi has 32 elements, the blanks maintaining the previous tempo.

Each one of the events (1 to 8) is worked from the beginning to the end of the composition. For instance, the 8th one is present from beginning to end but may sound only during a structural space that has been defined by a toss (for Superpositions) of 57 to 64. It is then not only present but possibly audible. It becomes actually audible if a sound is tossed (rather than a silence) and if the duration tossed is of a length that does not carry the sound beyond the structural space open to it.

It is thus possible to make a musical composition the continuity of which is free of individual taste and memory (psychology) and also of the literature and ‘traditions’ of the art. The sounds enter the time-space centered within themselves, unimpeded by service to any abstraction, their 360 degrees of circumfluence free for an infinite play of interpretation.

Value judgements are not in the nature of this work either as regards composition, performance or listening. The idea of relation (the idea: 2) being absent anything (the idea 1) may happen. A “mistake” is beside the point, for once anything happens it authentically is.
christian wolff

I Making music within small areas of pitches (3, 4, 5, 8 or 7 pitches have been used for individual pieces): The idea that simultaneous combinations of pitches, likewise overlapping combinations of pitches result in one “sound.”

For instance $1\frac{1}{2}$ (a combination of 2 pitches) – a sound, $1\frac{1}{2}$ (overlapping pitches) – a sound. Sounds of greater complexity are also possible.

e.g. $\left\{ 1, \frac{3}{2} \right\}$

A piece is then made with a gamut of these sounds, both simple and complex. Duration, timbre, and amplitude are free.

II Making music in a structure which fixes sounds in a preconceived space without regard for linear continuity. (The nature of the sounds: simple and complex as in previous situation; amplitude, timbre and duration are static or fixed however.) A structure is made with a number of measures having a square root. The structure is then planned within a square of these measures. A pattern or series of patterns is superimposed on the square, e.g.

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In the above this pattern is a smaller square of 9 measures. Four of these patterns overlapping at the edges fill up the area of this particular piece. The individual structures are then filled in with sounds. The order in which the measures are composed may vary.

III Making music with combined gamuts of timbre, pitch, amplitude, and duration. Structure as described in II. Pitch gamuts as described in I. Gamuts of timbre are made with combinations of varying numbers of instruments (e.g. flute, violin; flute, violin, cello; cello). Gamuts of amplitude are made with varying numbers and combinations of dynamics, e.g.

$\cdot f, f, f, f, f, f, f, f, f, f$