

Composition as Process: Indeterminacy

JOHN CAGE

In the late 1940s, John Cage (1912–1992; see also chaps. 6 and 33) discovered Zen Buddhism, which profoundly influenced his aesthetic worldview. His Zen practice sparked a philosophical commitment to “nonintention,” the affirmation of life as it is rather than the desire to improve upon it. In the wake of this realization, Cage developed a range of techniques that would allow him to relinquish control over his compositions and to place himself in the role of listener and discoverer rather than that of creator. In the 1950s, he introduced “indeterminacy” and “graphic notation” into contemporary musical practice, using coin tosses, the *I Ching*, star maps, and other devices to make compositional choices and to spark performers to make choices of their own. Cage’s famous “silent” piece *4’33”* (1952) aimed at allowing audiences to experience non-intentional sound as musical. Non-intention was also fostered by the technique of “simultaneity,” which called for several compositions to be performed at once, producing unexpected sonic conjunctions.

In this essay, Cage criticizes indeterminate compositions—such as his own *Music of Changes* (1951), composed by the tossing of coins—that are “indeterminate with respect to their composition” but “determinate with respect to their performance.” Such compositions do not allow the same freedom to the performer that they allow to the composer. Hence, Cage favors a more radical indeterminacy: compositions that are “indeterminate with respect to their performance.”

This article is the text of a lecture delivered in 1958, a year before the publication of Eco’s essay. Like Eco (see chap. 26), Cage begins with the example of Stockhausen’s *Klavierstück XI*. But Cage goes on to affirm a conception of the musical work that is more radically “open” than Eco’s, a conception of the musical work that would lead the way from “indeterminate” to “experimental” composition: compositions that are not *objects* but *processes*.

esses. This lecture was first published in Cage’s collection *Silence*, where it appeared in extremely small type and was prefaced by this note: “The excessively small type in the following pages is an attempt to emphasize the intentionally pontifical character of this lecture.”

This is a lecture on composition which is indeterminate with respect to its performance. The *Klavierstück XI* by Karlheinz Stockhausen is an example. *The Art of the Fugue* by Johann Sebastian Bach is an example. In *The Art of the Fugue*, structure, which is the division of the whole into parts; method, which is the note-to-note procedure; and form, which is the expressive content, the morphology of the continuity, are all determined. Frequency and duration characteristics of the material are also determined. Timbre and amplitude characteristics of the material, by not being given, are indeterminate. This indeterminacy brings about the possibility of a unique overtone structure and decibel range for each performance of *The Art of the Fugue*. In the case of the *Klavierstück XI*, all the characteristics of the material are determined, and so too is the note-to-note procedure, the method. The division of the whole into parts, the structure, is determinate. The sequence of these parts, however, is indeterminate, bringing about the possibility of a unique form, which is to say a unique morphology of the continuity, a unique expressive content, for each performance.

The function of the performer, in the case of *The Art of the Fugue*, is comparable to that of someone filling in color where outlines are given. He may do this in an organized way which may be subjected successfully to analysis. (Transcriptions by Arnold Schoenberg and Anton Webern give examples pertinent to this century.) Or he may perform his function of colorist in a way which is not consciously organized (and therefore not subject to analysis)—either arbitrarily, feeling his way, following the dictates of his ego; or more or less unknowingly, by going inwards with reference to the structure of his mind to a point in dreams, following, as in automatic writing, the dictates of his subconscious mind; or to a point in the collective unconscious of Jungian psychoanalysis, following the inclinations of the species and doing something of more or less universal interest to human beings; or to the “deep sleep” of Indian mental practice—the Ground of Meister Eckhart—identifying there with no matter what eventually. Or he may perform his function of colorist arbitrarily, by going outwards with reference to the structure of his mind to the point of sense perception, following his taste; or more or less unknowingly by employing some operation exterior to his mind: tables of random numbers, following the scientific interest in probability; or chance operations, identifying there with no matter what eventually.

The function of the performer in the case of the *Klavierstück XI* is not that of a colorist but that of giving form, providing, that is to say, the morphology of the continuity, the expressive content. This may not be done in an organized way: for form unvitalized by spontaneity brings about the death of all the other elements of the work. Examples are provided by academic studies which copy models with respect to all their compositional elements: structure, method, material, and form. On the other hand, no matter how rigorously controlled or conventional the structure, method, and materials of a composition are, that composition will come to life if the

form is not controlled but free and original. One may cite as examples the sonnets of Shakespeare and the *haikus* of Bashō. How then in the case of the *Klavierstück XI* may the performer fulfill his function of giving form to the music? He must perform his function of giving form to the music in a way which is not consciously organized (and therefore not subject to analysis), either arbitrarily, feeling his way, following the dictates of his ego, or more or less unknowingly, by going inwards with reference to the structure of his mind to a point in dreams, following, as in automatic writing, the dictates of his subconscious mind; or to a point in the collective unconscious of Jungian psychoanalysis, following the inclinations of the species and doing something of more or less universal interest to human beings; or to the "deep sleep" of Indian mental practice—the Ground of Meister Eckhart—identifying there with no matter what eventually. Or he may perform his function of giving form to the music arbitrarily, by going outwards with reference to the structure of his mind to the point of sense perception, following his taste; or more or less unknowingly by employing some operation exterior to his mind: tables of random numbers, following the scientific interest in probability; or chance operations, identifying there with no matter what eventually.

However, due to the presence in the *Klavierstück XI* of the two most essentially conventional aspects of European music—that is to say, the twelve tones of the octave (the frequency characteristic of the material) and regularity of beat (affecting the element of method in the composing means), the performer—in those instances where his procedure follows any dictates at all (his feelings, his automatism, his sense of universality, his taste)—will be led to give the form aspects essentially conventional to European music. These instances will predominate over those which are unknowing where the performer wishes to act in a way consistent with the composition as written. The form aspects essentially conventional to European music are, for instance, the presentation of a whole as an object in time having a beginning, a middle, and an ending, progressive rather than static in character, which is to say possessed of a climax or climaxes and in contrast a point or points of rest.

The indeterminate aspects of the composition of the *Klavierstück XI* do not remove the work in its performance from the body of European musical conventions. And yet the purpose of indeterminacy would seem to be to bring about an unforeseen situation. In the case of *Klavierstück XI*, the use of indeterminacy is in this sense unnecessary since it is ineffective. The work might as well have been written in all of its aspects determinately. It would lose, in this case, its single unconventional aspect: that of being printed on an unusually large sheet of paper which, together with an attachment that may be snapped on at several points enabling one to stretch it out flat and place it on the music rack of a piano, is put in a cardboard tube suitable for safekeeping or distribution through the mails.

This is a lecture on composition which is indeterminate with respect to its performance. The *Intersection 3* by Morton Feldman is an example. The *Music of Changes*¹ is not an example. In the *Music of Changes*, structure, which is the division of the whole into parts, method, which is the note-to-note procedure; form, which is the expressive content, the morphology of the continuity; and materials, the sounds and silences of the composition, are all determined. Though no two performances of the *Music of Changes* will be identical (each act is virgin, even

the repeated one, to refer to René Char's thought), two performances will resemble one another closely. Though chance operations brought about the determinations of the composition, these operations are not available in its performance. The function of the performer in the case of the *Music of Changes* is that of a contractor who, following an architect's blueprint, constructs a building. That the *Music of Changes* was composed by means of chance operations identifies the composer with no matter what eventually. But that its notation is in all respects determinate does not permit the performer any such identification: his work is specifically laid out before him. He is therefore not able to perform from his own center but must identify himself insofar as possible with the center of the work as written. The *Music of Changes* is an object more inhuman than human, since chance operations brought it into being. The fact that these things that constitute it, though only sounds, have come together to control a human being, the performer, gives the work the alarming aspect of a Frankenstein monster. This situation is of course characteristic of Western music, the masterpieces of which are its most frightening examples, which when concerned with humane communication only move over from Frankenstein monster to Dictator.

In the case of the *Intersection 3* by Morton Feldman, structure may be viewed as determinate or as indeterminate; method is definitely indeterminate. Frequency and duration characteristics of the material are determinate only within broad limits (they are with respect to narrow limits indeterminate); the timbre characteristic of the material, being given by the instrument designated, the piano, is determinate; the amplitude characteristic of the material is indeterminate. Form conceived in terms of a continuity of various weights—that is, a continuity of numbers of sounds, the sounds themselves particularized only with respect to broad range limits (high, middle, and low)—is determinate, particularly so due to the composer's having specified boxes as time units. Though one might equally describe it as indeterminate for other reasons. The term "boxes" arises from the composer's use of graph paper for the notation of his composition. The function of the box is comparable to that of a green light in metropolitan thoroughfare control. The performer is free to play the given number of sounds in the range indicated at any time during the duration of the box, just as when driving an automobile one may cross an intersection at any time during the green light. With the exception of method, which is wholly indeterminate, the compositional means are characterized by being in certain respects determinate, in others indeterminate, and an interpenetration of these opposites obtains which is more characteristic than either. The situation is therefore essentially non-dualistic; a multiplicity of centers in a state of non-obstruction and interpenetration.

The function of the performer in the case of the *Intersection 3* is that of a photographer who on obtaining a camera uses it to take a picture. The composition permits an infinite number of these, and, not being mechanically constructed, it will not wear out. It can only suffer disuse or loss. How is the performer to perform the *Intersection 3*? He may do this in an organized way which may be subjected successfully to analysis. Or he may perform his function of photographer in a way which is not consciously organized (and therefore not subject to analysis) either arbitrarily, feeling his way, following the dictates of his ego; or more or less unknowingly, by going inwards with reference to the structure of his mind to a point in dreams, following, as in automatic writing, the dictates of his subconscious

mind; or to a point in the collective unconsciousness of Jungian psychoanalysis, following the inclinations of the species and doing something of more or less universal interest to human beings; or to the "deep sleep" of Indian mental practice—the Ground of Meister Eckhart—identifying there with no matter what eventually. Or he may perform his function of photographer arbitrarily, by going outwards with reference to the structure of his mind to the point of sense perception, following his taste; or more or less unknowingly by employing some operation exterior to his mind: tables of random numbers, following the scientific interest in probability; or chance operations, identifying there with no matter what eventually.

One evening Morton Feldman said that when he composed he was dead; this recalls to me the statement of my father, an inventor, who says he does his best work when he is sound asleep. The two suggest the "deep sleep" of Indian mental practice. The ego no longer blocks action. A fluency obtains which is characteristic of nature. The seasons make the round of spring, summer, fall, and winter, interpreted in Indian thought as creation, preservation, destruction, and quiescence. Deep sleep is comparable to quiescence. Each spring brings no matter what eventually. The performer then will act in any way. Whether he does so in an organized way or in any one of the not consciously organized ways cannot be answered until his action is a reality. The nature of the composition and the knowledge of the composer's own view of his action suggest, indeed, that the performer act sometimes consciously, sometimes not consciously and from the Ground of Meister Eckhart, identifying there with no matter what eventually.

This is a lecture on composition which is indeterminate with respect to its performance. *Indices* by Earle Brown is not an example. Where the performance involves a number of players, as it does in the case of *Indices*, the introduction of a score—that is, a fixed relation of the parts—removes the quality of indeterminacy from the performance. Though tables of random numbers (used in a way which introduces bias), brought about the determinations of the composition (structure, method, materials, and form are in the case of *Indices* all thus determined), those tables are not available in its performance. The function of the conductor is that of a contractor, who, following an architect's blueprint, constructs a building. The function of the instrumentalists is that of workmen who simply do as they are bid. That the *Indices* by Earle Brown was composed by means of tables of random numbers (used in a way which introduces bias) identifies the composer with no matter what eventually, since by the introduction of bias he has removed himself from an association with the scientific interest in probability. But that the notation of the parts is in all respects determinate, and that, moreover, a score provides a fixed relation of these parts, does not permit the conductor or the players any such identification. Their work is laid out before them. The conductor is not able to conduct from his own center but must identify himself insofar as possible with the center of the work as written. The instrumentalists are not able to perform from their several centers but are employed to identify themselves insofar as possible with the directives given by the conductor. They identify with the work itself, if at all, by one remove. From that point of view from which each thing and each being is seen as moving out from its own center, this situation of the subservience of several to the directives of one who is himself controlled, not by another but by the work of another, is intolerable.

(In this connection it may be remarked that certain Indian traditional practices prohibit ensemble, limiting performance to the solo circumstance. This solo, in traditional Indian practice, is not a performance of something written by another but an improvisation by the performer himself within certain limitations of structure, method, and material. Though he himself by the morphology of the continuity brings the form into being, the expressive content does not reside in this compositional element alone, but by the conventions of Indian tradition resides also in all the other compositional elements.)

The intolerable situation described is, of course, not a peculiarity of *Indices*, but a characteristic of Western music, the masterpieces of which are its most imposing examples, which, when they are concerned not with tables of random numbers (used in a way which introduces bias) but rather with ideas of order, personal feelings, and the integration of these, simply suggest the presence of a man rather than the presence of sounds. The sounds of *Indices* are just sounds. Had bias not been introduced in the use of the tables of random numbers, the sounds would have been not just sounds but elements acting according to scientific theories of probability, elements acting in relationship due to the equal distribution of each one of those present—elements, that is to say, under the control of man.

This is a lecture on composition which is indeterminate with respect to its performance. The *4 Systems* by Earle Brown is an example. This piece may be performed by one or several players. There is no score, either for the solo circumstance or for that of ensemble. The quality of indeterminacy is for this reason not removed from the performance even where a number of players are involved, since no fixed relation of the parts exists. The original notation is a drawing of rectangles of various lengths and widths in ink on a single cardboard having four equal divisions (which are the systems). The vertical position of the rectangles refers to relative time. The width of the rectangles may be interpreted either as an interval where the drawing is read as two-dimensional, or as amplitude where the drawing is read as giving the illusion of a third dimension. Any of the interpretations of this material may be superimposed in any number and order and, with the addition or not of silences between them, may be used to produce a continuity of any time-length. In order to multiply the possible interpretations the composer gives a further permission—to read the cardboard in any of four positions: right side up, upside down, sideways, up and down.

This further permission alters the situation radically. Without it, the composition was highly indeterminate of its performance. The drawing was not consciously organized. Drawn unknowingly, from the Ground of Meister Eckhart, it identified the composer with no matter what eventually. But with the further permission—that of reading the cardboard right side up, upside down, sideways, up and down—the drawing became that of two different situations or groups of situations and their inversions. Inversions are a hallmark of the conscious mind. The composer's identification (though not consciously so according to him) is therefore no longer with no matter what eventually but rather with those events that are related by inversion. What might have been non-dualistic becomes dualistic. From a non-dualistic point of view, each thing and each being is seen at the center, and these centers are in a state of interpenetration and non-obstruction. From a dualistic point of view, on the other hand, each thing and each being is not seen; relationships are

seen and interferences are seen. To avoid undesired interferences and to make one's intentions clear, a dualistic point of view requires a careful integration of the opposites.

If this careful integration is lacking in the composition, and in the case of *4 Systems* it is (due to the high degree of indeterminacy), it must be supplied in the performance. The function of the performer or of each performer in the case of *4 Systems* is that of making something out of a store of raw materials. Structure, the division of the whole into parts, is indeterminate. Form, the morphology of the continuity, is also indeterminate. In given interpretations of the original drawing (such as those made by David Tudor sufficient in number to provide a performance by four pianists lasting four minutes) method is determinate and so too are the amplitude, timbre, and frequency characteristics of the material. The duration characteristic of the material is both determinate and indeterminate, since lines extending from note-heads indicate exact length of time, but the total length of time of a system is indeterminate. The performer's function, in the case of *4 Systems* is dual: to give both structure and form; to provide, that is, the division of the whole into parts and the morphology of the continuity.

Conscious only of his having made a composition indeterminate of its performance, the composer does not himself acknowledge the necessity of this dual function of the performer which I am describing. He does not agree with the view here expressed that the permission given to interpret the drawing right side up, upside down, and sideways, up and down obliges the integration of the opposites: conscious organization and its absence. The structural responsibility must be fulfilled in an organized way, such as might be subjected successfully to analysis. (The performers in each performance have, as a matter of record, given to each system lengths of time which are related as modules are in architecture: fifteen seconds and multiples thereof by two or four.) The formal responsibility must be fulfilled in one or several of the many ways which are not consciously organized. However, due to the identification with the conscious mind indicated in *4 Systems* by the presence of inversions, though not acknowledged by the composer, those ways which are not consciously organized that are adjacent to the ego are apt to be used, particularly where the performer wishes to act in a way consistent with the composition as here viewed. He will in these cases perform arbitrarily, feeling his way, following the dictates of his ego; or he will perform arbitrarily, following his taste, in terms of sense perception.

What might have given rise, by reason of the high degree of indeterminacy, to no matter what eventuality (to a process essentially purposeless) becomes productive of a time-object. This object, exceedingly complex due to the absence of a score, a fixed relation of the parts, is analogous to a futurist or cubist painting, perhaps, or to a moving picture where flicker makes seeing the object difficult.

From the account which appears to be a history of a shift from non-dualism to dualism (not by intention, since the composer does not attach to the inversions the importance here given them, but as a by-product of the action taken to multiply possibilities) the following deduction may be made: To ensure indeterminacy with respect to its performance, a composition must be determinate of itself. If this indeterminacy is to have a non-dualistic nature, each element of the notation must have a single interpretation rather than a plurality of interpretations which, coming from a single source, fall into relation. Likewise—though this is not relevant to 4

Systems—one may deduce that a single operation within the act of composition itself must not give rise to more than a single notation. Where a single operation is applied to more than one notation, for example to those of both frequency and amplitude characteristics, the frequency and amplitude characteristics are by that operation common to both brought into relationship. These relationships make an object; and this object, in contrast to a process which is purposeless, must be viewed dualistically. Indeterminacy when present in the making of an object, and when therefore viewed dualistically, is a sign not of identification with no matter what eventually but simply of carelessness with regard to the outcome.

This is a lecture on composition which is indeterminate with respect to its performance. *Duo II for Pianists* by Christian Wolff is an example. In the case of *Duo II for Pianists*, structure, the division of the whole into parts, is indeterminate. (No provision is given by the composer for ending the performance.) Method, the note-to-note procedure, is also indeterminate. All the characteristics of the materials (frequency, amplitude, timbre, duration) are indeterminate within gamut limitations provided by the composer. The form, the morphology of the continuity, is unpredictable. One of the pianists begins the performance; the other, noticing a particular sound or silence which is one of a gamut of cues, responds with an action of his own determination from among given possibilities within a given time bracket. Following this beginning, each pianist responds to cues provided by the other, letting no silence fall between responses, though these responses themselves include silences. Certain time brackets are in zero time. There is no score, no fixed relation of the parts. *Duo II for Pianists* is evidently not a time-object, but rather a process the beginning and ending of which are irrelevant to its nature. The ending, and the beginning, will be determined in performance, not by exigencies interior to the action but by circumstances of the concert occasion. If the other pieces on the program take forty-five minutes of time and fifteen minutes more are required to bring the program to a proper length, *Duo II for Pianists* may be fifteen minutes long. Where only five minutes are available, it will be five minutes long.

The function of each performer in the case of *Duo II for Pianists* is comparable to that of a traveler who must constantly be catching trains the departures of which have not been announced but which are in the process of being announced. He must be continually ready to go, alert to the situation, and responsible. If he notices no cue that fact itself is a cue calling for responses indeterminate within gamut limitations and time brackets. Thus he notices (or notices that he does not notice) a cue, adds time bracket to time bracket, determines his response to come (meanwhile also giving a response), and, as the second hand of a chronometer approaches the end of one bracket and the beginning of the next, he prepares himself for the action to come (meanwhile still making an action), and, precisely as the second hand of a chronometer begins the next time bracket, he makes the suitable action (meanwhile noticing or noticing that he does not notice the next cue), and so on. How is each performer to fulfill this function of being alert in an indeterminate situation? Does he need to proceed cautiously in dualistic terms? On the contrary, he needs his mind in one piece. His mind is too busy to spend time splitting itself into conscious and not-conscious parts. These parts, however, are still present. What has happened is simply a complete change of direction. Rather than making the not-conscious parts face the conscious part of the mind,

the conscious part, by reason of the urgency and indeterminacy of the situation, turns towards the not-conscious parts. He is therefore able, as before, to add two to two to get four, or to act in organized ways which on being subjected to analysis successfully are found to be more complex. But rather than concentrating his attention here, in the realm of relationships, variations, approximations, repetitions, logaritms, his attention is given inwardly and outwardly with reference to the structure of his mind to no matter what eventually. Turning away from himself and his ego-sense of separation from other beings and things, he faces the Ground of Meister Eckhart, from which all impermanencies flow and to which they return. "Thoughts arise not to be collected and cherished but to be dropped as though they were void. Thoughts arise not to be collected and cherished but to be dropped as though they were rotten wood. Thoughts arise not to be collected and cherished but to be dropped as though they were pieces of stone. Thoughts arise not to be collected and cherished but to be dropped as though they were the cold ashes of a fire long dead." Similarly, in the performance of *Duo II for Pianists*, each performer, when he performs in a way consistent with the composition as written, will let go of his feelings, his taste, his automatism, his sense of the universal, not attaching himself to this or to that, leaving by his performance no traces, providing by his actions no interruption to the fluency of nature. The performer therefore simply does what is to be done, not splitting his mind in two, not separating it from his body, which is kept ready for direct and instantaneous contact with his instrument.

This is a lecture on composition which is indeterminate with respect to its performance. That composition is necessarily experimental. An experimental action is one the outcome of which is not foreseen. Being unforeseen, this action is not concerned with its excuse. Like the land, like the air, it needs none. A performance of a composition which is indeterminate of its performance is necessarily unique. It cannot be repeated. When performed for a second time, the outcome is other than it was. Nothing therefore is accomplished by such a performance, since that performance cannot be grasped as an object in time. A recording of such a work has no more value than a postcard; it provides a knowledge of something that happened, whereas the action was a non-knowledge of something that had not yet happened.

There are certain practical matters to discuss that concern the performance of music the composition of which is indeterminate with respect to its performance. These matters concern the physical space of the performance. These matters also concern the physical time of the performance. In connection with the physical space of the performance, where that performance involves several players (two or more), it is advisable for several reasons to separate the performers one from the other, as much as is convenient and in accord with the action and the architectural situation. This separation allows the sounds to issue from their own centers and to interpenetrate in a way which is not obstructed by the conventions of European harmony and theory about relationships and interferences of sounds. In the case of the harmonious ensembles of European musical history, a fusion of sound together as possible, so that their actions, productive of an object in time, might be effective. In the case, however, of the performance of music the composition of which is indeterminate of its performance so that the action of the players is pro-

ductive of a process, no harmonious fusion of sound is essential. A non-obstruction of sounds is of the essence. The separation of players in space when there is an ensemble is useful towards bringing about this non-obstruction and interpenetration, which are of the essence. Furthermore, this separation in space will facilitate the independent action of each performer, who, not constrained by the performance of a part which has been extracted from a score, has turned his mind in the direction of no matter what eventually. There is the possibility when people are crowded together that they will act like sheep rather than nobly. That is why separation in space is spoken of as facilitating independent action on the part of each performer. Sounds will then arise from actions, which will then arise from their own centers rather than as motor or psychological effects of other actions and sounds in the environment. The musical recognition of the necessity of space is tardy with respect to the recognition of space on the part of the other arts, not to mention scientific awareness. It is indeed astonishing that music as an art has kept performing musicians so consistently huddled together in a group. It is high time to separate the players one from another, in order to show a musical recognition of the necessity of space, which has already been recognized on the part of the other arts, not to mention scientific awareness. What is indicated, too, is a disposition of the performers, in the case of an ensemble in space, other than the conventional one of a huddled group at one end of a recital or symphonic hall. Certainly the performers in the case of an ensemble in space will be disposed about the room. The conventional architecture is often not suitable. What is required perhaps is an architecture like that of Miles van der Rohe's School of Architecture at the Illinois Institute of Technology. Some such architecture will be useful for the performance of composition which is indeterminate of its performance. Nor will the performers be huddled together in a group in the center of the audience. They must at least be disposed separately around the audience, if not, by approaching their disposition in the most radically realistic sense, actually disposed within the audience itself. In this latter case, the further separation of performer and audience will facilitate the independent action of each person, which will include mobility on the part of all.

There are certain practical matters to discuss that concern the performance of music the composition of which is indeterminate with respect to its performance. These matters concern the physical space of the performance. These matters also concern the physical time of the performance. In connection with the physical time of the performance, where that performance involves several players (two or more), it is advisable for several reasons to give the conductor another function than that of beating time. The situation of sounds arising from actions which arise from their own centers will not be produced when a conductor beats time in order to unify the performance. Nor will the situation of sounds arising from actions which arise from their own centers be produced when several conductors beat different times in order to bring about a complex unity to the performance. Beating time is not necessary. All that is necessary is a slight suggestion of time, obtained either from glancing at a watch or at a conductor who, by his actions, represents a watch. Where an actual watch is used, it becomes possible to foresee the time, by reason of the steady progress from second to second of the second hand. Where, however, a conductor is present, who by his actions represents a watch which moves not mechanically but variably, it is not possible to foresee the time, by reason of

the changing progress from second to second of the conductor's indications. Where this conductor, who by his actions represents a watch, does so in relation to a part rather than a score—to, in fact, his own part, not that of another—his actions will interpenetrate with those of the players of the ensemble in a way which will not obstruct their actions. The musical recognition of the necessity of time is tardy with respect to the recognition of time on the part of broadcast communications, radio, television, not to mention magnetic tape, not to mention travel by air, departures and arrivals from no matter what point at no matter what time, to no matter what point at no matter what time, not to mention telephony. It is indeed astonishing that music as an art has kept performing musicians so consistently beating time together like so many horseback riders huddled together on one horse. It is high time to let sounds issue in time independent of a beat in order to show a musical recognition of the necessity of time which has already been recognized on the part of broadcast communications, radio, television, not to mention magnetic tape, not to mention travel by air, departures and arrivals from no matter what point at no matter what time, to no matter what point at no matter what time, not to mention telephony.

NOTES

1. [A 1951 composition by Cage composed in part by tossing coins in the manner of the *I Ching*, the ancient Chinese book of oracles.—Eds.]

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Visual Sounds: On Graphic Scores

CHRISTOPH COX

In this short piece, philosopher, critic, and aesthetic theorist Christoph Cox (1965–) presents an introduction to “graphic scores”—scores that forgo traditional musical symbols in favor of novel graphic elements that are intended to stimulate open-ended musical performance and improvisation. “Graphic scores” lead to a radical indeterminacy that pushes the traditional musical score to its limit, beyond which composition gives way to free improvisation. Such scores also highlight the synaesthetic aspects of musical notation, which calls upon musicians to render visual symbols as sounds. As such, they represent a prominent aspect of contemporary art: the shift to multimedia aesthetic practices.

“All art constantly aspires towards the condition of music,” the British aesthete Walter Pater wrote in 1888. Pater’s remark captured the spirit of 19th-century aesthetics, which glorified music as the most ethereal and transcendent of the arts. Less than a century after Pater’s declaration, however, this view was turned on its head, as avant garde composers began imagining a music that aspired to the condition of painting. Morton Feldman, John Cage, Cornelius Cardew, Anthony Braxton and others dedicated their works to painters and started to conceive the visual aspect of musical composition—the writing of a score—no longer merely as a means to an end but as an end in itself. Abandoning traditional musical notation, Earle Brown’s score for *December 1952* (1952)—a single white page with a scattering of horizontal and vertical bars—bears a striking resemblance to Piet Mondrian’s early abstract canvases. Recalling the Constructivist paintings of Kasimir Malevich, the lines, angles and circles that make up the score for Cardew’s massive *Treatise* (1963–67) are designed to “produce . . . in the reader, without any sound, something analogous to the experience of music.” Of his “visually notated” *Composition 10*—all asterisks, arrows, and doodles—Braxton wrote: “A given per-