CHAOS AND CRITICISM

CHAOS AND CRITICISM:

TOWARD AN AESTHETIC OF THE OPEN MUSICAL WORK

By

TIMOTHY JAMES JONES, B.Mus

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AUTHOR: Timothy James Jones, B.M. (Indiana University)

SUPERVISOR: Dr. Paul Rapoport

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ABSTRACT

Open works represent a significant deviation from traditional methods of musical composition and presentation. This thesis examines their evolution, explores their defining characteristics, presents methods by which they may be analyzed, and reflects upon their impact on musical aesthetics and criticism.

The open work's development in the twentieth-century is documented in Chapter One, with particular emphasis placed on extra-musical, artistic, and cultural events which influenced its emergence. Chapter Two is devoted to defining the open work in terms of form and content. In doing so, it is shown that there are two types of open work.

Chapter Three presents an analysis of two open works: Earle Brown's *Available Forms I* and John Cage's *Variations III*. Chapter Four positions the open work in terms of its philosophical perspective, demonstrating that while openness represents a re-alignment of the traditional musical process, it does not deprive the listener of critical or evaluative resources.

ACKNOWLEDGEMENTS

Alas, such a list as this would, if written, be as long as the conquests of Don Giovanni. However, embracing brevity, I should like to express special thanks to those who have made my work on this text so rewarding.

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THE HISTORICAL POSITION OF THE OPEN WORK

INTRODUCTION

As the twentieth century draws to a close, increasing historical distance allows one to observe the decades of the 1950's and 1960's with greater perspective. It was during those years that musicians, with painters, writers, and dancers, embraced irrational, subjective impulses, creating art products in which *newness* and *unrepeatability* acquired aesthetic dimensions. The painter Willem de Kooning's statement that "the past does not influence me, I influence it,"[1] and John Cage's "music means nothing as a 'thing',"[2] are both part of a larger movement which can be described as, to paraphrase D.H. Lawrence, "life surging itself into utterance at its very well-head."[3] This movement's impact on music making is evidenced by the large number of works written during these

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[1]John Cage, *Silence: Lectures and Writings by John Cage* (Middletown, Connecticut: Wesleyan University Press, 1973), p. 67.

[2]Ibid., p. 64.

[3]D.H. Lawrence, *Selected Literary Criticism*, ed. A Beal (New York: Viking Press, 1956), in Ekbert Faas, ed., *Towards a New American Poetics: Essays & Interviews* (Santa Barbara: Black Sparrow Press, 1978), p. 12.

decades which are *indeterminate* in performance. A composition ceased to be an object in the traditional sense of one fairly specific sequence of sounds, and instead became a kit, labyrinth, or pattern of visual stimuli which called upon each performer to enter its private design and create of it a unique aural image. Such works have been, and will be, referred to as *open* by virtue of the inherent possibilities which they contain.

In examining the emergence of this type of work, certain things become clear. First, the new philosophy towards music grounded itself in an opposition to traditional notions of form. Second, open works reflect a diminishing concern for a musical work as an "object" which can be preserved. Third, open works transfer to the performer certain aspects of authority formerly limited to the composer/creator. Finally, because the significance of the open work resides in the performer's choice of *possible* events, and because this is in most cases an entirely private procedure, the listener is deprived of a crucial link in the musical process.[4] It had been hitherto understood that a musical work arrived at the ears of a listener through a performer who, to a large extent, left the composer's intentions fully intact in the rendering of the final product. However, a listener can no longer appreciate the full significance of an open work in one hearing,

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[4]This particular point is discussed in detail in Chapter 4.

because that hearing represents only one glance at a startlingly complex puzzle.

This first chapter will be concerned with the development of openness as a musical phenomenon during the decades of the 1950's and 1960's. But although it was during these decades that the open work achieved notariety as an avant-garde status symbol, the beginnings of aleatory can be noted some years earlier.[5] The American experimental tradition, which is embodied in the works of Charles Ives, Henry Cowell, Charles Seeger, and others, includes examples of dissonant counterpoint, polytempo, polyrhythm, and notational experiments which signal this change. Seeger's call for "accidental heterophony," in 1930, such as "a radio reception of Beethoven's *Eroica* intruded upon by a phonograph record of a Javanese gamelan,"[6] Cowell's "dance forms" such as *Ritournelle* from 1945,

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[5]The earliest use of "chance" in the creation of compositions was the "musical dice games" of the eighteenth century. Compositions by Johann Philipp Kirnberger (1757), Carl Philipp Emanuel Bach (1754-78) and Piere Hoegi (1770), not to mention Haydn and Mozart (disputed) "made it possible for the person ignorant of music to write minuets, marches, polonaises, contredances, waltzes and so forth by selecting bits of prefabricated music through the use of chance operations [dice or cards]." However, such works did not employ chance procedures during their performance, and generally involved only the manipulation of melody over given harmonies. In the "Age of Reason," such games were popular with the galant middle class, and satisfied a desire to play with mathematics. Stephen A. Hedges, "Dice Music in the Eighteenth Century" *Music and Letters* 59 (1978): 180-187.

[6]Charles Seeger, "On Dissonant Counterpoint," *Modern Music* 7 (1930): 28.

and even Ives' *Hallowe'en* in 1906 (which allows instrumentation and dynamics to be determined by the performers) are all part of a pre-Cagean movement which set the stage for the explosion of experiments after 1950. David Nicholls notes that the American experimental tradition

> is rooted not just in a desire to explore new compositional horizons, but also in a (conscious or subconscious) realization that musical unity can -- and should -- be created through stylistic diversity, both individually and collectively, within a work or between works. . .The concept of plurality is as applicable to the methods of organizing materials as to the materials themselves, an attitude which sets experimentalists fundamentally apart from those concerned merely with one tradition or language.[7]

Openness was also anticipated in Europe by musical and cultural events. Examples include the use of noise as musical material by Futurist composers (Luigi Russolo and Francesco Pratella), the interaction of sound masses in Edgar Varèse's *Poème électronique, Déserts,* and *Density 21.5*, and his belief that "form was 'a resultant -- the result of a process,' rather than 'a pattern to be followed, a mold to be filled,'"[8] and the techniques of Surrealism and Dada, which exploited chance techniques.[9]

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[7]Nicholls, *Experimental Music*, p. 220.

[8]Ibid., p. 52.

[9]Ibid.

The importance of scientific discoveries in the 1920's was noted by Stockhausen, who in 1976 said that "the most essential sources of the new principles of form are the European tendencies of natural science and mathematics originating from quantum physics."[10] Quantum theory arose as a result of experiments by physicists Werner Heisenberg, Erwin Schrodinger, Albert Einstein, Niels Bohr, and others, and contradicted basic assumptions used by classical physicists in the description of the physical world.[11] Classical physics asserted that any physical object, be it a planet or a sub-atomic particle, could be described, in terms of its position and momentum, in such a way that, given enough information, its future position in space could be precisely predicted. Quantum theory, on the other hand, states that "a particle may, in various (different!) ways 'be in two places at once'" while following a *probable* rather than a *deterministic* path:[12]

> Classically, a particle is determined by its position in space, and, in order to know what it is going to do next, we also need to know its velocity (or, equivalently, its momentum). Quantum mechanically, *every single*

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[10]Karlheinz Stockhausen, in Faas, "Interview," p. 191.

[11]Roger Penrose, *The Emperor's New Mind: Concerning Computers, Minds, and the Laws of Physics* (New York: Oxford University Press, 1989), p. 213.

[12]Ibid., p. 256.

> *position* that the particle might have is an 'alternative' available to it.[13]

The "alternatives" available to a particle are described by the symbol Ψ, called the *wave function* of the particle, which represents the collection of complex and not classically describable variables which affect the particle's path. A *wave* is "a 'disturbance', either of some continuous medium (field), or of some substance composed of myriads of tiny point-like particles."[14] Classically, the term *wave* was used only to describe in terms of probability the action of large groups, but quantum experiments show that an individual particle "behaves like a wave entirely on its own."[15] In the "archetypical quantum mechanical experiment," one particle (a light photon) is fired through a pair of narrow slits to a screen behind. The *wave function* aspect of the particle allows it to travel through both slits, recombining itself on the other side in a new set of possibilities. "It is really not that light sometimes behaves as particles and sometimes as waves. It is that *each individual particle* behaves in a wavelike way entirely on its own; and

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[13]Ibid., p. 243.

[14]Ibid., p. 235.

[15]Ibid.

different alternative possibilities open to a particle can sometimes cancel one another out!"[16]

Philosophically, the position posited by quantum mechanics is enigmatic. Since it would appear that it is physically impossible to determine the actions of a particle within the boundaries of possibilities denoted by its *wave function*, some, such as Bohr, "would say that there is *no* objective picture" of what the world "is."[17] Roger Penrose, however, takes a slightly different view. He believes that "the *physical reality* of the particle's location is, indeed, its quantum state."[18] This is to say that the reality of matter, its ontological state, is, within boundaries, indeterminate. Heisenberg takes a similar stance in describing the impossibility of predicting sub-atomic events in the manner of classical physics, presenting what has been called the uncertainty principle. "It is impossible for us to measure one of these qualities [position or momentum] without significantly altering the other merely as a by-product of our measuring."[19] Thus,

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[16]Ibid.

[17]Ibid., p. 226.

[18]Ibid., p. 243.

[19]Joseph Herring Blass, *Indeterminacy as a Factor in Scientific and Artistic Attitudes of the Twentieth Century* (Florida State University: PhD Dissertation, 1968), p. 19.

according to Heisenberg, epistemologically and ontologically we live in a world in which uncertainty and indeterminacy play an integral part.

AMERICAN MUSIC, 1950-1960

This section will discuss the important figures in American music with regard to open form between 1950 and 1960: John Cage, Christian Wolff, Morton Feldman, and Earle Brown. Since much of this section is devoted to Cage, a brief survey of influences and musical development before 1950 is essential. Cage is a seminal figure in the move towards musical openness, and "has become the *spiritus rector* of twentieth century avant-garde art."[20] He was instructed by an eclectic array of teachers, including Cowell, Seeger, Adolph Weiss, and Arnold Schoenberg, and has in turn influenced musicians such as Feldman, Wolff, Brown, Pierre Boulez, and Karlheinz Stockhausen, and important figures in the conceptual art movement like George Brecht, Allan Kaprow, and Jackson MacLow. Cage's unique musical philosophy began to mature in the late 1940's, as his music began to manifest two new and important qualities: 1) an acceptance of all available sounds as musical material and 2) a philosophy of non-intention.

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[20]Margaret Leng Tan, "Taking a Nap, I Pound the Rice": Eastern Influences on John Cage," in *John Cage at Seventy-Five*, eds. Richard Flemming and William Duckworth (Lewisburg: Bucknell University Press, 1989), p. 54.

During the 1940's Cage, like Cowell, composed music for dance, finding it an invigorating excuse to disregard "the cumbersome, top-heavy structure of musical prohibitions," fostering rather a "healthy lawlessness," which allowed for the use of any and all available sounds.[21] Judging from his compositional output from 1940-1947, most of these new sounds were given over to percussion instruments or modified traditional instruments.[22] *Bacchanale* (1940), one of Cage's earliest works for dance, was written for prepared piano. A piano prepared according to Cage's instructions becomes a small percussion group itself, and is a good example of what he describes as "a contemporary transition from keyboard-influenced music to the all-sound music of the future."[23]

Bacchanale is comprised of twelve prepared notes which are varied rhythmically or thematically. Each note is prepared by inserting fibrous weather stripping, bolts, or other such similarly small hardware between the strings of the piano. The end effect of the modifications is a collection of sounds of indeterminate pitch. Furthermore, Nicholls notes

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[21]Cage, *Silence*, pp. 87-88.

[22]During this time, Cage wrote no fewer than twenty-one works for percussion and eleven works for prepared piano. Charles Hamm, "John Cage," in *Twentieth-century American Masters* (London: Macmillan Press Ltd., 1987), pp. 278-279.

[23]Cage, *Silence*, p. 5.

that in *Bacchanale* and in percussion music, "the link between notation and sound becomes even more tenuous,"[24] due in part to the increased responsibility and inherent indeterminacy in the preparation of the instrument. Accompanying Cage's forward-looking acceptance of sounds for sounds' sake was a philosophy of non-intention. Beginning with *Sonatas and Interludes* (1946-48), his music demonstrated an increasing propensity towards the separation of musical materials from formal considerations. For example, about *Sonatas and Interludes*, Cage remarked:

> Nothing about the structure was determined by the materials which were to occur in it; it was conceived, in fact, so that it could be as well expressed by the absence of these materials as their presence.[25]

And, of *String Quartet in Four Parts* (1949-1950), Deborah Campana notes:

> According to Cage, the "continuity" in *String Quartet* or the manner in which these simultaneities [collections of pitches] are connected through the compositional process, remains free in all movements except the third movement.[26]

The non-intentional selection of materials became more marked in *Concerto for Prepared Piano and Chamber Orchestra* (1950) and *Sixteen Dances*, in which Cage uses pre-compositional matrices or charts to determine musical

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[24]Nicholls, *Experimental Music*, p. 212.

[25]Cage, *Silence*, pp. 19-20.

[26]Deborah Campana, *Form and Structure in the Music of John Cage* (Northwestern University: PhD Dissertation, 1985), p. 68.

content. The most famous of these charts involves the use of the *I Ching* (*Example 1*) in works such as *Music of Changes* (1951) and *Imaginary Landscape no. 4*. Writing to Boulez about the latter work, Cage said:

> Every element is the result of tossing coins, producing hexagrams which give number in the *I Ching* chart: 6 tosses for a sound, 6 for its duration, 6 for its amplitude. The toss for tempi gives also the number of charts to be superimposed in that particular division of the polyphonic structure. The rhythmic structure is now magnificent because it allows for different tempi: accelerandos, ritards, etc. The radio piece is not only tossing of coins but accepts as its sound those that happen in the air at the moment of performance.[27]

These works, besides realizing Charles Seeger's vision of accidental heterophony, represent the beginning of Cage's exclusively aleatoric compositions.

Cage's philosophy can be described as a philosophy of the present. Although he had an affinity for certain composers of the past, such as Mozart and Ives, he was devoted to "the bringing of new things into being."[28] In an interview with Roger Reynolds in 1961, Cage reflected:

> Oh, yes, I'm devoted to the principle of originality -- not originality in the egoistic sense, but originality in the sense of doing something that is necessary to do. Now,

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[27]Cage to Boulez, "22 mai 1951", photocopy of holograph letter no. 18, Evanston: John Cage Archives, as quoted in Campana, *Music of John Cage*, p. 100.

[28]Richard Kostelanetz, *Conversing with Cage* (New York: Limelight Editions, 1988), p. 207.

MATRIX OF HEXAGRAM NUMBERS

Go to the column under the upper trigram. Read down until you reach the row marked by the lower trigram.

LOWER \ UPPER	1	2	3	4	5	6	7	8
1	1	11	34	5	26	9	14	43
2	12	2	16	8	23	20	35	45
3	25	24	51	3	27	42	21	17
4	6	7	40	29	4	59	64	47
5	33	15	62	39	52	53	56	31
6	44	46	32	48	18	57	50	28
7	13	36	55	63	22	37	30	49
8	10	19	54	60	41	61	38	58

Example 1. Matrix of hexagram numbers for *I Ching*, from Kerson and Rosemary Huang, *I Ching* (New York: Workman Publishing, 1987), p. 202. Six coin tosses are required for one reading of the matrix: three for the vertical row and three for the horizontal row. Cage replaced the numbers in this chart (which refer to a specific omen or prophesy) with musical data (pitches, rhythms, etc.) in *Music of Changes* and other works.

> obviously, the things that it is necessary to do are not the things that have been done, but the ones that have not yet been done. This applies not only to other people's work, but seriously to my own work. That is to say, if I have done something, then I consider it my business not to do that, but to find what must be done next.[29]

Newness and *non-intention* are hallmarks of Cage's works and writings, and are the antithesis of the *musical masterpiece*, in which the work serves as a vehicle for expression:

> Formerly, one was accustomed to thinking of art as something better organized than life that could be used as an escape from life. The changes that have taken place in this century, however, are such that art is not an escape from life, but rather an introduction to it.[30]

When asked by Gagne and Caras in 1980 how one should listen to music in which intellectual or emotional content is not present, he replied:

> They [people] should listen. Why should they imagine that sounds are not interesting in themselves? I'm always amazed when people say, "Do you mean it's just sounds?" How they can imagine that it's anything but sounds is what's so mysterious.
>
> They're convinced that it's a vehicle for pushing the ideas of one person out of his head into somebody else's head, along with -- in a good German situation -- his feelings, in a marriage that's called the marriage of

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[29]Ibid.

[30]Ibid., p. 211.

> Form and Content. That situation is, from my point of view, absolutely alarming.[31]

Such ideas are no doubt influenced by his contact, in the late 1940's, with various teachers of Indian, Oriental, and Zen philosophy, such as Gita Sarabhai, Daisetz Teitaro Suzuki, and Ananda K. Coomaraswamy. Such ideas as the abnegation of the ego, interest in process over product, and "the imitation of nature in her manner of operation," all contributed to Cage's transition, completed in 1952, towards aleatoric composing methods.[32]

Cage points to a number of artists who influenced his development, as well as admitting that those influences changed over time. e. e. cummings, Ezra Pound, T. S. Eliot, James Joyce, and Gertrude Stein were early influences. "cummings was fascinating because of the typography,"[33] and even though cummings "dropped" from Cage's interest, typographical experiments are noticeable in his own writings. Campana includes Antonin Artaud as an influence, noting that Artaud "recognized that the act as well as the moment and spirit of creation are more vital and relevant to the spectator than the established master-work."[34] This

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[31]Ibid., p. 234.

[32]Tan, *Influences on Cage*, pp. 40-42.

[33]Kostelanetz, *Conversing with Cage*, p. 45.

[34]Antonin Artaud, *The Theater and its Double*, transl. by Mary Caroline Richards (NY: Grove Press, 1958), as quoted in Campana, *Music*

thought was reflected in Cage's "first happening," a multi-media theater event produced by him while at Black Mountain College in 1952.[35]

Cage's *4'33"*, written shortly after this "happening," reflects the influence of visual artist Robert Rauschenberg's *White Paintings*, which are completely blank canvases. Rauschenberg was part of a trio of artists, including Larry Rivers and Jasper Johns, who have been labeled *Neo-Dadaists* or *Proto-Pop* artists.[36] Partially as a reaction to the "high seriousness of abstract expressionism," Rauschenberg sought to "act in the gap between art and life," developing an "aesthetics of heterogeneity" through his use of environmental objects in works such as *First Landing Jump*.[37] Johns reflected a similar philosophy, reportedly stating:

> that a painting of his should be accepted as an object, 'the same way you look at a radiator', leaving in the air both the distinction between a work of art and an everyday object, and the role of the observer in approaching a decision on the problem.[38]

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of John Cage, p. 94.

[35]Campana, *Music of John Cage*, p. 92.

[36]*Techniques of the Great Masters of Art* (Secaucus, NJ: Chartwell Books Inc., 1985), p. 504.

[37]Ibid.

[38]Ibid., p. 480.

4'33" is Cage's most infamous work, and received cultural derision nearly from its inception. In it, a performer is required to sit with instrument on stage while playing nothing for the duration of the work. Cage describes the creation of *4'33"* in this way:

> i built up each movement by means of short silences put together it seems idiotic but that's what i did i didn't have to bother with the pitch tables or the amplitude tables all i had to do was work with the durations.[39]

Although it was first performed at Woodstock, New York on August 29, 1952, it was the performance in April of 1954 in New York City that first brought the work to public attention.[40] The *New York Herald Tribune* had this to say:

> The event led one newspaper to headline its review, 'Look, Ma, No Hands' and another reviewer to comment that the work created immense difficulties since 'the public cannot always be sure just whose music is not being played'.[41]

And Margaret Leng Tan notes that

> Such a 'performance' sparked off a barrage of outraged indignation as well as admiration of the highest order,

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[39]John Cage, *I-VI* (Cambridge: Harvard University Press, 1990), pp. 20-21. The quote is a transcription of a question and answer session given by Cage in 1990. The un-punctuated and un-capitalized text is intentional.

[40]Campana, *Music of John Cage*, p. 95.

[41]Jay S. Harrison, "The Music Season: Firsts and Failures," *New York Herald Tribune*, 23 May 1954, as quoted in Ibid., p. 95.

> depending on whether one perceived it as the ultimate Dada joke or the ultimate Zen statement.[42]

But this work is notable not only for its cultural shock value. "In *4'33"*, the performer as artist has been absorbed into the larger context of the environment as artist."[43] In a further reflection of Cage's acceptance of Eastern values, "*4'33"* is an exercise in Zen meditation, experiencing the 'now' moment, encouraging us to listen and explore the entire gamut of sound contained within its spatial and temporal boundaries."[44] Tan notes that "time and space have never been regarded as separate entities in Japanese thinking," and that for Cage, all events are unified simply by their "common occurrence within the same space and same time span."[45]

In the early 1950's, Cage developed close ties with the composers Feldman and Wolff. The performances of these three composers in New York soon attracted the attention of the critic Virgil Thompson, who in 1952 referred to them as "Cage and his associates."[46] Similarly, Cage recalls an introduction by Henry Cowell at a concert, where Cowell referred to them as

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[42]Tan, *Eastern Influences*, p. 48.

[43]Ibid., p. 53.

[44]Ibid., p. 49.

[45]Ibid., pp. 50-51.

[46]Virgil Thompson, "The Abstract Composers," *New York Herald Tribune* 3 February 1952, as quoted in Campana, *Music of John Cage*, p. 74.

"composers who were getting rid of glue."[47] All three composers worked closely together, living, in fact, in the same building in New York, and all shared the vision of non-intention vociferously projected by Cage in his music and writings. For example, Feldman, in 1950-51, wrote a series of works entitled *Projections*. His aim in writing these works was

> not to "compose" but to project sounds into time, free from a compositional rhetoric that had no place here. In order not to involve the performer (i.e. myself) in memory (relationships), and because the sounds no longer had an inherent symbolic shape, I allowed for indeterminacies in regard to pitch.[48]

Wolff, who came to Cage as a student in the early 1950's, spoke similarly:

> One day I said to myself that it would be better to get rid of all that -- melody, rhythm, harmony, etc. [. . .] We had to liberate ourselves from the direct and preemptory consequence of intention and effect, because the intention would always be our own and would be circumscribed, when so many other forces are evidently in action in the final effect.[49]

In 1952, Brown assisted Cage in the construction of *Williams Mix*, a work for magnetic tape constructed with the aid of the *I Ching*.[50] Shortly thereafter, he was admitted to the Cage *group*, following a

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[47]Cage, *Silence*, p. 71.

[48]Morton Feldman, quoted in Michael Nyman, *Experimental Music: Cage and Beyond* (London: Studio Vista, 1974), p. 44.

[49]Ibid., p. 42.

[50]Campana, *Music of John Cage*, p. 91.

conciliation with Feldman.[51] Brown's early training included performing in a jazz band, studies of the theories of Joseph Schillinger, and private studies with composer Roslyn Brogue Henning. However, he was influenced primarily by visual artists such as Jackson Pollock and Alexander Calder, while recognizing the significance of indeterminacy in the sciences. In a 1986 interview, he lists Pollock as his first influence.[52]

> Pollock's spontaneity and immediacy (as in my experience with jazz) were tremendously influential; his direct confrontation with the canvas -- what Harold Rosenberg calls "action painting" -- led me to scoring a kind of "action music."[53]

Alexander Calder's mobiles, free-floating sculptures which gradually change position, gave Brown "the whole basis and confidence to make an open-form score:"[54]

> Calder. . .held to the basic premise that a work of art need never look the same from moment to moment.[55]

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[51]Cage notes that "he [Brown] was refused admission by Morton Feldman. . .Morty didn't want anyone else other than me and Christian Wolff and David Tudor." Richard Dufallo, *Trackings: Composers speak with Richard Dufallo* (Oxford: Oxford University Press, 1989), p. 231.

[52]Ibid., p. 109.

[53]"Earle Brown," in Deena and Bernard Rosenberg, eds., *The Music Makers* (New York: Columbia University Press, 1979), p. 82.

[54]Ibid.

[55]Ibid., p. 82.

Indeterminacy in the sciences also affected his outlook:

> The indeterminacy principle in physics and various other relativistic points of view in science and philosophy led me to feel it was natural to create mobile, non-rigid works of art, to set musical materials in motion in such a way as to allow for fluidity and flexibility in performance. Philosophy, science, and the visual arts all pointed the way; I felt it was time that "classical" music followed suit.[56]

It is of interest that Brown recognizes the influence of poet Kenneth Patchen.[57] Patchen was a member of a loosely formed group of poets, including Robert Creely, Robert Duncan, and Allen Ginsburg, who wrote poetry in "open forms." With respect to poetry, open form is another label for "free verse," or "organic poetry," poetry which avoids, to a greater or lesser extent, traditional methods of form such as rhyme and measured duration.[58] This type of poetry is in no sense "open" in the way "open" has been used for music, but there are parallels between Patchen's and Brown's approach to art. Patchen's work has been labeled "antiliterature," which is

> revolutionary, a literary method of sabotage which is to some degree based on, and directed against, the taste

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[56]Ibid., pp. 82-83.

[57]Ibid., p. 106.

[58]Stephen Berg and Robert Mezey, eds., *Naked Poetry: Recent American Poetry in Open Forms* (Indianapolis: The Bobbs-Merrill Company, Inc., 1969), p. xi.

> and values of those who are perceived to be in political, economic, and thus cultural power.[59]

According to him, traditional form "provides rhetorical models for timid or compulsive sensibilities," and "is for the comfortable or squeamish."[60]

Raymond Nelson notes:

> Because traditional form is based upon philosophies that have lent themselves to the authoritarian perpetuation of the status quo, as Patchen would continue, it also inhibits or obscures the resolution of moral issues. Especially as it leads to catharsis, it weakens the emotional impact of human misery, thereby providing aesthetic solutions to moral problems and violating the spontaneity of natural perception. It is thus a compromise with historical failure and evil itself.[61]

Brown's development roughly paralleled the anti-art response found in Patchen, when during the early 1950's he moved away from the "structuralist" teachings of Schillinger's compositional method towards methods of improvisation and spontaneity. Brown recalls:

> But his [Schillinger's] ultimate goal, "a constructed perfect work of ART" based on statistical analysis of previous "perfect works" ("then" projected forward to "now"), offended my devotion to the immediate, spontaneous "high" of being able to function on the

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[59]Raymond Nelson, *Kenneth Patchen and American Mysticism* (Chapel Hill: The University of North Carolina Press, 1984), p. 64.

[60]Ibid., p. 65.

[61]Ibid., pp. 65-66.

> basis of thought and impulse. . .at a peak of possibly fallible instinct!![62]

"Flexibility in performance" is a crucial part of Brown's compositional goals. The first collection of works to employ this method, *Folio* (1952-1953) is made up of seven distinct aleatoric experiments. With this collection, Brown "tried to find a notation that would give musicians a creative role in the performing process."[63] However, these pieces are innovative by virtue of the extremes to which they carry the idea of graphic notation. For example, *December 1952* is simply a series of black lines of varying thicknesses placed horizontally and vertically on a white background. The "key work of open form," according to Brown, was his *Twenty-Five Pages* (1953).[64] Each page of this piano work may be played either side up in any combination of pages from one to twenty-five (see Chapter 2). The twenty-five pages of *Twenty-Five Pages* may also be divided among one to twenty-five pianists. The pages in this work resemble

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[62]Letter from Brown, 9 May 1980, to Pamela Layman Quist, in Quist, *Indeterminate Form in the Work of Earle Brown* (Peabody Conservatory of Music: DMA Dissertation, 1984), p. 4. Brown's idiosyncratic punctuation has been retained. All ellipses and underlines are his.

[63]Ibid., p. 85.

[64]Dufallo, *Trackings*, p. 110.

the pieces of a Calder mobile, shifting positions from performance to performance while retaining their individual identity.

There was a hiatus in Brown's open work compositions between 1954 and 1961. It was during this time that Cage produced vivid examples of open form works. His *Concert for Piano and Orchestra* (1957-1958) and *Variations I* (1958) are examples. The solo piano part in *Concert* is made up of 63 unbound pages, each with various notated or graphic aggregates which may be played in any order for a programme of any length. *Variations I* (*Example 2*) is simply a collection of transparent sheets of plastic which contain lines or dots. The performer, after placing the sheets in a pile, is required to make "determinations" as to frequency, overtone structure, amplitude, duration, and occurrence within a time period, based on the distance between the points and the lines.[65] Like *4'33"*, the composer is in no way involved in the final musical result. The performer becomes the creator, and makes personal decision as to content based on a structure which is arrived at fortuitously. *Fontana Mix* (1958) provides a similar score, and is "a game kit to be used in the manufacture of a tape piece."[66]

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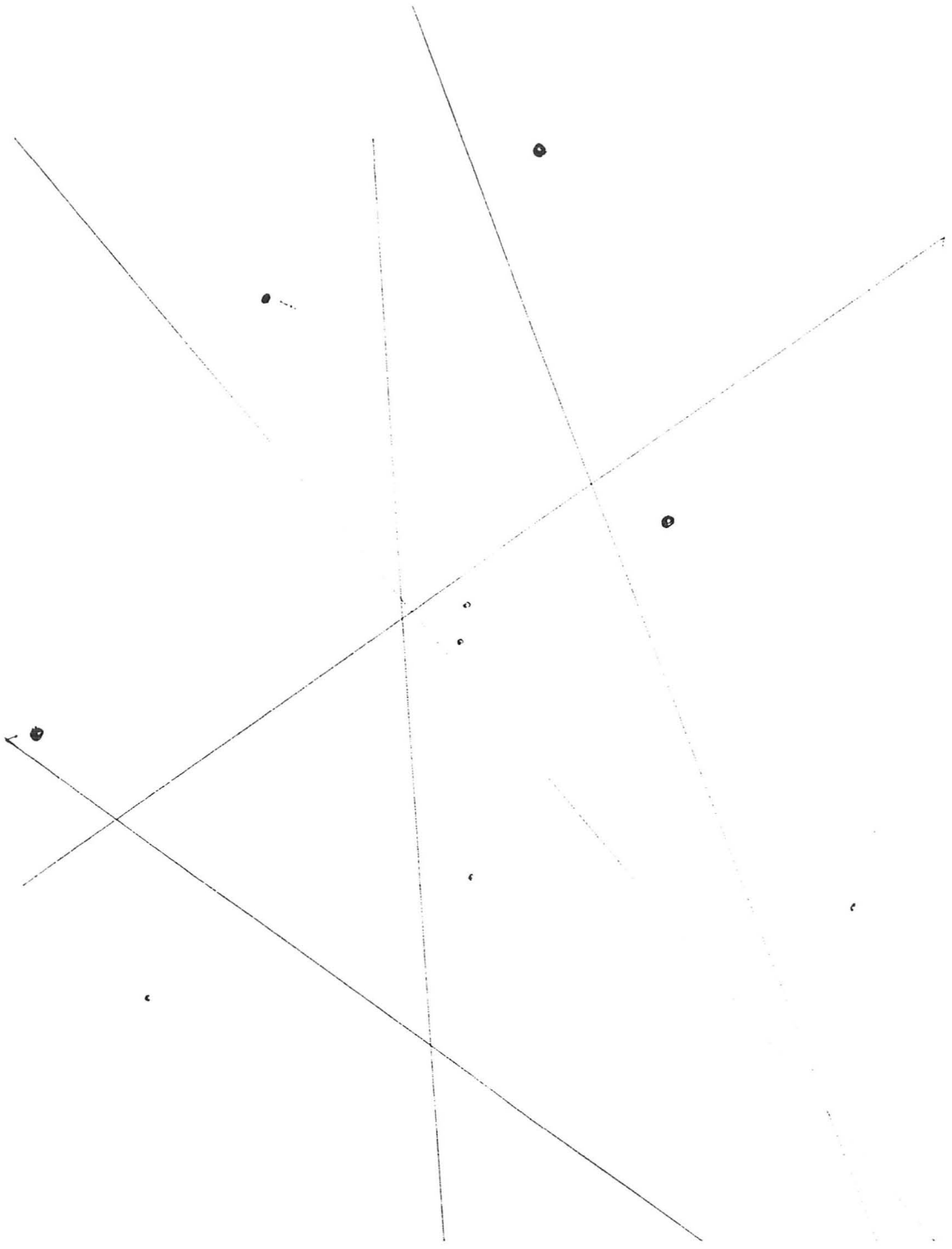
[65]John Cage, *Variations I* (New York: Henmar Press, 1958).

[66]Paul Griffiths, *Modern Music: The Avant-Garde Since 1945* (New York: George Braziller, 1981), p. 124.



Example 2. John Cage, *Variations I* (New York: Henmar Press, 1960).

Wolff and Feldman also experimented with music which could be free from "the direct and peremptory consequences of intention and effect."[67] Although Wolff composed fully notated and determinate works such as *Duo for Violins* (1950) and *Serenade* (1951), other works such as *Duo for Pianists II* (1958) and *In Between Pieces* (1963) "liberated his performers to listen attentively to each other."[68] Feldman cultivated both an awareness of all sounds and an acrimonious dislike for methodologies and systems.[69] In 1964 he stated:

> Boulez began to work out a complicated schematic situation of systematizing chance by way of Mallarmé and Kafka. He tried to give it a literary justification. Stockhausen talks about science, about all the "improbable" things that become "probable," and about all those things that are "justifiably improbable" in his work. But this work [Feldman, Cage, Brown, and Wolff] did not come through science. It didn't come through Kafka and Mallarmé. It came through a completely different world that did not *need* justification. When I wrote what I wrote, when I write what I write, I do not have to talk about Kafka. I don't have to make it human. I don't have to revise history.[70]

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[67]Nyman, *Experimental Music*, p. 42.

[68]Glenn Watkins, *Soundings: Music in the Twentieth Century* (New York: Schirmer Books, 1988), p. 570.

[69]Nyman, *Experimental Music*, p. 41.

[70]Morton Feldman, "An Interview with Robert Ashley," in *Contemporary Composers on Contemporary Music*, eds. Elliot Schwartz and Barney Childs (New York: Holt, Rinehart and Winston, 1967), p. 365.

Feldman was the first composer to write both graphic music and music which allowed for multiple correct realizations of it by a performer.[71] In two series from the early 1950's entitled *Projections* and *Intersections*, he experimented with a new type of notation in which musical aggregates are notated on squares which represent a certain time period (see Chapter 2). In other works such as *Extensions III* (1952), Feldman uses conventional notation, achieving "purposelessness by having delicate figures repeated over and over again."[72]

During the early 1950's the works of the American composers gradually began penetrating the European musical scene. Boulez's concert series in Paris, *Domaine musical*, the Darmstadt *Internationale Ferienkurse für Neue Musik*, and Universal Edition's active fostering of the avant-garde (which included the publication of the journal *Die Reihe* beginning in 1955) provided an atmosphere that was conducive to all forms of musical experimentation. In 1954, Cage joined pianist David Tudor for a European concert tour which included performances of the music of Cage, Feldman, Wolff, and Brown. In 1958, Cage and Tudor returned to Europe, and Brown was invited to Darmstadt. The extent to which these American composers influenced the Europeans is debatable. Although Brown believes that "this

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[71]Nyman, *Experimental Music*, p. 44.

[72]Griffiths, *Modern Music*, p. 72.

was the first time that musical influences went from this country to Europe, rather than the other way around,"[73] and Griffiths notes that "the real turning point" in the acceptance of the American composers in Europe came with Cage's visit in 1958,[74] Stockhausen admonishes interpretations of Occidental history which trace the affinity for open forms to American influences, pointing instead to his own investigations in mathematics and natural science.[75] Although it is not always clear who influenced whom, during the 1950's and 1960's the distinctions between European music and American music became less marked.

EUROPEAN MUSIC, 1950-1960

> For those who like history in neat packages, 1950 is a fairly accurate landmark. The dust of the war had settled, the first fruits of Messiaen's post war teaching were beginning to ripen in Europe, and modern music festivals or courses such as the Donaueschinger Musiktage and the Darmstadt *Internationale Ferienkurse für Neue Musik* were starting or resuming operations.[76]

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[73]Dufallo, *Trackings*, p. 106.

[74]Griffiths, *Modern Music*, p. 117.

[75]Faas Ekbert, "Interview with Karlheinz Stockhausen Held August 11, 1976," *Interface* 6 (1977): 191.

[76]Jonathan Harvey, *The Music of Karlheinz Stockhausen* (London: Faber & Faber, 1975), p. 13.

During the time that Feldman, Cage, Wolff, and Brown were establishing themselves as leading experimentalists in the U.S., Boulez, Stockhausen, Henri Pousseur, Luigi Nono, and many other composers were actively experimenting with new compositional means in Europe. Peter Heyworth notes that by the late 1950's

> the sluice-gates were opened, and the waters of Dada rose so rapidly that within a couple of years large areas of the musical landscape were submerged as the order that is implicit in the simplest tune was abandoned.[77]

Partially as a reaction to the rarified nature of strict serialism, and partially from a cautious acceptance of aleatoric methods inherited from science, the visual arts, and the Americans, Stockhausen and Boulez emerged as the leaders in the composition of open works.

Boulez was completing work on *Structures* in 1952. *Structures*, for two pianos, involves a complex system of pitch ordering which relates pitch to duration and other elements. His teacher, Olivier Messiaen, had experimented with the overlapping serial organization of pitch and dynamics in *Mode de valeurs et d'intensité* (1949). Boulez was insistent upon discovering the final result of such "totalitarian" organization.[78] But while Boulez's methods were different than those of the Americans, the

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[77]Peter Heyworth, "The First Fifty Years," in William Glock, ed., *Pierre Boulez: A Symposium* (New York: Da Capo Press, 1986), p. 20.

[78]Watkins, *Soundings*, p. 512.

goals of his experiments were remarkably similar to those of Cage. In a 1951 letter to Cage describing *Structures*, Boulez stated:

> Furthermore, serial structure of notes tends to destroy the horizontal-vertical dualism, for 'composing' amounts to arranging sound phenomena along two co-ordinates: duration and pitch. We are thus freed from all melody, all harmony and all counterpoint, since serial structure has caused all these (essentially modal and tonal) to disappear.[79]

The similarity is best expressed by noting the relationship between the *I Ching* method of composition used by Cage and a serial system devised by Boulez. Both rely on matrices systematically to generate music, and both accept the unforeseen, albeit controlled, results. The details of each composition share the attribute of being "not totally within the control of the composer but actually once removed and, subjectively speaking, . .an indeterminate function of a closed rational system."[80] The composer György Ligeti sums up the situation in this way:

> Total, consistent application of the serial principle negates, in the end, serialism itself. There is no basic difference between the results of automaticism and the

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[79]Pierre Boulez, "The System Exposed," *Orientations*, ed. Jean-Jacques Nattiez, trans. Martin Cooper (Cambridge: Harvard University Press, 1986), p. 141.

[80]Earle Brown, "The Notation and Performance of New Music," *Musical Quarterly* 72 (1986), p. 181.

> products of chance; total determinacy comes to be identical with total indeterminacy.[81]

Stockhausen, like Boulez, drew on the serialism of Messiaen. An early work of his, *Kreuzspiel*, makes use of unordered pitch sets. Unlike Boulez, Stockhausen was "fascinated" by the techniques used in Cage's *Music of Changes* and Feldman's *Intersection 3*.[82] In 1954, he began studies with Professor Werner Meyer-Eppler. The works immediately following this, Piano Pieces V-X (1954-55) and *Zeitmasze* (1956), reflect characteristics of his exploration and preoccupation with information theory and group form.[83] More importantly, *Zeitmasze*, written for flute, oboe, clarinet, english horn, and bassoon, is an exploration into performer freedoms. The performers are allowed to control the tempi of individual sections according to their own capacity for either virtuosic speed or breath control on sustained notes. At times one instrument may be slowing down, while another speeds up, and the resulting effect, within a "field" or "group," may be described as follows:

> For example: a first duration-formant has a constant tempo, a second "as fast as possible," a third speeds up

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[81]György Ligeti, "Metamorphoses of Musical Form," *Die Reihe* 7 (1975): 10.

[82]Michael Kurtz, *Stockhausen, Eine Biographie* (Kassel: Bärenreiter, 1988), p. 108.

[83]Jonathan Harvey, *Music of Stockhausen*, p. 30.

> and a fourth slows down and all are to be played simultaneously.[84]

In 1957, while Stockhausen was still in the process of writing out the complex multi-orchestral score *Gruppen*, he wrote *Klavierstück XI*. It is made up of 19 irregularly distributed groups of traditionally notated notes on a large one-page score. At the end of each group are three indications, one each for tempo, dynamics and attack. The performer is instructed to look at the score and begin with whatever event is seen first. That first event is open with regard to tempo, dynamic, and attack, but upon completion of it, the performer must shift immediately to another event, using the tempo, dynamic, and attack indications appearing at the end of the first event. The work ends when one event has been played for the third time. This sequence of mutually dependent symbols may be thought of as a Markov chain.[85] Thus, each section, while it is not the causal result of the preceding section, is dependent on, or refined by, that section. Given the nature of this work and other mobile or open structures,

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[84]Ibid., p. 49.

[85]A Markov chain, named for Russian mathematician A.A. Markov, may be described as a discrete stochastic process in which the probabilities of occurrence of various future states depend only on the present state of the system or on the immediately preceding state and not on the path by which the present state was achieved. From "Markov chain," in *Webster's Ninth New Collegiate Dictionary* (Markham, Ontario: Thomas Allen & Son Limited, 1989), p. 728.

Stockhausen notes in the work that "this Piano Piece should if possible be performed twice or more in the course of a programme."[86] If the work is to be appreciated as an open form, according to Stockhausen, one must be able to hear the larger musical space from which one particular realization emerges.[87] It is "like having to learn roughly the extent and nature of a language before we can appreciate that selection from it which is a particular speech."[88] At the premiere performance in April of 1957 in New York, David Tudor performed the work twice.[89]

Taking the cue from Stockhausen, Boulez began actively exploring the possibility of loosening, or opening, his compositional method to allow for more freedom on the part of the performer. Although initially quite disturbed at Stockhausen's creation,[90] he shortly thereafter began composing an open form work, the Third Piano Sonata. A highly structured serial composition, the Sonata nevertheless allows the performer to decide,

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[86]Karlheinz Stockhausen, *Klavierstück XI* (Vienna: Universal, 1957), instructions for performance.

[87]Harvey, *Music of Stockhausen*, p. 77.

[88]Ibid.

[89]Kurtz, *Stockhausen*, p. 122.

[90]Stockhausen recalls in his *Texte II* that "solchen Unsinn könnte er [Boulez] nicht verstehen. . ." (such absurdity he could not understand). Ibid., p. 124.

within limits, the sequence of aggregates within individual movements (or *formants*, as Boulez calls them) and the sequence of the individual movements themselves.[91] This work remains only partially completed, a "work in progress."

Boulez's motivation for writing the Third Sonata was literary figures, specifically Mallarmé and Joyce.[92] Mallarmé wrote two texts, *Un coup de dés* and *Livre*, both which embrace chance. *Un coup de dés* (1897, *Example 3*), a poem about chance, has been arranged on the pages in varying type sizes, each word or group of words separated by small to very large spaces. Mallarmé calls this a "prismatic subdivision of the Idea the instant it appears," also stating:

> Let us freely acknowledge, without presuming what will grow from this in the future, nothing or a near-art, that Today the tentative and the unforeseen enter into free verse and the prose poem.[93]

The tentative and unforeseen are developed more obviously in his *Livre*, a book consisting of loose pages which may be read in any order or singularly. In *Livre* and *Un coup de dés*, the reader, simply by reading the text,

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[91]This work is discussed in detail in Chapter 2.

[92]Pierre Boulez, "Sonate, que me veux-tu?," in Nattiez, ed., *Orientations*, p. 143.

[93]Stéphane Mallarmé, *Un coup de dés jamais n'abolira le hasard*, trans. Daisy Aldan (New York: Tiber Press, 1956).

laugh

which

IF

of vertigo

upright

time
for beating
forked

a rock

false castle
suddenly
melted into fog

which imposed
a limit on infinity

Example 3. Stéphane Mallarmé, *Un coup de dés jamais n'abolira le hasard*, trans. Daisy Aldan (New York: Tiber Press, 1956).

becomes the performer of a private design created from a determined set of possibilities. Joyce's *Finnegans Wake* allows for similarly multiple perspectives, and uses the pun or calembour to devise a highly organized labyrinth of meanings in which "one is compelled to choose among possible interpretive paths and to disambiguate various levels of sense."[94] Umberto Eco notes:

> *Finnegans Wake* is an open work. For this reason it is a *scherzarade* (game, charade, tale of Sheherazade), *vicocyclometer, collideoscope, proteiform graph, polyhedron of scripture, meanderthale* and, finally, *a work of doublecrossing twofold truths and devising tail-words.*[95]

Joyce's works are admired by Boulez because they are not "exclusively concerned with 'expression'," but become objects of their own reflection, and present a "morphology which is in constant evolution."[96]

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[94]Umberto Eco, *The Aesthetics of Chaosmos: The Middle Ages of James Joyce*, trans. Ellen Esrock (Cambridge: Harvard University Press, 1989), p. 66.

[95]Ibid. Eco makes his point by using words from Finnegans wake. These words are made up of parts of other words, and as such create in the mind of the reader multiple meanings and relationships (such as *meanderthale*, which is meander + neanderthal + tale, to mention three).

[96]Boulez, "Sonate," p. 144.

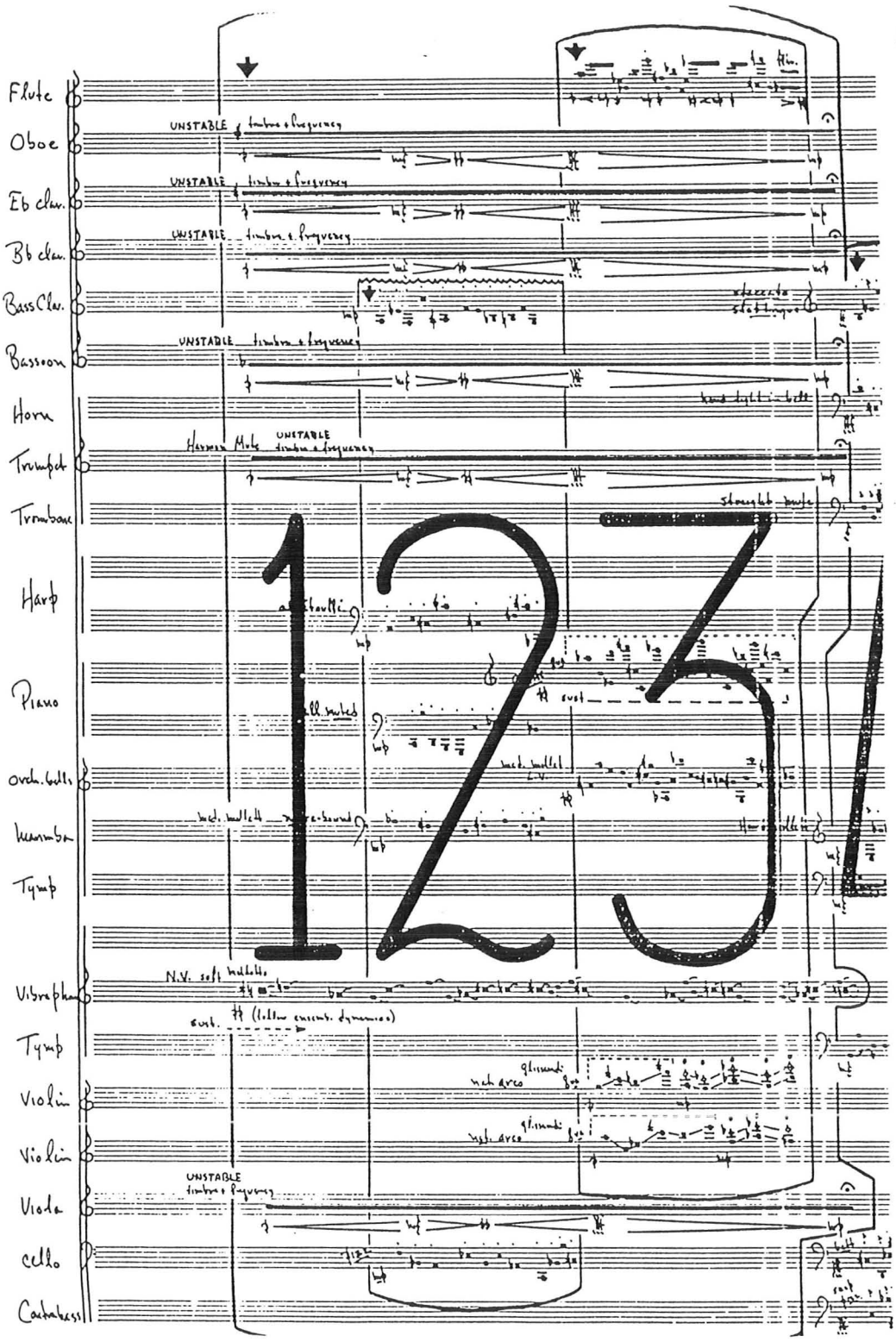
OPEN FORM, 1960-1970

The distinction between the *European ideal*, represented in the content-controlled works of Boulez and Stockhausen, and the *American ideal*, represented by Cage's philosophy of non-intention, is nearly gone by 1960. Compositions on both sides of the Atlantic began to share certain attributes such as 1) opposition to traditional forms, 2) diminished concern for music works as *objects*, and 3) transference of aspects of creative authority formerly granted the creator/composer.

These attributes are noted in the post-1961 compositions of Brown. It was in 1961 that Brown was commissioned by the Darmstadt festival to compose *Available Forms I* (*Example 4*),[97] a work for small orchestra. Like the European works, *Available Forms I* has a determined content: it is made up of 27 individual aggregates, each of which is fully composed and unique in terms of density, timbre, and pitch qualities. The order of the aggregates is up to the conductor, and the score contains commands and instructions which add an element of chance to the final outcome (see Chapter 3). Brown describes the audible result as an "available form:"

> The product of many independent intentions and in itself integral, inherent, and relevant, but, from a logical point of view, un-intentional in regard to its

[97]This work is analyzed in detail in Chapter 3.



Example 4. Earle Brown, *Available Forms I* (New York: Associated, 1962), p. 6.

> momentary particular form. It seems to me that this is a way of allowing the work to take on its own (independently-dependent) identity as well as the performed sound-event being an "expression" of the co-related involvement of the participants.[98]

Each performance is a "process" by which independent parts and aggregates are transformed "into one particular integral identity. . .which is this particular work performed by this particular conductor and orchestra at this particular moment."[99] In this work, although each aggregate has a determined content, and the conductor has some control over the aggregates performed, the resulting form is different from performance to performance due to the fortuity of the work's instructions.

The success of this work led Brown to compose *Available Forms II*, completed in 1962. It is scored for a large orchestra and two conductors, making the result more complex. Since two conductors and orchestras are working simultaneously, the aggregates of each will overlap in ways that cannot be predicted by either conductor. Brown states:

> No two performances will arrive at the same formal result, but the work will retain its identity from performance to performance through the unchanging basic character of the events.[100]

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[98]Ibid.

[99]Ibid.

[100]Earle Brown, as quoted in Gilbert Chase, *American Music* (New York: McGraw Hill, 1966), p. 301.

Other works of Brown are similar, although they explore slightly different aspects of openness. These include *Novara* (1962), *From Here* (1963), String Quartet (1965), *Event: Synergy II* (1967-8), *Modules I-II* (1967-9) and *Centering* (1973). *Centering*, for violin and small orchestra, contains closed and open sections, and allows limited improvisatory response by the performer. Brown's work entitled *Calder Piece* (1964-6) was performed in 1981 at the Aspen Music Festival. It is similar to the *Available Forms* works, but the conductor is a mobile sculpture by Alexander Calder, which hangs above the conductor's podium and directs the performance of the aggregates as it moves. Cage continued unhindered in his composition of open works. *Atlas eclipticalis* (1961-2) resembles *Concert* of 1957, as both "do not greatly limit the performer's imagination."[101] The pitches, though fully notated, serve only as "raw material" for the work as performed,[102] and are taken from maps of star constellations which Cage transferred into pitches by means of transparencies.[103] Works such as *Variations II* (1961) through *VIII* (1978), like their counterpart *Variations I*, involve dots, lines, transparent sheets, or other such materials. *Variations IV* (1963) and *V*

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[101]Griffiths, *Modern Music*, p. 172.

[102]Dufallo uses the term "raw material" while conversing with Cage. Cage, however, objects to this term, because "it's not going to be cooked." "They [the pitches] are simply sounds." Dufallo, *Trackings*, p. 230.

[103]Ibid., p. 228.

(1965) are notable in that they encourage the use of electronic means as material for a complex collage. Griffiths describes the first performance of *Variations V*, in which David Tudor and Gordon Mumma

> devised complex circuitry to derive sounds directly from the movements of dancers. As the dancers moved towards and away from sensitive antennae, or interrupted light beams directed at photocells, so they triggered the release of sounds from tape recorders, record players, and radios, and there were also films and slides contributing to what Mumma described as 'a superbly poly: -chromatic, -genic, -phonic, -meric, -morphic, -pagic, -technic, -valent, multi-ringed circus.'[104]

Variations IV, *HPSCHD* (1967-9) and *Musicircus* (1967) call for the same type of "stylistic heterogeneity" in which recordings, pictures, and other *events* become part of an uncoordinated pastiche, unified by the time frame of the event.[105]

Music as theatre inevitably led to a destructive permissiveness found in *concept music*. With *concept music*

> performance is impossible; one is able to only "conceptualize" or image the work.[106]

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[104]Griffiths, *Modern Music*, p. 201.

[105]Ibid.

[106]David Cope, *New Directions in Music*, 2nd edition (Dubuque: WM. C. Brown Company Publishers, 1976), p. 207.

Also called *anti-art*, or *anti-music*, and including such concepts as *danger music* and *bio-music*, composers such as LaMonte Young, Cornelius Cardew, and Nam June Paik pursued the notion of absolute freedom in music to a "zero state" in which "no further direction is possible except to begin anew the awareness of sound."[107] In an attempt to develop this philosophy, Young, Paik, and others such as Jackson MacLow and George Brecht formed the *Fluxus* movement in the early 1960's, which "brought about a resurrection of dada in performances combining comedy, cheek and perhaps a certain amount of groping after new creative possibilities."[108] Young's *Composition 1960 no. 15* is a typical example of their repertoire:

> Turn a butterfly (or any number of butterflies) loose in the performance area. When the composition is over, be sure to allow the butterfly to fly away outside. The composition may be any length but if an unlimited amount of time is available, the doors and windows may be opened before the butterfly is turned loose and the composition may be considered finished when the butterfly flies away.[109]

Other similar groups included Cardew's *Scratch Orchestra*, formed in 1969 to break down "the barrier between private and group activity, between

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[107]Ibid., p. 206.

[108]Griffiths, *Modern Music*, p. 142.

[109]LaMonte Young, *Composition 1960 no. 15,* as quoted in Griffiths, *Modern Music*, p. 143.

professional and amateur."[110] The group's political stance was one of "benign anarchy," which was reflected in the communal, improvisatory, ritualistic approach to performing in which they did not "attempt to influence the music" that was played.[111] It is of interest that both Young and Cardew were serial composers before being introduced to the music of Cage at Darmstadt in 1958 and 1959.[112]

Stockhausen also continued on the path of openness, albeit in a circumscribed and limited sense. *Zyklus* (1959), for percussionist, is a sequence of sixteen pages set up in a circle around the performer. The performer is instructed to begin at any point and play in either direction around the circle. This is the first of his "Moment form" works, and represents a change in Stockhausen's approach to composing:

> Works become longer, slower, more interested in colour experimentation, 'beauty' for its own sake; less formalistic, less rational. There are no more theoretical, scientific articles in *Die Reihe*; Stockhausen's utterances become increasingly 'artistic' in tone.[113]

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[110]Cornelius Cardew, "A Scratch Orchestra: Draft Constitution," *Musical Times* 60 (1969): 617, as quoted in Griffiths, *Modern Music*, p. 182.

[111]Ibid.

[112]Griffiths, *Modern Music*, p. 143.

[113]Harvey, *Music of Stockhausen*, p. 81.

In an article entitled "Momentform" (1960) Stockhausen wrote about forms

> of which an instant must not be a little bit of a temporal line, nor a moment a particle of a measured duration, but in which the concentration on the Now - on every Now - makes as it were vertical sections which penetrate across a horizontal portrayal of time to a state of timelessness, which I call Eternity: an Eternity which does not begin at the end of time, but which is attainable in each moment.[114]

Stockhausen's work entitled *Momente* (1961-4), in which the content is determined, consists of a number of "moments" (aggregates), each of which is unique in terms of timbre, melody, rhythm, and density. The form "consists simply of a form-plan which specifies what sort of thing may happen when, with several alternative choices possible."[115] *Mikrophonie I* (1964) and *Mikrophonie II* (1965) are quite similar to *Momente*, although they employ electronic means. In *Plus Minus* (1963), up to seven performers (on unspecified instruments) must make decisions based on complex rules as to the nature of the content which is to be inserted into graphically notated forms. *Hymnen* (1966-7) approaches the theatrical collages of Cage. It is scored for radio, television, opera, ballet, record, concert hall, etc., and integrates the national anthems of various countries

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[114]Karlheinz Stockhausen, "Momentform," *Texte zur elektronischen und instrumentalen Musik* I (Köln: Verlag M. Dumont Schauberg, 1964), as quoted in Ibid., p. 85.

[115]Ibid., p. 91.

in a work in which the order of the parts and the total duration are variable. Harvey notes:

> There is a new openness also in Stockhausen's acceptances of the *objet trouvé*; he says that his previous preoccupation with inner worlds of fantasy is here joined through mediation in a higher unity with the concrete external world of everyday sounds and noises (whose inclusion may perhaps owe a debt to Varèse's *Poème électronique* of 1958), ending with 'pluralism' and 'monism' grandly united in the 'Utopian realm of *Hymunion* in *Harmondie unter Pluramon*.'[116]

The "inner worlds of fantasy" are notable in his composition in the late 1960's of two pieces of "intuitive music," *Aus den sieben Tagen* (1968) and *Für kommende Zeiten* (1968-70). Both are prose poems which approach the *conceptual art* extremes of Young and Paik.

Another composer working with open form was Henri Pousseur (b. 1929). Pousseur views music as:

> the organizer of a space for cohabitation, where all previous musical acquisitions (or parallel ones. . .) may find their most suitable places, existing together and contributing to a new *corporate harmony*.[117]

There is a bit of politics in Pousseur's use of the phrase "corporate harmony," reflecting his aversion to the "dictatorial function of the composer" by the use of "divergent materials as a model of a utopian order

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[116]Ibid., p. 102.

[117]Pousseur, *Musique/Sémantique/Société* (Tournai, 1972), pp. 75-76, as quoted in Griffiths, *Modern Music*, p. 213.

among men."[118] *Votre Faust* (1960-7) is an opera which uses quotations from music and literature in establishing dramatic situations which deal with the Faust myth. Instrumentalists and the audience are involved in what Pousseur calls a 'variable fantasy of operatic character', as the audience is allowed to intervene vocally and cast ballots as to the course the drama will take.[119] *Caractères* (1961) for solo piano resembles *Klavierstück XI* or Boulez's Third Piano Sonata in that the content is fully determined and the performer is given a limited choice of paths to follow. *Répons* (1960, revised 1965) for seven instruments and actor, presents the musicians with rules of play similar to a game, and allows them within limits to create the piece. The "game" is

> a means of generating a musical form in which musicians can, within limits, use their own initiatives in deciding how to fulfil the roles they are at different times assigned, those of 'conductor', 'soloist', 'duo player' and so on.[120]

The democratic intentions are similar to those in *Votre Faust*, and the use of an actor in the 1965 version "makes the musical masque more intelligible" to the audience.[121]

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[118]Ibid., p. 213.

[119]Ibid., p. 259.

[120]Ibid., p. 133.

[121]Ibid.

In closing, it is important to mention the graphic works of André Boucourechliev and Roman Haubenstock-Ramati. Boucourechliev attended Darmstadt in 1954 and is known best for his *Archipels* (1967-1972). These works present the performer(s) with sections of "raw pitch material" which may be inserted into any one of a number of rhythmic or dynamic diagrams which surround the pitch material. Boucourechliev describes *Archipel IV* (1970) in this way:

> *Archipel IV* is a "mobile" work - i.e. changing in shape, character, articulation and duration at each performance. Its structures shall be played in a sequence to be decided upon freely at the very moment of the performance. Never try to "fix" a course beforehand, but apply all personal liberty and creative imagination in view of an ever new, unpredictable form. A concert performance in two different versions is desirable.[122]

When more than one performer is involved, in the case of *Archipel III* (1970) or *Anarchipel* (1971) the piece is conditioned by "constant, intensive mutual listening" by which "an immediate *choice* actually takes place at every moment, either well reasoned or instinctive, but never "by hazard."[123] Haubenstock-Ramati, on the other hand, gives no instructions for the performance of his graphic scores. Works such as *Alone 1* (1965) and *Pour*

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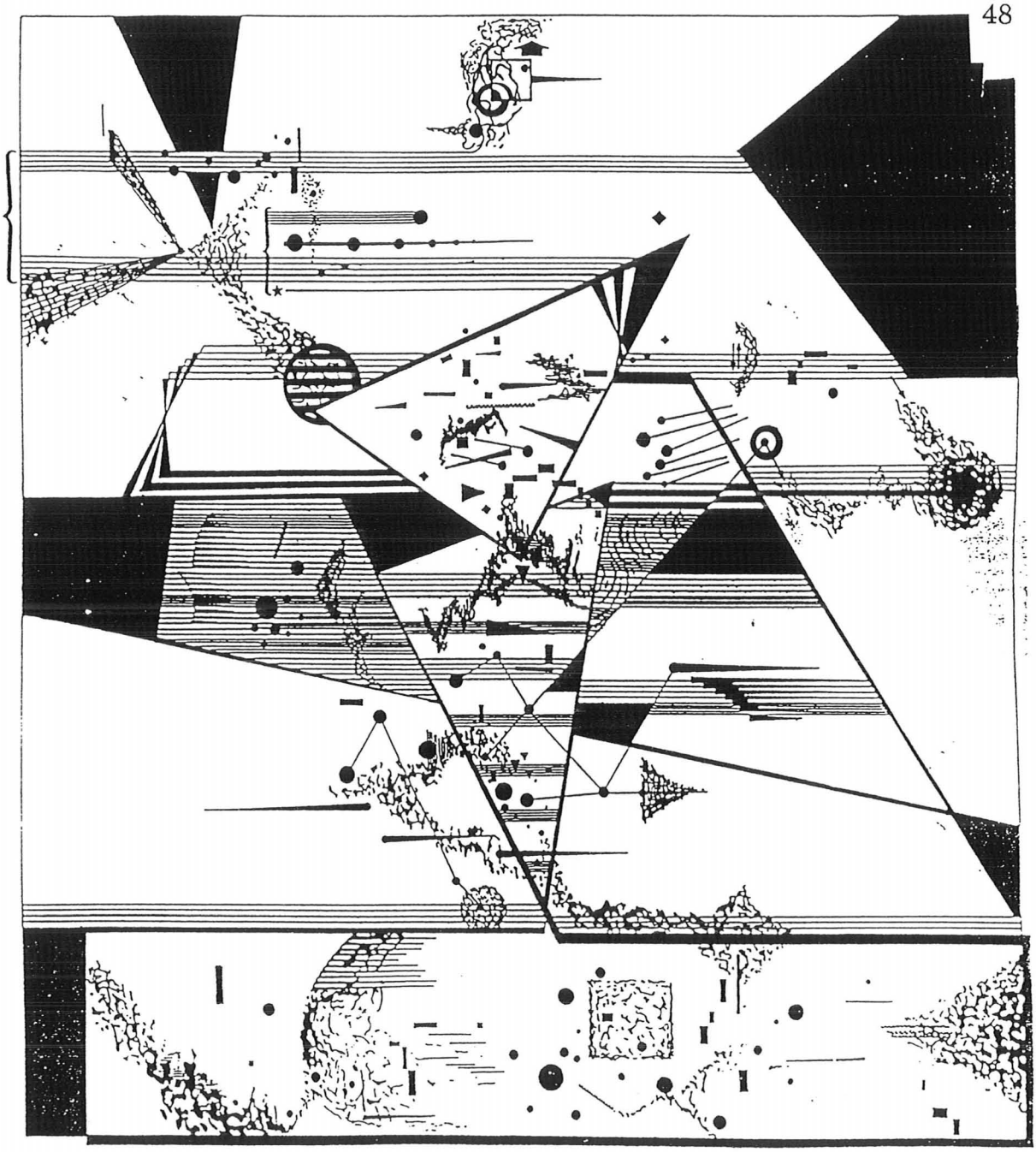
[122]André Boucourechliev, *Archipel IV* (Paris: Editions Musicales, 1971).

[123]Boucourechliev, *Archipel III* (Paris: Editions Musicales, 1971).

Piano (1973) are simply designs to be freely interpreted by performer. These works come close to going "beyond Cage," because even in Cage's *4'33"* there is an intended framework of activity within which the performer does not play. *Pour Piano* (*Example 5*) comes to the performer as an *objet trouvé*, without instruction or intention, and is thus represents an extreme in the delegation of creative control to the performer.



Example 5. Roman Haubenstock-Ramati, *Pour Piano*, Copyright © 1973 by Ariadne Verlag, Wien.

CHAPTER 2

DEFINING OPENNESS

The term *open work* has existed since the 1950's, and today has various connotations. Thomas DeLio defines an open work as that which has an "open structure," the latter term referring to a structure which

> presents no single fixed view of reality but instead reinforces those variable conditions under which each unique consciousness becomes manifest.[1]

This definition is characteristically *Cagean* in its appeal to "each unique consciousness," and is much more ecumenical than Brown's definition:

> in order to be called "open form," a work must have an identifiable content which can then be formed, as in *Twenty Five Pages* or the *Available Forms* works.[2]

This definition, though necessarily encompassed by DeLio's, insists that an open work have a determined (identifiable) content which is recognizable from performance to performance regardless of how it is formed. A third

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[1]Thomas DeLio, *Circumscribing the Open Universe* (Lanham: University Press of America, 1984), p. 2.

[2]Earle Brown, "Form in New Music," *Source: Music of the Avant-garde* I (1964): 50.

definition, that of Umberto Eco, lies more or less on a safe middle ground, retaining aspects of both of the above:

> The author offers the interpreter, the performer, the addressee a work *to be completed.* He does not know the exact fashion in which his work will be concluded, but he is aware that once completed the work in question will still be his own. It will not be a different work, and, at the end of the interpretative dialogue, a form which is *his* form will have been organized, even though it may have been assembled by an outside party in a particular way that he could not have foreseen. The author is the one who proposed a number of possibilities which had already been rationally organized, oriented, and endowed with specifications for proper development.[3]

Eco hints at Brown's definition by insisting that the author is the creator of a unique product, one that "will not be a different work" in each performance and one that proposes possibilities which "had already been rationally organized, oriented, and endowed" by that author. But he provides no specific references for the relationship of the musical materials to the final, performed versions of the work, and is thus no more limiting than DeLio.

Herein, *open* will be defined in the broadest sense as *any score which allows for multiple, equally valid though radically different, realizations in sound.* This definition encompasses the above definitions, as

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[3]Umberto Eco, *The Open Work*, trans. Anna Cancogni (Cambridge: Harvard University Press, 1989), p. 19.

all three are defining a class of works in which variability from performance to performance is a common denominator. Also, all three recognize *open* in relation to its opposite, *closed*. *Closed* refers to works in which each performance is fully determined. This category includes all works in which it is reasonable to assume that 1) each performance will be recognizable as the same piece as a previous performance because 2) the score presents fixed musical elements in a fixed temporal order. An open work, on the other hand, is open because it is endowed with the potential for many correct realizations, a potential which is a physical property of the score and was intended by the composer. The resulting performed musical product does not present the *one, correct,* sequence of musical events, but one of many correct possibilities.

The members of the class of works called open do not necessarily achieve their openness in the same way. As will be shown in this chapter, it is the relationship between form and content which distinguishes one open work from another. An open work is always indeterminate with respect to form. Form will be defined here as "shape:"

> the whole resulting from the structuring of a composition by the composer, performer, or both as it occurs in time during the performance.[4]

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[4]Quist, *Earle Brown*, p. x.

A work which is formally indeterminate is therefore a work which has a different shape each time it is performed. Haubenstock-Ramati's *Tableau*, Cage's *Concert for Piano and Orchestra*, and Stockhausen's *Klavierstück XI* are all works which are formally indeterminate. Formal malleability is guaranteed in most open works by the presence of independent musical events of varying length which may be rearranged while retaining their identity. Each independent unit, hereafter referred to as an *aggregate*, may be defined as a mass or body of units or parts taken together as a whole. Virgil Thomson, writing in 1952 about the music of Cage, stated:

> since Cage conceives each musical "event" to be an entity in itself that does not require completion, he simply places them one after another and sees them as being related through their co-existence in space, where they are set in a planned order of time. Each "event" is an *aggregate* of materials of sound that cohere, making a tiny world of their own, much as physical elements find themselves joined together in a meteorite. A work of Cage's, therefore, might well be likened to a shower of meteors of sound.[5]

Such aggregates have also been defined by other terms. For example, Pamela Quist uses James Tenney's term, *clang*, in describing such aggregates as appear in the works of Brown. A *clang* is defined by Tenney as:

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[5]Virgil Thomson, "Current Chronicle" *The Musical Quarterly* 38 (1952): 124, italics mine.

> A sound or sound configuration which is perceived as a primary musical unit or aural Gestalt.[6]

Henri Pousseur speaks of the "global qualities" of groups which distinguish them "en bloc from neighboring groups."[7] Boulez has used the term "envelope," to describe "the unfolding gestalt of the total texture as shaped by dynamics and articulation,"[8] while Brown uses the term "event" to describe the same thing. The degree to which such aggregates may be perceived as isolated musical events in performance varies widely, such variation being partly dependent upon the extent of leeway given the performer in the shaping of the aggregates.

Open works may or may not be indeterminate with respect to content. Content is defined as the musical material which is available to be formed.[9] This includes things such as pitch, duration, dynamic, texture,

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[6]James Tenney, *META+HODOS* (New Orleans: Inter-American Institute for Musical Research, Tulane University, 1964), as quoted in Quist, *Earle Brown*, p. 143.

[7]Henri Pousseur, "Music, Form and Practice," *Die Reihe* 6 (1975): 83.

[8]Pierre Boulez, as quoted in David Gable, "Boulez's Two Cultures: The Post-War European Synthesis and Tradition," *Journal of the American Musicological Society* (1990), p. 430.

[9]The separation of "form" from "content" is implied by the nature of openness. In traditional, closed works, form is defined by the pitches and rhythms in the composition, and "there can be no distinction between musical form and musical content, since to change even a single pitch or rhythm that might be regarded as part of the content of a composition

timbre, etc., the *musical elements* that are present in a musical work in the same sense that paint is present in a painting. A work may be said to have a "determined" content if that content remains the same from performance to performance. Brown's *Available Forms I*, Boulez's Third Piano Sonata, and Stockhausen's *Klavierstück XI*, are open works with a determined content. Other open works, such as the series of compositions entitled *Variations* by Cage, may be said to be indeterminate with respect to content because they present instructions to the performer for the creation of that content. For example, in *Variations III*, the performer is instructed first to drop 42 circles which have been drawn on sheets of transparent paper.[10] Then:

> Starting with any circle, observe the number or circles which overlap it. Make an action or actions having the corresponding number of interpenetrating variables (1+n). . .[11]

In such cases, content becomes indistinguishable from form, since the content is not fixed to be formed anew in a different performance.

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necessarily also changes the shape of that composition even if only in detail." Don Michael Randel, ed., *Harvard Concise Dictionary of Music* (Cambridge: Harvard University Press, 1978), p. 177.

[10]This work is analyzed in detail in Chapter 3.

[11]John Cage, *Variations III* (New York: Henmar Press, 1963).

> Indeterminacy does not refer to a situation of randomness.

Within an indeterminate situation

> categories of events are expected, but *exactly* which will occur within known limits is not determined before the fact. Indeterminacy, that is, involves discrimination.[12]

Crucial to the understanding of indeterminate music are the "known limits," which determine the field of possibilities from which the performer may select. A work which is indeterminate *with respect to form* is a work in which the composer has allowed for many possible, equally valid forms to be chosen; the performer may not select *any* form, but *one of many* forms allowed by the work's design. Similarly, a work which is indeterminate *with respect to content* is a work in which the composer has defined a *range* of materials and/or means from which the performer may choose in creating the performance. The range allowed by a work may be great, or relatively small, but there are very few works which can have an *infinite* range of materials and means.[13] In this regard, Boulez states:

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[12]Roger Reynolds, "Indeterminacy: Some Considerations," *Perspectives of New Music* 4 (1965): 138.

[13]There are borderline cases such as Cage's *4'33"*, or LaMonte Young's *Composition 1960 No. 6*, in which the performers are instructed to sit and watch the audience. Although these works exploit all of the possible sounds and means available to an audience, they are nevertheless endowed with instructions and limitations which determine their particular character. A performer who plays a note on the piano during a performance of *4'33"* is no longer playing *4'33"*, because that performer has gone beyond the range of possibilities defined by the work's composer.

> In any construction containing as many ramifications as a modern work of art, total indeterminacy is not possible, since it contradicts -- to the point of absurdity --the very idea of mental organization and of style.[14]

A totally indeterminate, or random work would "lack cause or design"[15] and would have to be considered a product of "chance," rather than a composed work which is indeterminate with respect to form, content, or both.

Example 6 displays a rudimentary categorization of musical works in terms of indeterminacy with regard to their form and content. It should be noted that whether or not the composer uses indeterminate means in creating the score has no bearing on this discussion. What is to be discussed is the relationship between the performed musical product and the written composition in open works, which will primarily involve the third and fourth categories with some discussion of the second.[16]

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[14]Boulez, "Sonate," in Nattiez, ed., *Orientations*, p. 146.

[15]Quist, *Earle Brown*, p. x.

[16]Works which have an *indeterminate* content and a *determined* form must, for the time being, remain a secondary concern. This class of works will, however, be discussed at the end of the chapter.

CONTENT	FORM
1. DETERMINED	DETERMINED
2. DETERMINED	INDETERMINATE
3. INDETERMINATE	INDETERMINATE
4. INDETERMINATE	DETERMINED

Example 6. Indeterminacy in Form and Content.

OPEN WORKS IN WHICH THE CONTENT IS DETERMINED

Category 2 in *Example 6* includes all musical works which have a definite, determined content that may be formed in a variety of ways by the performer during the course of the performance. The examples in this category are perhaps the easiest to discuss, because in most cases their content and the instructions for its manipulation are well defined and limiting. The two extremes in this category are represented by, on the one hand, works such as Cowell's *Mosaic Quartet* or Boulez's Third Piano Sonata, in which variability is extremely limited, and on the other hand, works such as Boucourechliev's *Archipel III* and Cage's *Concert for Piano*, in which the work's content, though determined, is subject to so many possible variations that the range of possible realizations is nearly infinite, and the works are more like controlled improvisations. Between these extremes lie works by Stockhausen and Brown which explore aspects of performer indeterminacy with controlled content.

Pierre Boulez

The music and writings of Boulez reflect a distaste of compositional processes which rely on chance procedures in the creation of the work's content. For example, in his infamous diatribe "Alea" he states:

> Can one find one's way back to the sources of this obsession [chance]? On the exterior, one could suggest various causes not lacking an appearance of solidity,

> variables according to the temperaments of the different creators. The most elementary form of the transmutation of chance is located in the addition of a philosophy dyed with Orientalism and masking a fundamental weakness in the technique of composition; this would be a recourse against the asphyxia of invention, recourse to a more subtle poison that destroys every embryo of artisanship.[17]

Also, a discussion of Brown's *Folio*, a collection of graphic scores, is recalled by Brown:

> And then I showed him [Boulez] and talked to him about the *Folio* pieces, and he said, "Oh, no, no, no. Composers cannot do that. *We* are the ones who know, *we* are the ones with taste, *we* are the ones who know the way it should be.[18]

But although chance, in the sense of improvisatory or performer-determined content, is anathema to Boulez, he does recognize the possibility of introducing a carefully monitored variability into a composition, and discusses such a prospect in some detail in "Alea." Important is his discussion of form, in which he defines a "new notion of development:"

> One must have recourse to a new notion of development -- development as being essentially discontinuous, but of a foreseeable and foreseen discontinuity: as a result, one must necessarily introduce "formatives" into a work and the indispensable "phrase" into the interrelation of varying nature. In such a form, then, one will conceive points of junction, platforms of bifurcations, types of

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[17]Pierre Boulez, "Alea," *Notes of an Apprenticeship*, trans. Herbert Weinstock (New York: Albert A Knopf, 1968), p. 35.

[18]Earle Brown, "Earle Brown," in Dufallo, ed., *Trackings*, p. 106.

> mobile elements susceptible in an arbitrary fashion to adaptation (with certain modifications to be set down in the eventual score) to the eligible fixed structure, with the restriction that along the "routes" of development, a given event shall not occur more than once.[19]

A formal concept such as that described above is a type of directed non-linearity, in which fixed sections of music may be rearranged or deleted by a performer. The final form of the work as it is performed does not *develop* in the sense of growth or other organic metaphors, but rather *proceeds*, in the sense of a traveler who might visit all of the islands in an archipelago, the order of the visit making no difference in one's perception that the land masses are somehow united. The openness that is allowed is very limiting and internal: the performer has no recourse to deviate from the fully defined world of the composed music.

The most obvious representation of this idea is the Third Piano Sonata. For although other works, such as *Le Marteau sans maître* and *Livre pour quatuor,* hinted at openness, it was the Third Sonata in which Boulez actively projected such an aesthetic. The openness of this work is first evident in the ordering of the five movements, or *formants* as they are referred to by Boulez, which may be arranged in one of eight possible ways

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[19]Boulez, "Alea", p. 45.

(*Example 7*).[20] But unlike Cowell, Boulez gives the impression that he gave the utmost consideration to the *possible* positions in which each formant could occur, and that the content of each formant was composed based on such possibilities. He admits that his difficulty in finishing the work was due to "the wealth of possibilities in the interaction of these formants,"[21] and one can assume that in his effort to avoid "musical inanities," he composed the work in such a way that any possible outcome in performance is an outcome that he had foreseen:

> When I started my Third Piano Sonata, I was very suspicious of everything inessential. Altering the physical appearance of a work without any real interior necessity to justify changing the impact of the score on the eye could so easily result in amusing, decorative 'calligrams', fashionable gimmicks in fact. I saw all too clearly the danger of producing musical inanities, such as those we know from various experiments in which the design is pretty and the intention behind it laudable, but there is no feeling that the desire to alter the exterior form corresponds to any interior, structural remodelling.[22]

By controlling of all possible outcomes, Boulez eliminates the possibility of fortuitous occurrences. Such an aesthetic reflects a desire to expand the requirements or expectations of formal schemes while not relinquishing

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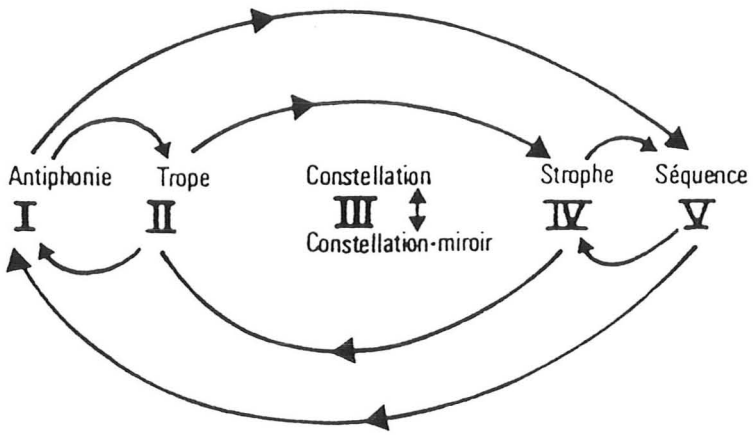
[20]The work remains unfinished, only *Trope, Miroir* (from the Third formant of which *Constellation* is the other part) and *Antiphonie* having been published. Peter F. Stacey, *Boulez and the Modern Concept* (Aldershot, England: Scolar Press, 1987), p. 144.

[21]Boulez, "Sonate," p. 154.

[22]Ibid., p. 147.



ALL POSSIBLE ARRANGEMENTS
OF FORMANTS IN BOULEZ'S
THIRD PIANO SONATA

I–II–III–IV–V
II–I–III–IV–V
I–II–III–V–IV
II–I–III–V–IV
IV–V–III–I–II
IV–V–III–II–I
V–IV–III–I–II
V–IV–III–II–I

Example 7. The mobile disposition of Boulez's Third Piano Sonata.

control of the final product as it is performed. It also distinguishes his work from the work of composers such as Brown and Cage, whose aesthetic relies to a greater degree on the fortuity Boulez shuns.

The third formant, *Constellation-Miroir*, occupies a pivotal position in the overall order of the movements. Although it was written in two parts, and *Constellation* may be played before or after its mirror image *Miroir*, the formant itself must remain third in the overall ordering of the Third Sonata's movements. Of this formant, Boulez remarked:

> There is a certain resemblance between this *Constellation* and the plan of an unknown town (such as play an important part in Michel Butor's *L'emploi du temps*). The actual route taken is left to the initiative of the performer, who has to pick his way through a close network of paths. This form, which is both fixed and mobile, is thus situated at the centre of the work as pivot, or centre of gravity.[23]

The performer is faced with a redoubtable 11' X 2' score in two colours, saturated with arrows and notational difficulties. *Miroir* is divided into five homogeneous sections, three of which are *points* (printed in green ink) and two of which are *blocks* (printed in red ink), and one section which is a *mixture* of both *points* and *blocks*. Beginning with the mixture, the performer is instructed to "alternate the homogenous groups."[24] However,

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[23]Ibid., p. 151.

[24]Pierre Boulez, "Formant 3 - Miroir," *Third Sonata for Piano* (Universal Edition, 1963).

the alternation between these groups is not up to the performer's discretion. Arrows at the end of the *points* or *blocks* direct the performer to the proper alternating group, and thus one route is allowed: *Mixture, Points 3, Blocks II, Points 2, Blocks I, Points 1* (*Example 8*). The alternation of *points* and *blocks* emphasizes the contrasting nature of their content, as described by Boulez:

> The score is in two colours, red and green: green for the groups marked *points* and red for those marked *blocks*. These two words are exact indications of the morphology of the structures used. *Points* are structures based on pure, isolated frequencies, chords being formed simply by the simultaneous occurrence of two or more points. *Blocks* are structures based on perpetually shifting blocks of sound, and these may be struck vertically or may disintegrate horizontally in very rapid succession, so that the listener's ear retains the identity of the block. In this way groups of points are contrasted with groups of aggregates; or, in other words, an unvarying neutral (pure frequency) is contrasted with a varyingly characterized individuality (sound block).[25]

Example 9 shows an aggregate from a *points* group and one from a *blocks* group. Such contrast is noticeable not only visually, but aurally as well.

Within each homogenous *points* or *blocks* section are a number of aggregates, all of which share the characteristics which define it as an isolated frequency (*points*) or a block of sound (*blocks*). Movement between these aggregates is controlled by arrows which are printed at the

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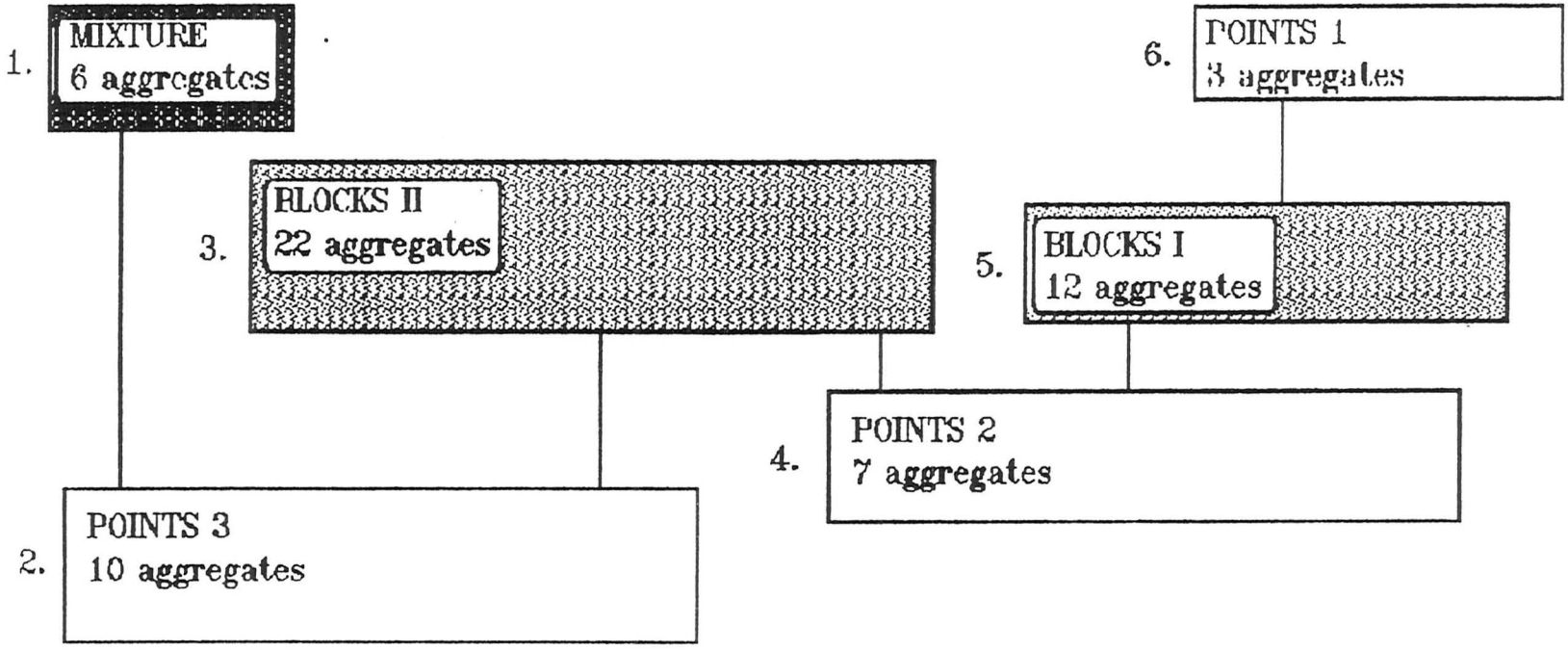
[25]Boulez, "Sonate," p. 151.



Example 8. The distribution of homogenous groups in *Miroir*, from Boulez's Third Piano Sonata.

end of the aggregate (*Example 9*). These arrows instruct the performer as to the possible aggregates which may be played next, allowing the performer to make the final decision. Boulez states:

> The route through each group and from one group to another should be carried out according to the reference marks indicated by arrows, without any omission or any repetition. The various different routes are indicated by arrows of the same shape which correspond to different places in the score. The route-modifications sometimes entail tempo-modifications which may also be independent of every form of route.[26]

At times, the performer has as many as seven possibilities from which to choose. However, of those possibilities, only those which have not yet been played may be chosen. In this way, the performer's choices are continually directed so that the end result is the performance of *all* aggregates in any homogenous group before moving to a new group. Since each group is fully completed before a new group is begun, the morphology of the movement, its large scale development, is not affected by the variability within each group. Rather, the *points* and *blocks* generate a perceivable contrast which does not vary from performance to performance.

Formant 2, subtitled *Trope*, is a literal representation of Boulez's demand for music "the right to parentheses and italics. . .:"

> For the moment, I merely want to suggest a musical work in which this separation into homogenous

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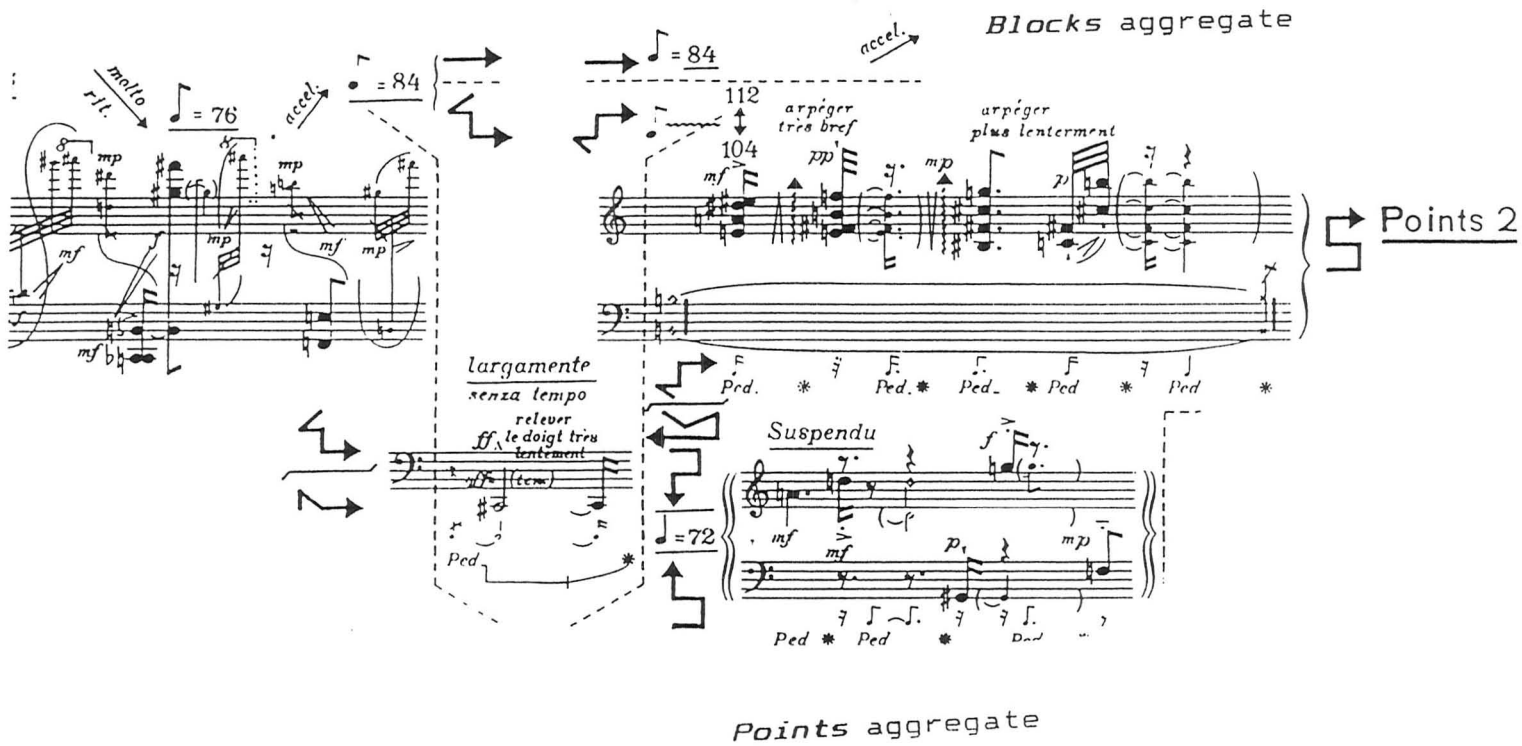
[26]Boulez, *Third Sonata*.



Example 9. Pierre Boulez, Third Piano Sonata, Formant 3, *Miroir* (Universal, 1963).

> movements will be abandoned in favor of nonhomogeneous distribution of developments. I demand for music the right to parentheses and italics. . . ; a notion of discontinuous time, thanks to structures that will be bound together rather than remaining divided and airtight; finally, a sort of development in which the closed circuit will not be the only solution envisaged.[27]

There are five sections in *Trope: Commentaire, Glose, Commentaire, Texte, and Parenthèse*. The performer may begin with any section and must follow it with the remaining sections, subject to certain restrictions (*Example 10*). Boulez explains:

> The idea of the form is circular: each autonomous development may serve as beginning or end, a general curve being in each case established by the registers selected, the density of the texture and the preponderant dynamic. Satisfactory connections between them are ensured by a very strict control of the initial and terminal zones. In this way we come back to the idea, . . . of a work with neither beginning or end, able to unfold at any given moment -- an idea materialized in this cycle of sheets, which has a direction but no fixed beginning.[28]

Of the two sections entitled "*Commentaire*," only one may be played per performance, to the exclusion of the other. The two *Commentaire* sections, along with the section entitled *Parenthèse*, contain bracketed musical aggregates, which may be omitted at the performer's discretion (*Example*

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[27]Pierre Boulez, "Today's Searchings" In *Notes of an Apprenticeship*, p. 26.

[28]Boulez, "Sonate," p. 150

FORMANT 2, *TROPE*

Published order of fragments:

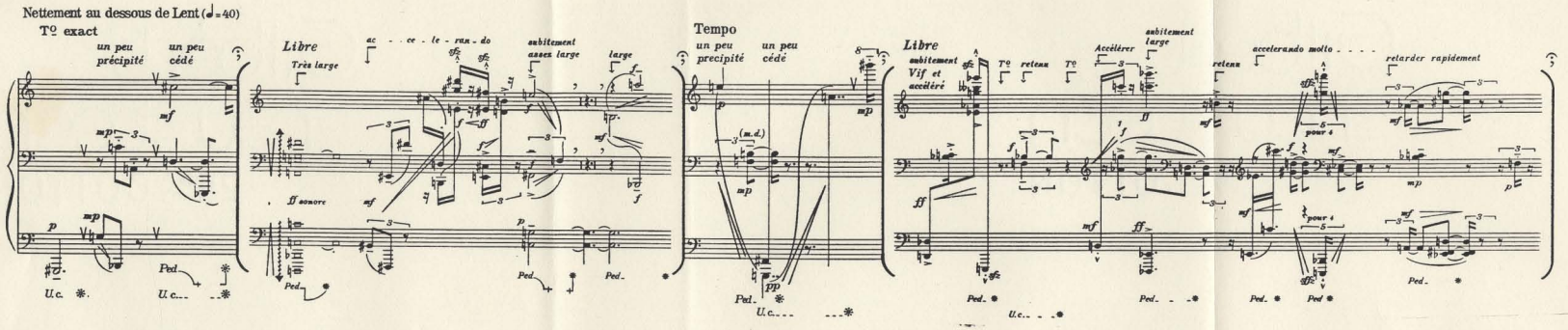
Commentaire–Glose–(Commentaire)–Texte–Parenthèse

Combinations allowed in performance:

Commentaire–Glose–Texte–Parenthèse
Glose–(Commentaire)–Texte–Parenthèse
Glose–Texte–Parenthèse–Commentaire
(Commentaire)–Texte–Parenthèse–Glose
Texte–Parenthèse–Commentaire–Glose
Texte–Parenthèse–Glose–(Commentaire)
Parenthèse–Commentaire–Glose–Texte
Parenthèse–Glose–(Commentaire)–Texte

Example 10. The mobile disposition of Formant 2, *Trope*, from Boulez's Third Piano Sonata.

Parenthèse



Example 11. Pierre Boulez, Third Piano Sonata, *Parenthèse* from Formant 2, *Trope* (London: Universal, 1961).

11). However, these optional aggregates are merely variations of the unifying musical idea, a fragmented tone row which is developed in four ways in each of the sections of *Trope*. Like the work as a whole, and the third formant discussed above, the musical statement Boulez wishes to make is unaffected by the variability he allows.

Antiphonie is the least variable of all formants; "only the general formal scheme is variable."[29] It is based on two individual structures, fragmented in such a way that there are four possible organizations of five fragments.

György Ligeti, writing about the Third Sonata, states:

> The new freedom of performers is not freedom to improvise, of the kind permitted to a limited degree in the age of discant or thorough-bass; it is only freedom to select the appropriate building possibility from the list prepared in advance by the composer. Composers are wily enough to allow interpreters merely an illusion of freedom, since in conceiving a work they bear in mind all the possible ways of performing it, and in handing over their work to the play of fancy they look on with maternal care.[30]

Ligeti's statement reminds us that the new perspective created by the openness in the work of Boulez is not one which changes the nature of a listener's perspective of the finished product. Rather, it is a design within

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[29]Ibid., p. 149.

[30]György Ligeti, "Some Remarks on Boulez' 3rd Piano Sonata," *Die Reihe* 5 (1975): 56.

which only the composer and performer may participate. Boulez's statements that "it is not important that the listener should immediately perceive the mobility of a work,"[31] and "I wanted the performer confronted by a work to be able to find himself in a completely fresh situation every time"[32] reflect such a conclusion. Robert Black notes that "the performer's rejection of a single, linear temporal dimension may finally loom as a mostly private attainment," one which can only "suggest the provisional, indeterminate radiations of time which are mirrored in the work's syntactical strategies."[33] And while Boulez believes the work "will take on a slightly different aspect each time it is heard in a different context,"[34] the strict control over content that Boulez has exercised reduces drastically the perceivable difference in form from one performance to another. The plinth of literary and philosophic support which Boulez has created for this work far exceeds the extent of the actual openness present in performance, an openness which is closed to the listener of a single performance.

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[31]Pierre Boulez, *Conversations with Célestin Deliège* (London: Eulenburg Books, 1976), p. 83.

[32]Ibid., p. 81.

[33]Robert Black, "Boulez's Third Piano Sonata: Surface and Sensibility," *Perspectives of New Music* 20 (1981-82): 186.

[34]Boulez, *Conversations*, p. 83.

Karlheinz Stockhausen

The aesthetic of Boulez is similar to that employed by Stockhausen. In *Klavierstück XI* (1956), the performer wanders among nineteen short musical events. This work is similar to the *Miroir* movement of Boulez's Third Sonata, with a number of important exceptions. First, Stockhausen does not limit the performer's route between aggregates. Instead, the performer is allowed to play "the first [aggregate] that catches his eye."[35] Second, while Boulez defined dynamics, attack, and tempo with pinpoint precision, Stockhausen's aggregates have none of these indications. Instead, the performer is required to select six degrees of loudness and dynamic, and is instructed in six possible attack modes. At the completion of any one aggregate, the level and type of each of these variables is indicated in bold letters (*Example 12*). These instructions are then applied to the next aggregate that the performer looks upon at random. Such a technique connects each aggregate in terms of tempo, dynamic, and attack, elevating these usually secondary elements to a higher level of causal control.[36] Third, if a performer comes upon an aggregate for the second time, the aggregate is modified according to bracketed instructions, usually

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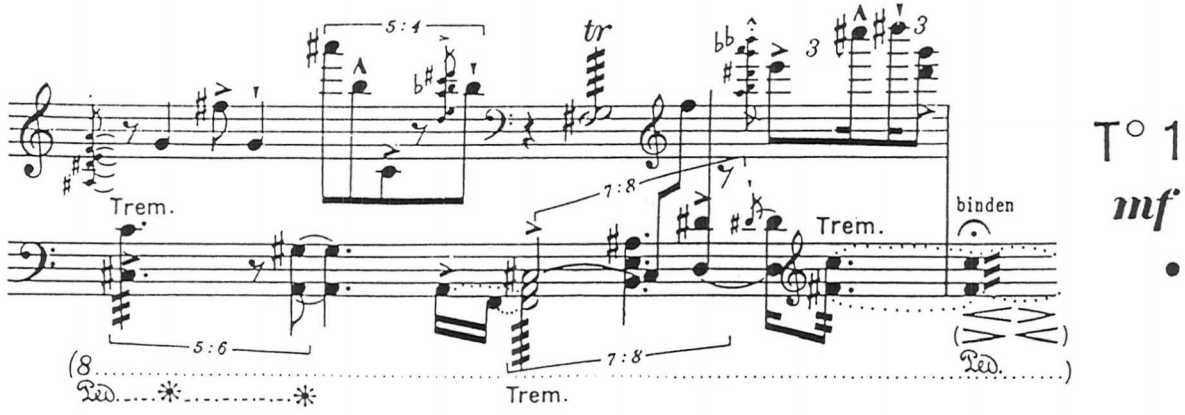
[35]Karlheinz Stockhausen, performing directions for *Klavierstück XI* (Vienna: Universal, 1957).

[36]For example, the aggregate shown in *Example 7* is always followed by an aggregate which is very fast, mezzo-forte, and staccato.



Example 12. Karlheinz Stockhausen, *Klavierstück XI* (Universal, 1957).

transpositions of the octave.[37] The work is considered complete when any one aggregate has been played three times.

Although it is not important for Boulez that the listener perceive the mobility of an open work, Stockhausen takes a quite different view, encouraging multiple performances of his work on a single concert:

> The field structure of a large form like this will become clear, naturally, when it is played several times in succession.[38]

Furthermore, Stockhausen makes the debatable claim that "music whose form is variable is recognizable as such:"[39]

> such music does not develop linearly toward a goal. . . when I play *Klavierstück XI*, a sense of interchangeability is communicated. A certain indifference about connections between disparate musical moments hovers over the piece. The piece involves neither deviation, nor a final, linear process.[40]

The observation that any musical performance is necessarily "linear," i.e. it moves from beginning to end through time, and the fact that there are

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[37]Stockhausen indicates that "when a group is arrived at for the second time, directions in brackets become valid; these are mainly transpositions to the 1st or 2nd octave ($8^{va...}$), (2 Okt...) up or down, varying according to the stave to which they apply; notes are also added or omitted."

[38]Stockhausen, *Klavierstück XI*, instructions.

[39]Karlheinz Stockhausen, "Interview et déclaration," *V.H. 101* 4 (1970-71): 112, as quoted in Nattiez, *Music and Discourse*, p. 84.

[40]Ibid.

many other musical works which, although they do not develop toward a goal are certainly not open (Cage's *Music of Changes* or Stockhausen's own *Klavierstück X*, for example) seem to raise some doubt about Stockhausen's claim. Jean-Jacques Nattiez raised further doubt when he attempted to verify that claim empirically:

> Stockhausen's positive statement -- that *Klavierstück XI,* "communicates" a sense of interchangeability of its parts -- cannot be verified except by inquiry among informant-listeners. I tried the experiment with semiology students (non-musicians) at the Faculté des lettres in Aix-en-Provence. Stockhausen's *Klavierstück XI* -- played as one in a group of other piano pieces -- is *not* recognizable as open, unless one describes what constitutes "openness" (a succession of formants not connected to one another) as a preamble to the audition.[41]

We know little, however, about Nattiez's "empirical experiment" other than the fact that it was performed on "nonmusicians," who probably (though not necessarily) lack the comparative skills in listening that would enable them to articulate the difference between a work by Brahms and one by Mozart. There *is* a sense, in listening to *Klavierstücke IX, X,* and *XI* in succession, that *Klavierstück XI does* in fact project a sense of interchangeability among its elements. But this also proves little other than the fact that while listening for openness one can hear openness in a work that is open. Stockhausen's call for multiple performances in a single concert is probably

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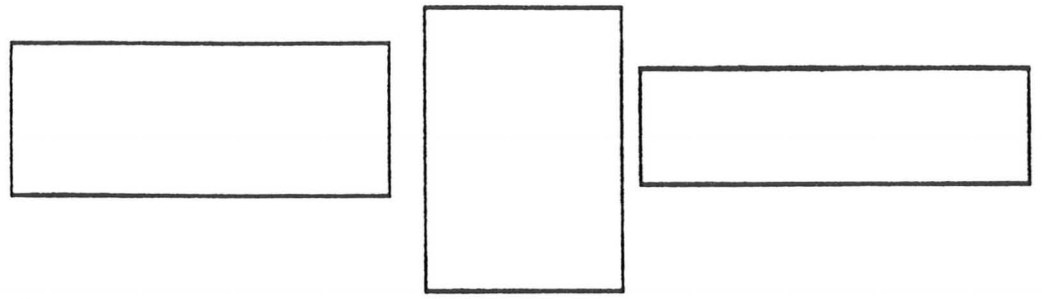
[41]Ibid., p. 85.

the most realistic situation to posit, because it draws attention to the openness by inviting and educating the listener in its function.

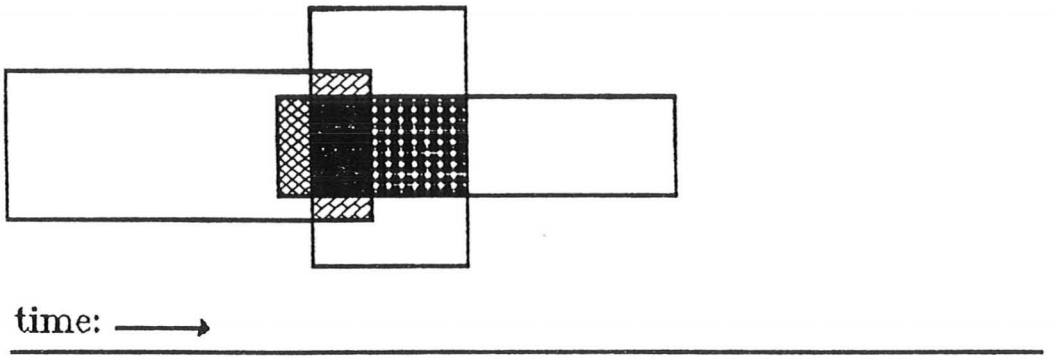
Earle Brown

Both Stockhausen and Boulez use the methods of openness, in these instances of determined content, in a limiting way. The possibilities granted to the performer may be best described as entirely *horizontal*. Using the analogy of an archipelago, the performer is allowed the liberty of traveling in any order to the islands, even, in the case of *Klavierstück XI*, missing some islands on the way. However, the performer is denied the omniscience of stacking, overlapping, or combining the islands in order to create new *vertical* relationships from the sound aggregates (*Example 13*). This type of open work was realized preeminently by Brown. Although his earlier works, such as *Folio*, are graphic scores in which the performer determines the content, the majority of his *oeuvre* comprises works in which the musical content is fully determined by him, but the degree of openness is multi-dimensional in comparison to that allowed by the aforementioned Europeans.

In such works as *Twenty-Five Pages*, *Available Forms I*, *Available Forms II*, *Novara*, *Event - Synergy II*, and *From Here*, Brown explores the possibilities of allowing for vertical relationships among separate



HYPOTHETICAL HORIZONTAL SEQUENCE OF AGGREGATES



HYPOTHETICAL SEQUENCE OF AGGREGATES IN WHICH VERTICAL COMBINATIONS ARE ALLOWED

Example 13. Distinction between horizontal and vertical arrangements of aggregates in open works.

aggregates. The mechanism of each work is endowed with instructions which call for the simultaneous, though independent, realization of musical events by performers. Such an uncontrolled collaboration produces not merely an object whose aggregates may be rearranged horizontally from performance to performance. Instead, the realized work is an object whose morphology depends upon the sympathetic, fortuitous vertical combination of such aggregates, producing a multi-dimensional manifestation of the determined content.

Twenty-Five Pages (1953) is considered by Brown to be the first open-form work.[42] Its openness could be considered quite similar to that suggested by Mallarmé's *Livre*, in which the pages could be considered independently or together, in any order, except for the condition that the work "may be played by any number of pianos up to twenty-five."[43] This means that the twenty-five pages may be distributed among twenty-five pianists, who would play simultaneously. Also, the pages may be played in any inversion (right side up or upside down), and the clef assignment for each two-line system is left to the performer's discretion (*Examples 14* and *15*). *Twenty-Five Pages* is also the first work in which Brown makes extensive use of "time-notation," a method he employed with regularity in

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[42]Earle Brown, in *Trackings*, p. 103.

[43]Earle Brown, *Twenty-Five Pages* (Vienna: Universal, 1975).

Example 15. Earle Brown, *Twenty-Five Pages* (Vienna: Universal, 1953), p. 1, upside down.

Example 14. Earle Brown, *Twenty-Five Pages* (Vienna: Universal, 1953), p. 1, right side up.

all open-form works. Also called "proportional notation," Brown describes it as

> durations extended in *space* relative to *time*, rather than expressed in metric symbols as in traditional notation. . . the indicated note durations are precise relative to each other and to the eventual time value assigned to each line system."[44]

A line system as indicated in the example may have a total duration from five to fifteen seconds, although none is specified. The duration of each note is then approximated as accurately as possible by the performer, the total time being the same from one two-line system to another. Such notation stems from Brown's frustrations with the nearly unplayable complexities of traditional notation such as were present in his *Perspectives*.

Indeterminate vertical combinations and time notation together loosen the determinate qualities of specific pitches. A performance of *Twenty-Five Pages* could thus involve 10 pianists playing together any collection of pages, each using a distinct, private system of time. The unpredictability in *Twenty-Five Pages*, however, was surpassed by *Available Forms I* and *Available Forms II*. Both are written for chamber orchestra and employ time notation. *Available Forms I*, which is discussed in detail in Chapter 3, is written for one orchestra, while *Available Forms II* is written for two orchestras, with two conductors. *From Here*, written in

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[44]Ibid.

1963, is written for orchestra and four optional choruses. These works each contain a number of aggregates,[45] all of which are visible to the conductor and performers during the performance. The conductor indicates, by means of a large placard affixed with a movable arrow and hand signals, the event to be played (all events are numbered) and the page on which it occurs. Each performer, unaware of the other performers' music, realizes the printed material at a speed relative to the intensity of the conductor's downbeat. In a work such as *From Here*, which employs two conductors, the overlapping and simultaneous performance of events creates a sonic surface which cannot be predicted previous to the actual performance. Brown explains:

> Either conductor may begin a performance with any event on any page and may proceed from any page to any other page at any time, with or without repetitions or omissions of pages or events, remaining on any page or event as long as he wishes. Both conductors conduct simultaneously but independently. This "independence" is of course conditioned by the coexistence of the other group, and, ultimately, is a collaborative and dependent process. It must be understood that this is *one* composition for essentially *one* group, a performance of which is the product of sympathetic musical collaboration between the two conductors in relation to the composed material and its formal potential.[46]

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[45]Brown calls these "sound events."

[46]Earle Brown, "General Directions for Performance," *From Here* (Universal, 1963).

Brown refers to Buckminster Fuller's term *Synergy* in describing this type of work:

> A general definition of the word is: a force (energy) which is a relevant and inherent but not necessarily foreseeable product of the combination and cooperative interaction of two or more initial forces. . .". . .the total effect is greater than the sum of the (two) effects taken independently. . ." It is the rather typical art-equation of 1 plus 1 equals 2X, 11, 8, etc., in which the unforeseeable is continually present (with or without invitation) and indispensable. . the X factor which is a coefficient of action relative to intention.[47]

Brown allows a work's openness to affect not simply the composer and performers, but the performers and listeners. Brown remarks that such plasticity "is an indispensable element which engages the performers, the conductor, the audience, and myself in the immediacy of the work."[48] Obviously, a listener is not aware of the choices being made during a performance, and like Stockhausen's *Klavierstück XI* must rely on multiple hearing to acquire a knowledge of the *field* from which the events emerge. However, the use of the large placard, a conductor (or conductors) who do not *conduct* in the usual sense, and generally elaborate program notes

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[47]Earle Brown, "Prefatory Note," *Available Forms I* (Vienna: Universal, 1962). Quist notes that Brown's punctuation is highly idiosyncratic, and the presence of ellipses (with variable numbers of dots) "is common in his personal letters and evokes a certain 'stream-of consciousness' quality." The ellipses in this quotation reflect such style, and are not deletions.

[48]Brown, *Available Forms I.*

indicate Brown's understanding of the necessity of theatricality in the presentation of a work of this type. Such visual aids direct the listeners' attention to the fact that the music they hear is somehow indeterminate, and that they are experiencing the forming of it as it is being played. The aesthetic Brown wishes to project is thus communicated with a directness lacking in the solo works of Boulez and Stockhausen already discussed.

OTHER COMPOSERS

The works of Brown, although open in a wider sense than those of Stockhausen or Boulez, remain within the realm of works in which the content is determined. It becomes more difficult to say whether or not content is determined in many works by Cage. His *Concert for Piano* is particularly enigmatic. The piano part is written on 63 pages, each one containing up to 7 aggregates. There are 232 total aggregates, of which 154 are determinate with regard to pitch. Cage instructs the pianist:

> Each page is one system for a single pianist to be played with or without any or all parts written for orchestra instruments. The whole is to be taken as a body of material presentable at any point between minimum (nothing played), both horizontally and vertically: a program made within a determined length of time (to be altered by a conductor, when there is one)

> may involve any reading, i.e. any sequence of parts or parts thereof.[49]

Such instruction assumes that the performer is to create a rather incontinent mix of all aggregates. Also, each aggregate contains suggestions as to the physical processes which must be applied to such determined pitches, and in many cases this involves playing pitches which may not be specifically notated. 84 types of aggregates require separate explanations due to the enigmatic nature of the notation. For example, the aggregate in *Example 16* is described this way:

> Begin at left, end at right, changing direction at intersections if desired. May be expressed as one voice, a 'counterpoint',or as 3 or 4 voices. Pedals only in areas indicated, not obligatory.[50]

Because of the virtual infinity of possibilities of this work, both from horizontal and vertical combinations as well as the indeterminacy built into each aggregate itself, any realization becomes more or less a controlled improvisation, and thus lies at the farthest extreme of works which have a determined content.

Another work which is similar to Cage's is *Archipel III*, by André Boucourechliev. It is scored for piano and six percussionists, and involves

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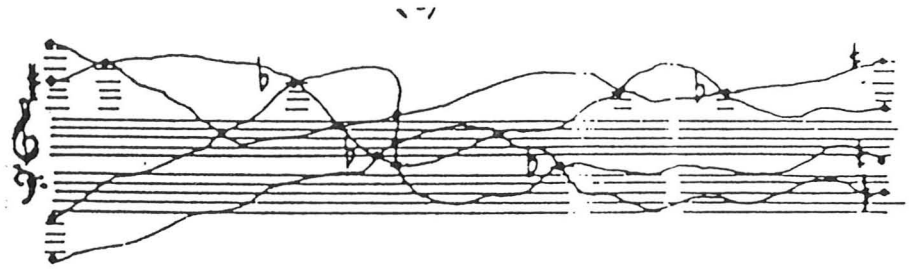
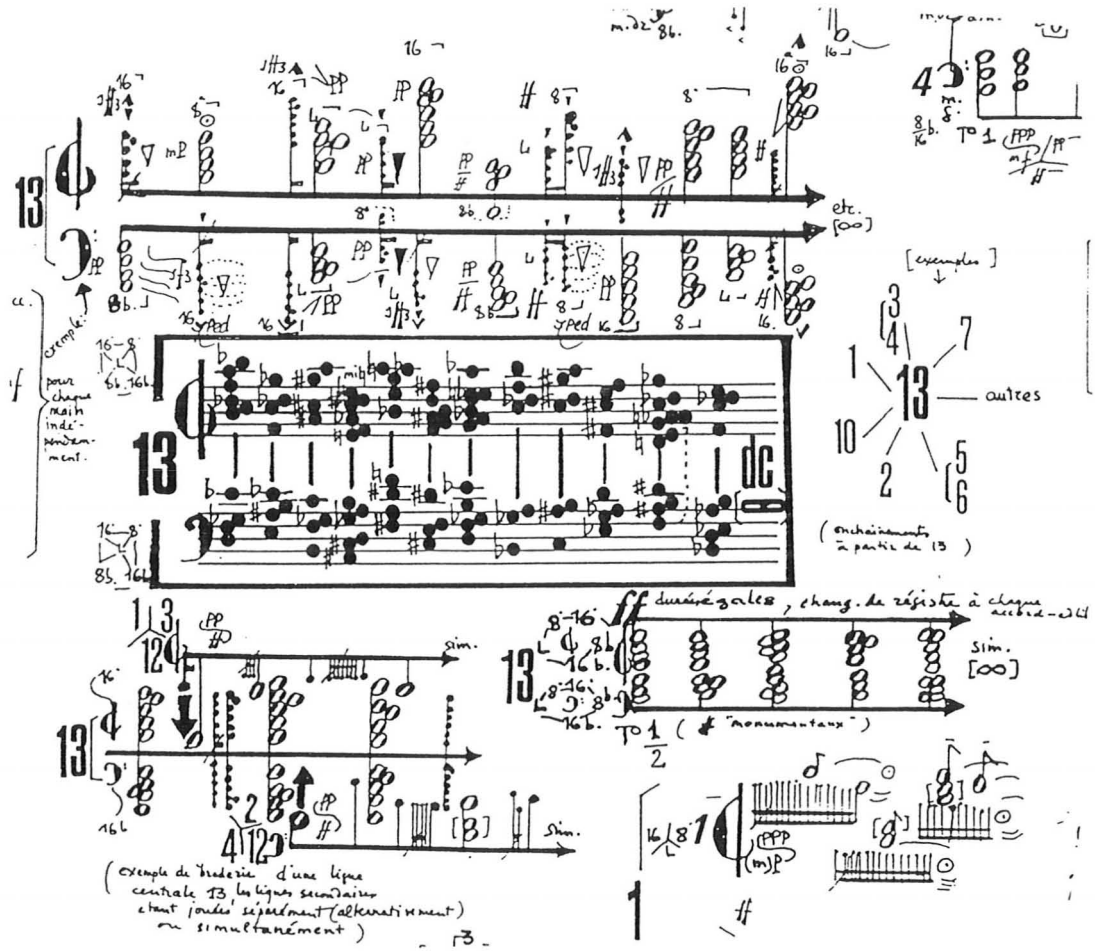
[49]John Cage, *Concert for Piano and Orchestra* (New York: Henmar Press, 1960).

[50]Ibid., p. 30.



Example 16. John Cage, *Concert for Piano* (New York: Henmar Press, 1960).

the *free* application of raw pitch material to roughly notated rhythmic diagrams. *Example 17* shows a collection of pitches (enclosed in solid black) surrounded by seven possible rhythmic realizations. The performer may play any or all of the patterns, although under no obligation to do so. The piano score is two feet by three feet, and contains fourteen such groups. Like the Cage work, it is difficult to imagine that in a performance, these *aggregates* could retain some type of recognizable identity each time they were realized. However, like Cage's work, just as for Brown's, an argument could be made that as the content becomes less determined, it becomes more obvious to a listener that the work is open. This is, of course, unverifiable, but a work which involves improvisation combined with an element of theater would seem to suggest openness in a more successful way. Also, the philosophical position posited by Brown, Cage and Boucourechliev is admittedly more realistic in terms of realizing openness. Boulez and Stockhausen walk two sides of the fence by wanting to "have their work, and vary it too," while Cage would just as soon eliminate the concept of the *work* altogether, accepting each performance not as one possible realization, but as one unique performance.



Example 17. André Boucourechliev, *Archipel III*, piano score (Paris: Editions Musicales Alphonse Leduc, 1970).

OPEN WORKS IN WHICH THE CONTENT IS INDETERMINATE

A work which is indeterminate with respect to content is one in which decisions as to instrumentation, notes, dynamics, and articulation are made by the performer. These works take the form of either graphic scores (visual shapes which are interpreted), or verbal instructions for a particular process which when completed will engender the work to be performed. The latter type, resembling a musical *kit*, is common in a series of works by Cage entitled *Variations*, which he wrote between 1957 and 1978. These works come the closest to eliminating the composer from the creative process altogether, thereby eliminating the concept of the "work" which can be repeated indefinitely. At the same time, it challenges the concept of openness. An open work, in the sense that has been described herein, relies on the "work" concept in order to project the idea that each performance of that work, while being different in formal construction, is still the same work in some sense, and that each performance contains something in its physical or sonorous makeup that connects it with any other performance of that same work. The lack of determined content in these works by Cage (or others) creates difficulties both quantitatively and qualitatively as to the degree to which two performances can be posited as being of the same work.

Variations II (1961) is a case in point. It was written "for any number of players and any sound producing means."[51] The score itself consists of eleven transparent sheets of plastic, six having single straight lines and five having points. Cage's instructions for the work are reproduced here:

> The sheets are to be superimposed partially or wholly separated on a suitable surface. Drop perpendiculars from the points to the lines (where necessary to extensions of the lines). Measure the perpendiculars by means of any rule, obtaining readings thereby for 1) frequency, 2) amplitude, 3) timbre, 4) duration, 5) point of occurrence in an established period of time, 6) structure of event (number of sounds making up an aggregate or constellation). A single use of all the sheets yields thirty determinations. When, due to 6), more are necessary, change the position of the sheets with respect to one another before making them. Any number of readings may be used to provide a program of any length. If, to determine this number a question arises or if questions arise regarding other matters or details (e.g. is one of the parts of a constellation itself a constellation, or aggregate), put the question in such a way that it can be answered by measurement of a dropped perpendicular.[52]

In *Circumscribing the Open Universe*, Thomas DeLio analyzes this work as "a structure the inherent pluralism of which focuses attention on its own

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[51]John Cage, *Variations II* (New York: Henmar Press, 1961).

[52]Ibid.

generative processes."[53] His analysis uses as its basis one particular, simplified, superimposition of the sheets:

> *First*, the total available range of each parameter is partitioned into two broadly defined regions (low-high, loud-soft, short-long) as a result of the configuration of dots over each line; *second*, an association is made between members of these pairs (short/low/loud, long/high/soft) as a result of the configuration of the lines; and *third*, a density ratio is determined, the result of which will be the sounding of three times as many sounds of the short/low/loud type as there will be of the long/high/soft type. The final aural result is, then, that of a statistical distribution of sounds over several parameters and one specific correlation of those distributions.[54]

Example 18a represents a hypothetical arrangement of dots and lines based on a simplified model of *Variations II*. DeLio explains:

> Here the dots represent sonic events and the lines are given assignments as sonic parameters. Let us say, for instance, that l_1=duration, l_2=pitch, and l_3=volume. If a dot falls close to l_1, it represents a short sound; close to l_2, a low sound; and close to l_3, a soft sound; far away from l_1, a long sound; far away from l_2, a high sound; and far away from l_3, a loud sound. . .With respect to this particular configuration, then, it seems clear that there will be three times as many short sounds as long, and three times as many low sounds as high, since three dots fall close to l_1 and l_2 and one far away. Also there will be three times as many loud

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[53]Thomas DeLio, *Circumscribing the Open Universe*, p. 25.

[54]Ibid., p. 15.

> sounds as there are soft since only one dot is close to l_3 while three are far away.[55]

The information is then summarized in *Example 18b*. However, since *Variations II* "consists not just of the specific characteristics of one specific configuration, but of the full range of all such possible configurations and the mechanism through which one may gain access to each of these,"[56] a statistical distribution of elements for one performance is of limited value, as DeLio notes in conclusion:

> The subject of Cage's *Variations II* is not simply the evolution of one specific form from a particular collection of materials; rather, it is the recognition of that infinite multiplicity of structures which any collection of materials might engender. Through his composition, Cage has made available all the possible variants of one type of structure, but has himself singled out none in particular to be the specific form of the work. *Variations II* is, then, one large comprehensive system which represents the total accumulation of its many constituent realizations.[57]

DeLio's analysis is a very neutral examination of the musical score, and lacks any reference to the listener's possible perspective on the aural result. By choosing this approach, DeLio defines the work's openness as its immanence, a structure from which structures may be created. And while

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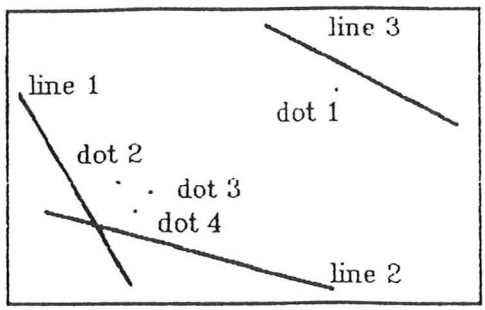
[55]Ibid., pp. 11-26.

[56]Ibid., p. 25.

[57]Ibid.

A.



B.

	CLOSE	FAR
LINE 1	3	1
LINE 2	3	1
LINE 3	1	3

Example 18. Analysis of John Cage's *Variations II*, in Thomas DeLio, *Circumscribing the Open Universe* (New York: University Press of America, Inc., 1984), pp. 11-26.

there is no doubt the work is open, it is open more in a philosophical sense than in a physical or empirical sense. There is some doubt as to whether the glimpse at infinity afforded the listener in any given performance of *Variations II* matches the intensity to which Cage's philosophy presents itself.

DeLio notes, correctly, that

> The twentieth century has witnessed the emergence of an increased awareness that structure can no longer be viewed simply as a family of relationships discerned among the elements of a single closed gestalt. Rather, a structure is a complex process evolving over a period of time, integrating an elaborate and diverse range of activities reaching out far beyond the framework of the art object itself.[58]

The works he refers to in this regard are Cage's *Variations II* and works such as Wolff's *For 1, 2, or 3 People* (1964, *Example 19*), and Robert Ashley's *in memoriam. . . Esteban Gomez* (1967). In both of these works, the score provides instructions for the creation of content based on the individual performer's reaction to the sounds which emanate from other performers. Both works are indeterminate with respect to content and form, and create a situation wherein sound events continually modify and react to other

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[58]Ibid., p. 71.

sound events. The aural results are "gestures themselves" which "do not signify anything beyond their essential characterization as behavior:"[59]

> The work [*For 1, 2, or 3 People*] is not so much a construction of sound as a situation of action and response defined abstractly through sound. What is perceived as form is the ensemble of these interactions while the aural result is merely one particular sonic projection of that form.[60]

The scores to both of these open works allow for an infinite number of "sonic projections." But what is important in each sonic projection is not the finality of it through time, as an object or product. Rather, the focus of the performance is the activity of performing, the process by which the creation takes place. Thus, the importance of the act, at the moment the act occurs, takes precedence over any number of sonic projections which could occur by means of that act. The question that must be asked in this regard is to what point this openness leads. If, as DeLio says, "it is incorrect to refer to any particular realization of the score as Ashley's composition," and, as it can be assumed, the sounds which result from the interaction of performers are of secondary importance to the act itself, then how is one to identify Ashley's or Wolff's composition? The answer, of course, is that it isn't to be identified because it isn't a *work* in the sense which traditionally the *work*

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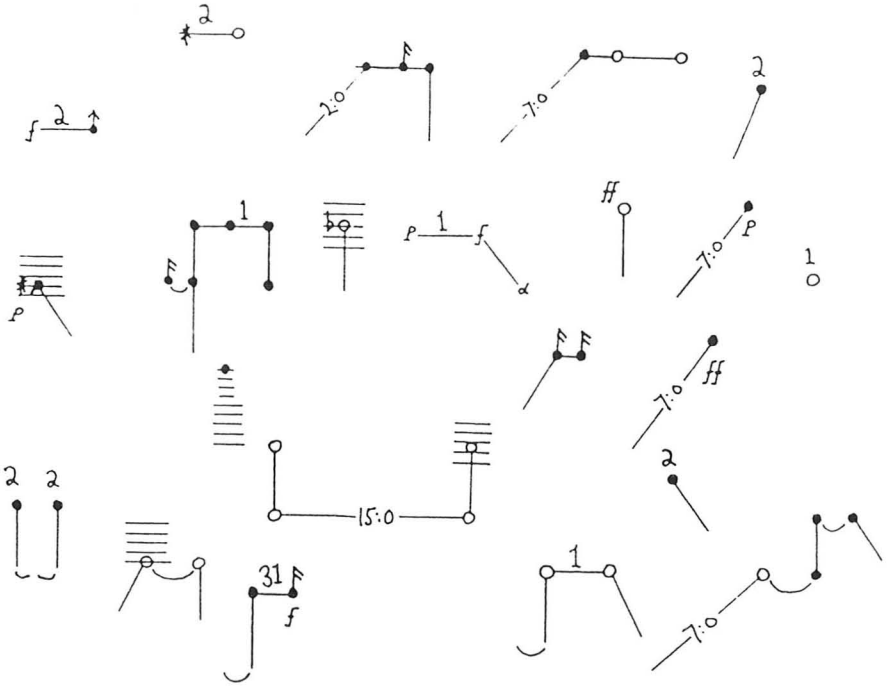
[59]Ibid., p. 65.

[60]Ibid.

III



Example 19. Christian Wolff, *For 1, 2, or 3 People* (New York: C.F. Peters, 1964), p. 1.

has come to be conceived. Like Cage's, Wolff's and Ashley's works call for the eradication of the object. The object is replaced by "a resonance of the structure of human behavior"[61] or, to paraphrase Georges Bataille, "being attaining the blinding flash in tragic annihilation."[62]

The content of a musical work is the one element which defines it, in a recognizable way, from one performance to the next. It is for this reason that composers who favor a philosophy in which the object is anathema resort to eliminating content as a determining factor in their works. Form is, to paraphrase Stefan Wolpe, "ripped endlessly open"[63] by negating the importance of pitches, timbres, and dynamics which *are* music. Nattiez notes that

> We would not know how to speak of *music* without referring to sonority, *even when the reference is only implied.* We can, then, allow (without too much soul-searching) that sound is a minimal condition of the musical fact.[64]

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[61]Ibid., p. 54.

[62]Georges Bataille, "The Labyrinth," in Mark C. Taylor, ed., *Deconstruction in Context* (Chicago: University of Chicago Press, 1986), p. 381.

[63]Stefan Wolpe, "Thinking Twice" in *Contemporary Composers on Contemporary Music*, Barney Childs and Elliott Schwartz, eds. (New York: Holt, Rinehart and Winston, Inc., 1967), p. 302, as quoted in DeLio, *Circumscribing the Open Universe*, p. 11.

[64]Nattiez, *Music and Discourse*, p. 43.

This is not to show that Cage and associates do not write *music*, but rather to show that by elevating the aspects of a performance which do not focus on sonority, these composers create an aesthetic conundrum. These works are necessarily open *vis à vis* their philosophical perspective, and as such are not open in the same sense as the content-determined works in which openness is described in terms of a defined object subject to formal manipulations.

WORKS IN WHICH FORM IS DETERMINED AND CONTENT IS INDETERMINATE

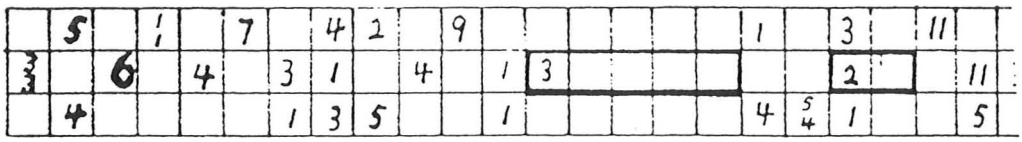
This category is peculiar. Works in this category are open by virtue of their indeterminate content as described above. However, the shape of the work, its overall time frame, or its morphology is in some way controlled so that the works follow a pre-determined path. Examples include Feldman's *Intersection III* (1953), Roman Haubenstock-Ramati's *Multiple 5* (1969), and Luciano Berio's *Sequenza III* (1968).

Intersection III for piano solo is a graphic score which is made up of numbers and small boxes. The boxes are read horizontally for time (each box is equal to m.m 176) and vertically for range (high, medium, and low). The notes to be played are indicated by numbers which appear inside the boxes. Dynamic and rhythmic entrances are left to the performer's

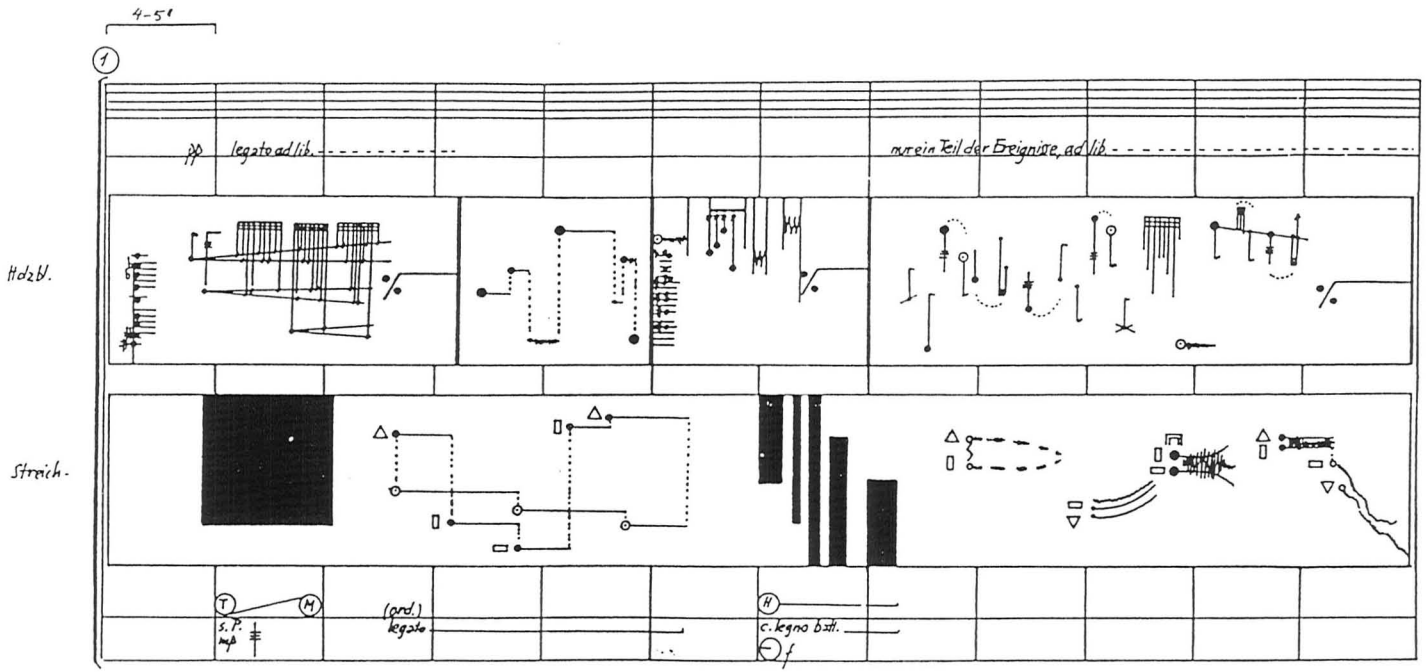
discretion. Thus, in the first box in *Example 20*, two groups of three notes are to be played in the middle register of the piano in approximately three-tenths of a second. Although each performance will be different, the time frame of the work and the density of pitches will remain constant.

Haubenstock-Ramati's *Multiple 5* (*Example 21*) is quite similar. It is scored for a woodwind instrument and a string instrument, "ad lib." Like Feldman's work, movement through time is strictly controlled. Thus, vertical combinations are controlled, and the type of sound is controlled within limits. The notation is all "graphic," and is mainly made up of special instrumental effects. Where specific pitches are available, they are notated to the side of a rhythmic structure into which the performer may insert them ad lib.

Sequenza III, like the works above, is temporally controlled in performance. It is written for solo voice, based on a text by Markus Kutter. Although there are instances of notated pitches, a majority of the text is given over to special vocal effects. Mediating the entire work are instructions written above the text which indicate patterns of emotions and vocal behavior, such as "tense," "urgent," or "dreamy." Berio further encourages the performer to "let these cues act as a spontaneous conditioning factor" to the vocal action. The factor of variability between



Example 20. Morton Feldman, *Intersection III* (New York: C.F. Peters, 1962), p. 1.



Example 21. Roman Haubenstock-Ramati, *Multiple 5* (Universal, 1969), p. 1.

performances of this work is primarily the way in which each performer articulates the emotional cues which correspond to the text.

In all of these examples, although the content is in some sense variable, the time frame and sequence of events which articulate the form remain constant from performance to performance. It is difficult to consider these works as open in the sense that has been discussed thus far. Rather, they should be considered as extremes in the category of works in which both content and form are determined.

CHAPTER 3

THE ANALYSIS OF OPEN WORKS

Analytical methods should be modified when examining an open work. It cannot be said of an open score that:

> The work [score] has the one and only order of succession of its parts, a unique quasi-temporal structure determined once and for all by its author.[1]

And since temporal determination is anathema to open works, it creates a problem, one which affects not only philosophers but also musicians in their discussion and performance of these works. How is it possible to describe a musical work which disrupts the traditional relationship between work and performance, a musical work which on the one hand represents a finished product of its author's efforts, and on the other is implanted with an anti-objectivity mechanism which scatters its constituent parts differently on each performance?

Most analyses involve descriptions of the objects *qua* objects, rather than objects *qua* process, which is the rule with open works. Such

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[1]Roman Ingarden, *The Work of Music and the Problem of Its Identity*, trans. Adam Czerniawski, ed. Jean G. Harrell (Berkeley: University of California Press, 1986), p. 17.

analyses are observations of the functioning of constituent elements in a temporal progression, necessarily so because traditional works of music make no initial distinction between the score and the performance: the sequence is the same in both. Open works require a new approach. One possible solution is merely to describe such works, or attribute their significance to an uncompromising avant-garde aesthetic. However, we are reminded by James Pritchett that "such an attitude is grossly irresponsible."[2] Open work scores do give concrete information as to how each performance may proceed, and although different from traditional music, such scores and performances thereof enjoy a relationship that is quite capable of elucidation.

Two analyses will be presented here. From the category of open works in which content is determined, Brown's *Available Forms I* will be analyzed. The written score will be examined first to determine which elements function within the composition. The function of those elements will then be verified empirically by examining two performances of that work. Cage's *Variations III* will be analyzed as an example from the category of open works in which content is indeterminate.

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[2]James Pritchett, "Understanding Chance Music," in Fleming and Duckworth, eds., *John Cage at Seventy-Five*, p. 251.

Example 22 is one page from *Available Forms I.* There are six such pages, with four or five aggregates per page, for a total of 27. Each aggregate is a unique collection of pitches, visually enclosed in a black line.[3] The work is scored for winds, percussion, and strings. As indicated in Chapter 1, the conductor is equipped with a large placard on which an arrow is mounted, and all six pages of the score are visible at once. During the performance, the conductor indicates the page that is to be played by the position of the arrow, and the aggregate(s) to be played with the left hand. Brown states:

> the conductor may begin a performance with any aggregate on any page and may proceed from any page to any other page at any time, with or without repetitions or omissions of pages or aggregates, remaining on any page or aggregate as long as he wishes.[4]

Dynamic and speed of each aggregate is indicated by the size and intensity of the downbeat.

Such instructions make time, dynamic, order of aggregates, and position of aggregates in relation to each other. But there are other factors of variability as well. First, once an aggregate has been cued, the

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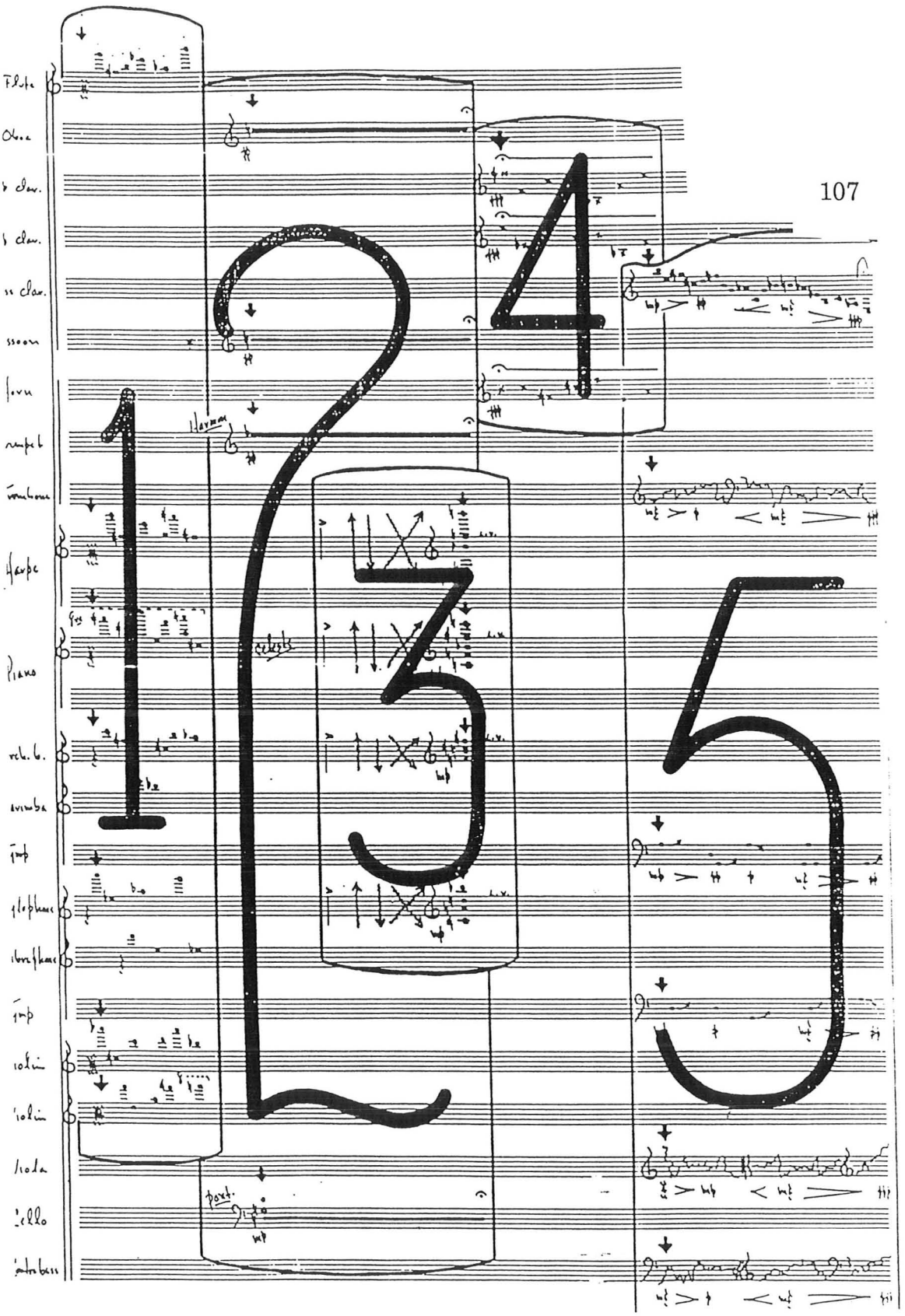
[3]The large dark numbers which appear in each aggregate do not, in original score, cover the notes as they do in the reduction.

[4]Earle Brown, "Performance Note," *Available Forms I* (New York: Associated, 1961).



Example 22. Earle Brown, *Available Forms I* (New York: Associated, 1961), p. 4.

performers are instructed to express the sounds in the aggregate relative to their placement within the lines which define the beginning and end of the aggregate. In other words, there is no set tempo, and the conductor does not beat time within each aggregate. Second, the completion of the aggregates is not controlled. Brown lists three ways in which aggregates may be completed:

> *Automatic Stop*: instrument runs out of material (events 1 & 5 on page 4).
> *Fermata*: held until stopped by conductor, breathing when necessary (event 2 on page 4).
> *Fermata Repeat*: when material is exhausted, go back to the beginning and repeat until stopped by conductor. No two performers will "go back" at the same time -- intentionally continually modifying the event-texture (event 4 on page 4).[5]

Third, "there is overlapping of events."[6] If the conductor decides to cue two aggregates simultaneously, decisions made by each performer individually will "uncontrol" each aggregate in relation to the other. Brown gives two examples:

> *Page 2, events 1 & 2* [*Example 23*]: If the conductor indicates that events 1 & 2 are to be played *simultaneously* (holds up 1 finger, then 2 fingers, then gives only *one* downbeat), the Bass Clarinet, etc. [Bassoon, Horn, Trombone, Marimba, and Contrabass] plays event 1 and then goes into event 2. This tends to un-control the precise beginning of event 2 because not

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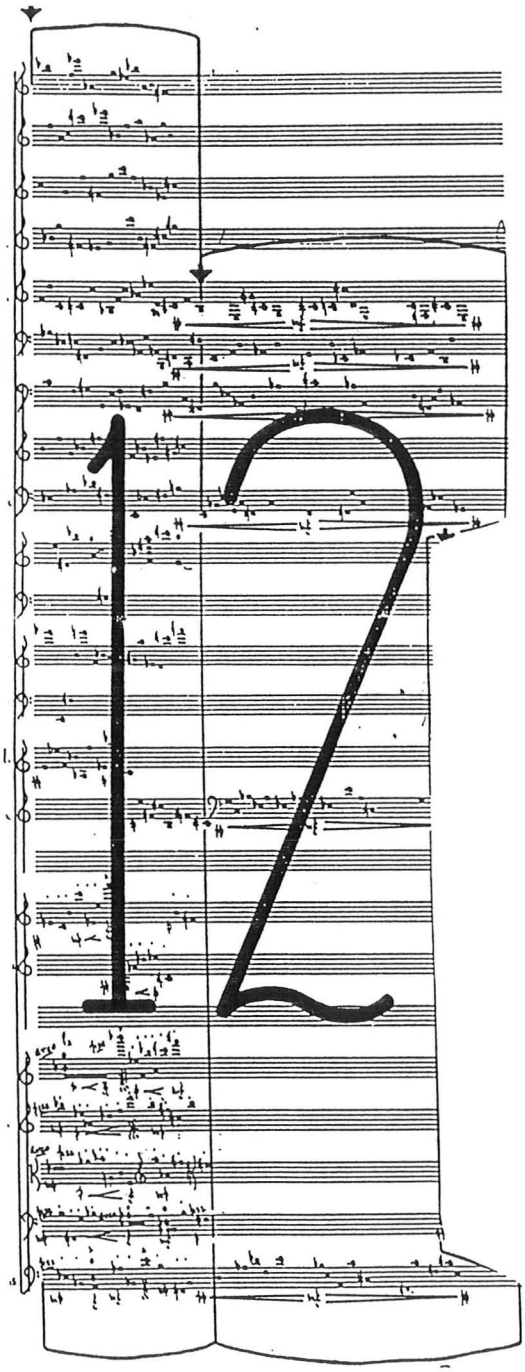
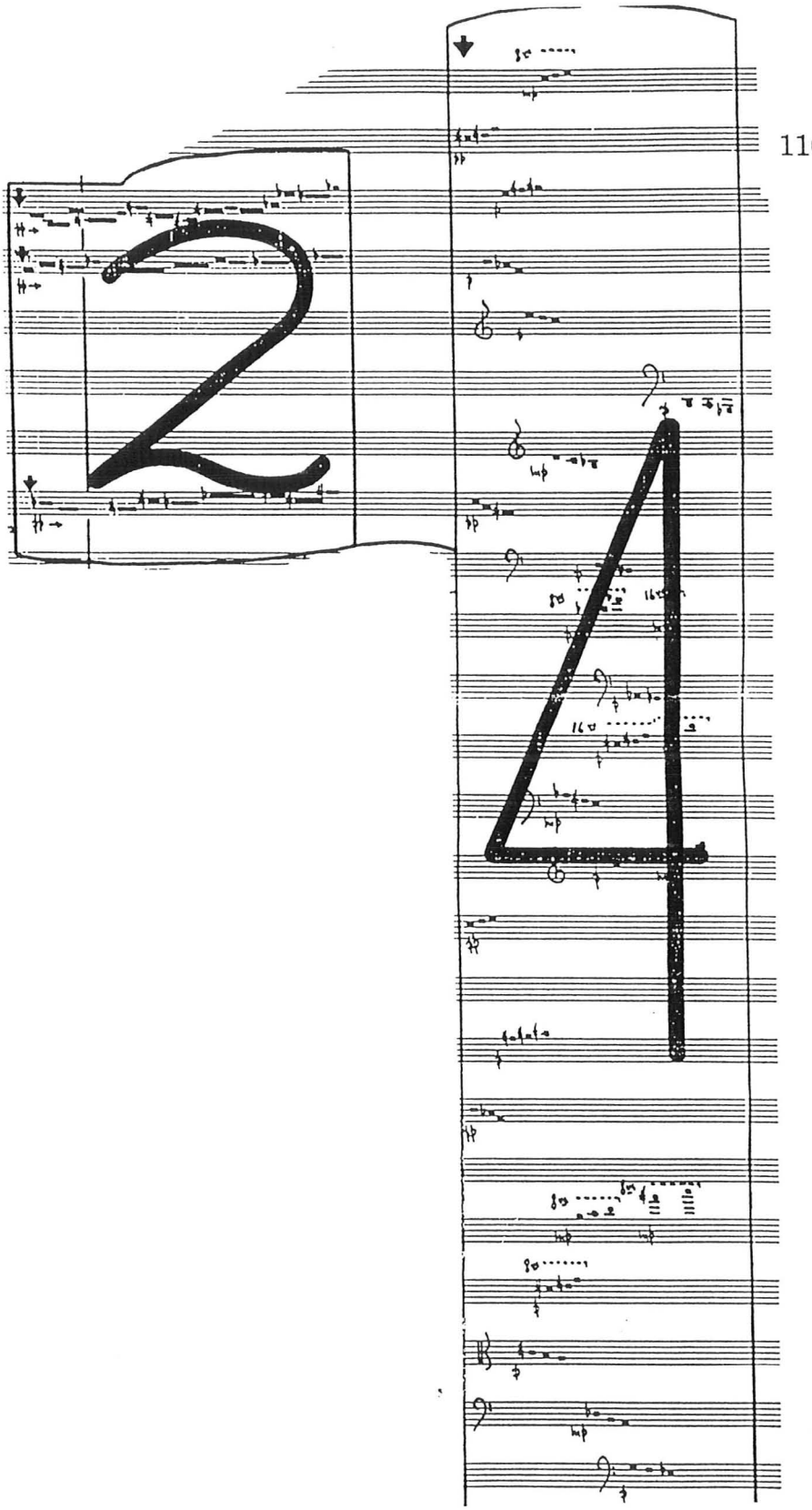
[5]Ibid.

[6]Ibid.



Example 23. *Available Forms I*, page 2, aggregates 1 & 2.



Example 24. *Available Forms I*, page 3, aggregates 2 & 4.

> all event 2 performers will arrive at the first note at the same time (Event 2 conducted alone will be different but not better).[7]
>
> *Page 3, events 2 & 4* [*Example 24*]: If these two events are conducted simultaneously, as in the previous example, the E-flat Clarinet, the B-flat Clarinet, and the Trumpet will have to play event 2 before going into event 4, while the instruments not having event 2 will immediately play event 4. This will result in a modification of both events by *super-imposition*: the three instruments play event 2 while the others play event 4, and the notes of the Clarinets and the Trumpet in event 4 will be pushed out to the right (looking at the score).[8]

Fourth, if the conductor gives the downbeat for a new aggregate while an aggregate is in progress, the players have the option of finishing the present aggregate *or* skipping to the new one. In this case, "neither I [Brown] nor the musicians nor the conductor knows what each will do: the results are unforeseeable and an available form of these events."[9] Fifth, one instrument or group of instruments may be isolated at the conductor's discretion. Brown allows the conductor to "pull one instrument out of the ensemble up to a plane of predominance" or "modify the loudness on different planes in different sections."[10]

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[7]Ibid.

[8]Ibid.

[9]Ibid.

[10]Ibid.

The 27 aggregates in *Available Forms I* may be reduced to four categories: I) dense pointillistic aggregates with short (staccato) notes, II) directed low to medium density aggregates, III) sustained pitches (no horizontal motion), IV) special effect or coloristic aggregates. These analytical categories are grounded in what Nattiez calls "perceptive introspection:" they are what a listener hears.[11] Because content is determined in all aggregates, each aggregate *generally* retains its unique identity regardless of the extent to which it is subject to modifications or superimpositions during a given performance, and *at least* can be recognized as a member of one of the above categories. Indeed, it is possible to use these perceptual categories both in descriptions of the *work* independent of its performances, and in descriptions of performances themselves. This in turn allows hypotheses about the morphology of this specific work and about Brown's compositional procedure and his ideas about the nature of variable form.

Example 25 shows example of an aggregate belonging to category I.[12] This category is defined by the presence of 1) full orchestra, 2) series of short staccato notes, and 3) a high number of notes per aggregate,

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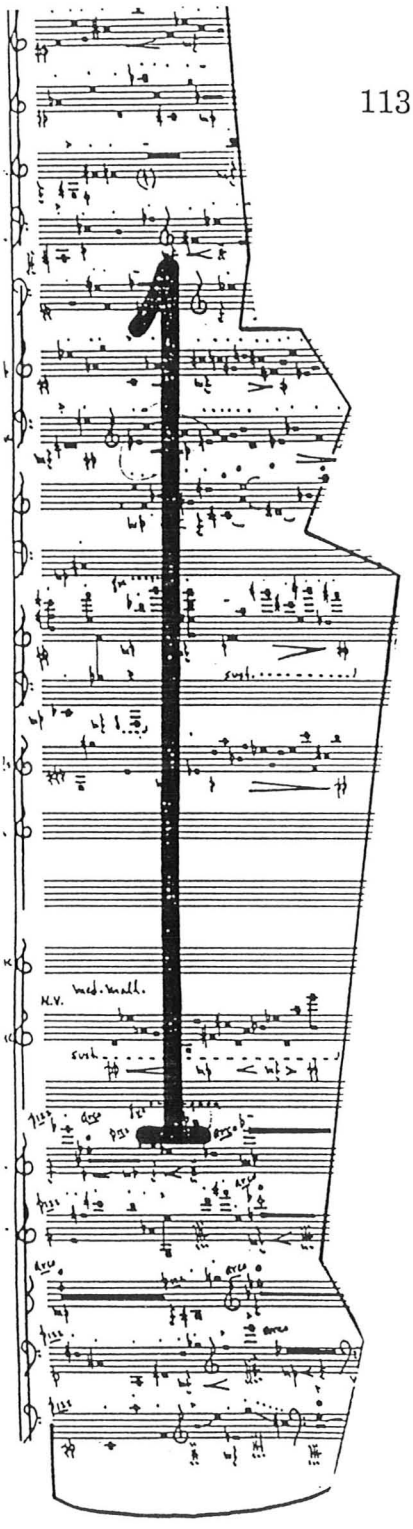
[11]Nattiez calls this type of analysis *inductive esthesics*. Nattiez, *Music and Discourse*, pp. 141-2.

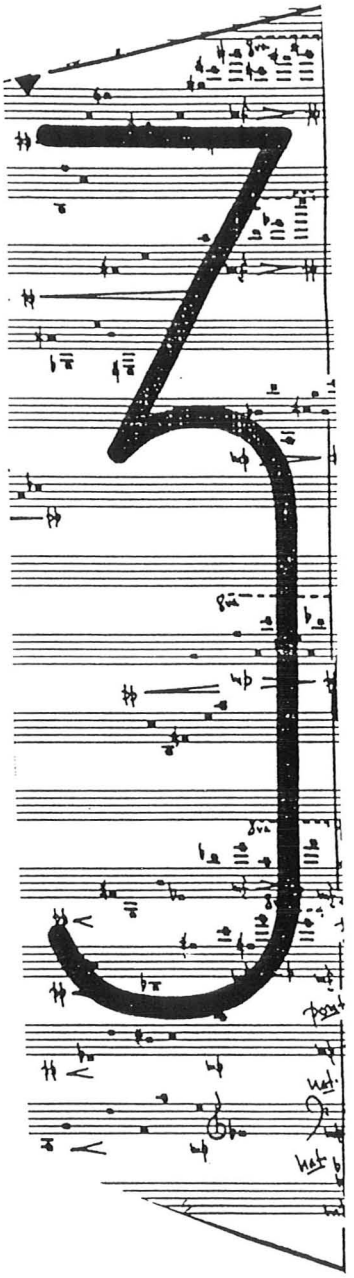
[12]To avoid confusion, all categories, pages, and aggregates will be referred to in this way: *III:2,4* (category III, page 2, aggregate 4).



Example 25. *Available Forms I*, Category I, page 1, aggregate 1.

ranging from 134 in *I:1,4* to 289 in *I:1,3*. There are five such aggregates in this category. The pitches and intervals are distributed evenly such that no one pitch or interval, or collection of pitches or intervals, predominates. The highly similar nature of each aggregate in this category provides a necessary element of repetition, against which events in category III (sustained pitches) can contrast. However, while each aggregate in category I contains a similar collection of pitches, between individual parts there is much diversity. The individual parts, though pointillistic in nature, are articulated (particularly in the strings) by sustained notes, harmonics, glissandi, pizzicato, and other effects which generate musical interest by contrasting with the prevailing style of the aggregate.

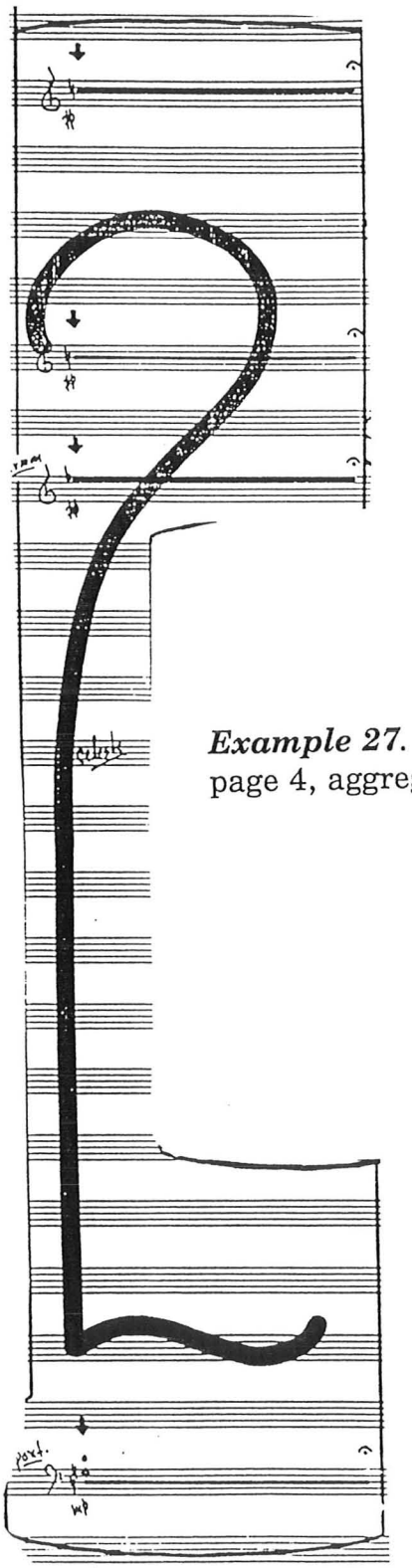
Example 26 shows an example of an aggregate from category II. The characteristics of this category are 1) reduced orchestra, 2) generally, a lack of staccato markings on notes (with some exceptions), and 3) significantly fewer notes per aggregate (26-82). Aggregates in this category, such as *II:2,3* have a directional quality, a sense of melody and progression towards a goal. In other words, the timbre and range of category II aggregates undergo a high rate of change, as opposed to categories I and III which are essentially static. Pitches and intervals are evenly distributed. There are ten such aggregates in this category.



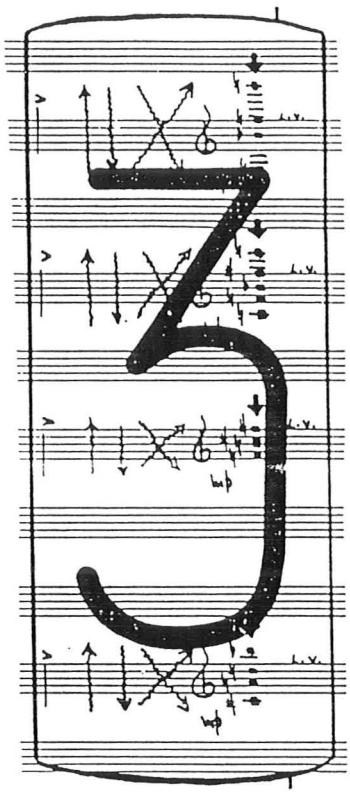
Example 26. *Available Forms I*, Category II, page 2, aggregate 3.

Category III contains aggregates in which no horizontal motion occurs. These sustained areas serve as a foil to the pointillistic features of category I. Also, all aggregates in this category require a specific cut-off by the conductor after they have begun. In nearly all other aggregates in the work performers must stop playing if they finish before a new cue is given. *Example 27* shows *III:4,2*. There are six aggregates in this category. The pitch content is again neutral, and in most instances all twelve pitches are used in the sonority. The differences between the aggregates are differences in range and instrumentation. Category IV includes the remaining aggregates, those which employ special effects such as glissandi or other means of pitch indeterminacy. These aggregates are basically coloristic, and contrast with the other aggregates in which fixed pitches are present. Their function within the work as a whole is secondary. One example is *IV:4,3* (*Example 28*).

All four categories and their aggregates are analyzed fully in Appendix I. These results show differences in texture among categories, and variations between aggregates within each category. It may be observed that the principles of contrast functioning at the macroscopic level (categories) will act as structural support (particularly categories I and III), and be quite active in the forming of any performance. Also, the microscopic differences between aggregates within each category stabilize



Example 27. *Available Forms I,* Category III page 4, aggregate 2.



Example 28. *Available Forms I*, Category IV, page 4, aggregate 3.

such contrasts, providing elements of repetition and variation. The extreme unity *within* each category and the extreme contrast *between* categories create a work which, despite the factors of variation built into it, retains its identity from performance to performance.

Unity and contrast affect the musical fabric in a way similar to spoken language. Music has been considered a type of language because it shares with other languages the fact that meaning is derived from the juxtaposition and combination of sound aggregates. Furthermore, in order to communicate meaning, there must be a balance between what is expected and what is not expected, or, to put it another way, a balance of information. *Information* might be considered anything "new," or any stimuli which are unexpected or have not been presented in the context of a discussion. Umberto Eco writes that information is "an additive quantity, something that is added to what one already knows."[13] Too little information leads to redundancy, and the resulting product is trite and uninteresting. This is Leonard Meyer's point when he discusses the difference between a theme by Bach and one by Geminiani. Geminiani's theme is not as good as Bach's because it is too obvious: it moves directly to its goal, without any delays or unexpected turns. Bach's theme is "better" because it inhibits goal-oriented tendencies, presenting the listener with the

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[13]Eco, *The Open Work*, p. 45.

right amount of unexpected or new melodic information while staying within the context of the harmonic goal.[14] Consider also Alan Walker's statement that "a 'right' thematic chronology is one which generates maximum tension compatible with maximum comprehensibility."[15] A great composer, he says, is guided by a "creative principle of contrast distribution."

In a work that is *closed*, the composer is in complete control of the goals, delays, tensions, and resolutions of the music, because the sequence of musical events will remain the same in each performance. In a work such as *Available Forms I*, the sequence of aggregates is unknown. Thus, the composer does not have the benefit of omniscience, from which the placement of tensions can be controlled. The composer must, instead, somehow *program* the work in such a way that the final results are musically meaningful. I would submit that this is why Brown chose to compose in terms of the categories of aggregates described above. First, musical tension and interest are always present due to the binary opposition between the sustained sonorities of category III and the

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[14]Leonard B. Meyer, *Music, the Arts, and Ideas: Patterns and Predictions in Twentieth Century Culture* (Chicago: University of Chicago Press, 1967), p. 26.

[15]Alan Walker, *An Anatomy of Musical Criticism* (Philadelphia: Chilton Book Company, 1968), p. 54.

pointillistic aggregates of category I. Second, each category of this opposition is easily retained in the memory of a listener, providing a continual amount of *familiar* information on which the structure of the work is built. Third, so that such an opposition does not become monotonous, each category contains a number of variations within itself.

The observation of contrast and variation in actual performances of *Available Forms I* is possible because of the presence of empirical data, i.e. two recordings of such performances. The first to be discussed is by the *Rome Symphony Orchestra*, under Bruno Maderna (RCA, New York, NY R67-3341, 1967). *Example 29a* shows the progression of aggregates in the first minute of the work. This first minute establishes the opposition among categories II, III, and IV. *III:4,2* begins the work and plays continually during this time period. This aggregate is punctuated by *IV:4,3* until 0'12". An aggregate from category II is added to the texture at 0'20".[16] The articulation of *II:4,1* creates a third level of activity, each level proceeding in its own time frame.

Following this is a period of silence, which continues until 1'04". At this time, the opposition between categories I and III begins to establish

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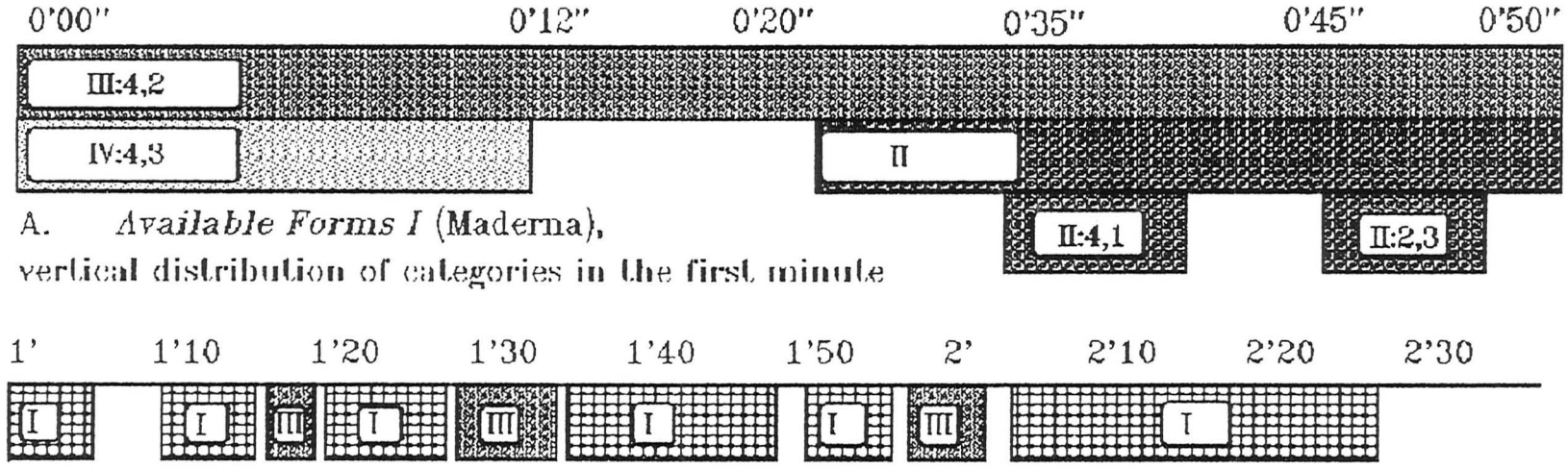
[16]There is, at times, some difficulty in determining the "exact" aggregate which is being performed in the recording. The category itself, however, is usually fairly obvious, based its the defining characteristics. Thus, at times only the category will be presented in the analysis.



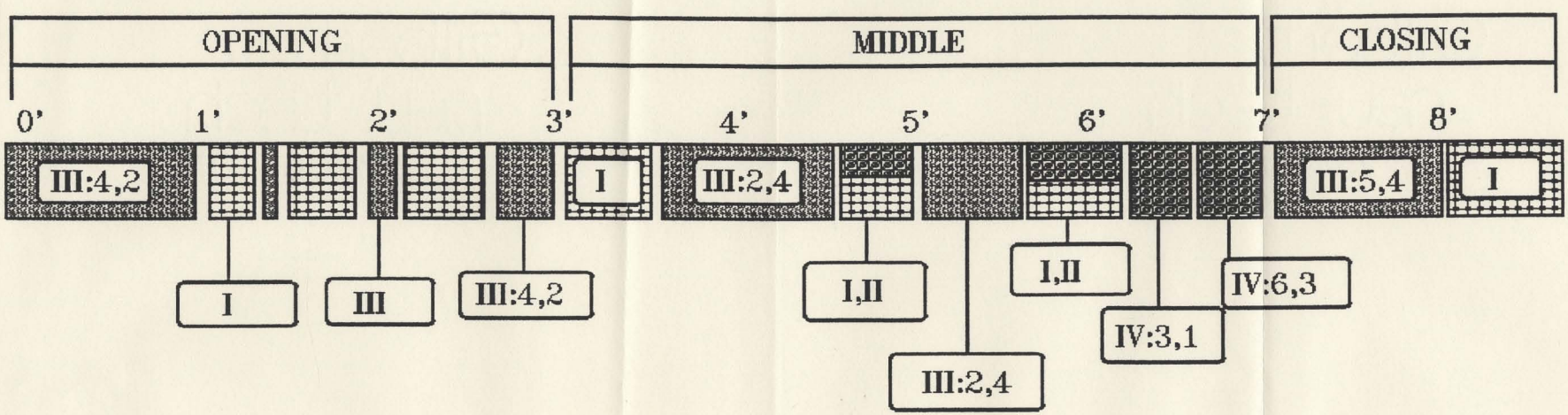
A. *Available Forms I* (Maderna), vertical distribution of categories in the first minute

B. *Available Forms I* (Maderna), horizontal distribution of categories in the second minute

Example 29. Vertical and horizontal distribution of categories in the first and second minutes of Bruno Maderna's performance of *Available Forms I.*

itself horizontally (*Example 29b*). Interest is maintained within this section both by the alternation of the two categories of aggregates and the variations between aggregates of a similar category. The change from vertical to horizontal treatment of the material creates a valuable structural distinction as well.

Maderna's performance is 8'43" long (see *Example 30*). The large scale structure which he creates in that time, considered in its entirety, demonstrates a unified presentation of the contrasting musical material and relies on three aggregates from category III to support it. As mentioned, the performance opens with *III:4,2*, which lasts nearly one minute. Near the middle of the work (at 3'45") *III:2,4* occurs, lasting also nearly one minute. Finally, at 7'10", *III:5,4* occurs, lasting 50 seconds. In an eight-minute work, these sections have a substantial structural impact on the listener. Other structural cues reinforce these divisions. For example, the first two sections of the performance serve as an introduction. The content of the work (mainly categories I and III) is treated vertically (*Example 29a*) and horizontally (*Example 29b*), and the introduction is brought to a close with a brief recapitulation of *III:4,2* at 2'45". Also, the closing section beginning with *III:5,4* at 7'10" is preceded by the only melodic material presented in Maderna's version of *Available Forms I*. At 6'35", *IV:3,1* is played, which features oboe (Maderna leaves the flute out) accompanied by

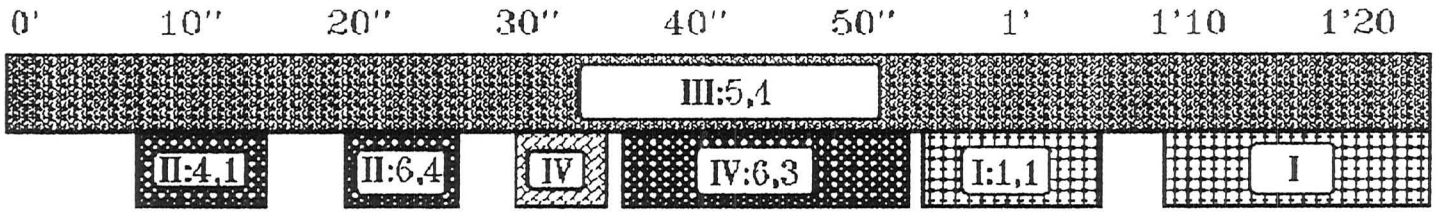


CATEGORY I
CATEGORY II
CATEGORY III
CATEGORY IV

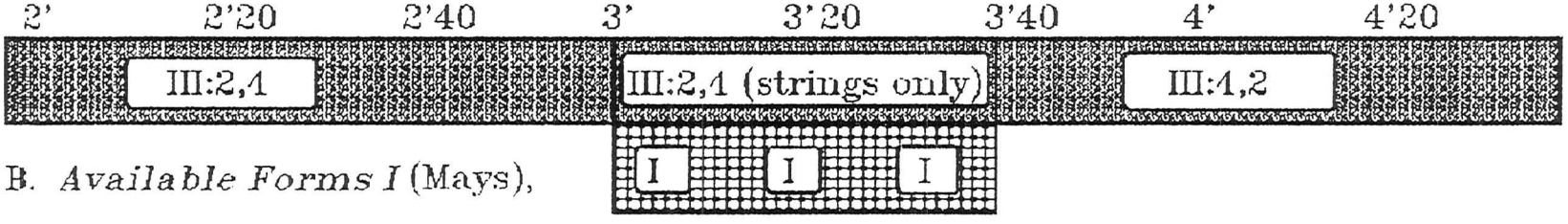
Example 30. Categories of aggregates and their relation to the structural disposition of Bruno Maderna's performance of *Available Forms I.*

strings. This section immediately moves into *IV:6,3*, which features the flute, accompanied by glissandi in the violins. Emerging naturally from the previous texture, which was predominantly category I, this section is both interesting and efficient, bringing to a close one section while serving as contrast for the static nature of the conclusion.

The second recording was made in 1970, by the Cincinnati Conservatory Orchestra under the direction of Walter Mays (private copy). There are, as expected, similarities in Maderna's and Mays' treatment of the score. For example, the opening of Mays' performance proceeds in nearly the same fashion as Maderna's version, establishing Category III and articulating it with aggregates from categories I, II, and IV (*Example 31a*). However, a more complex presentation of the opposition between categories I and III occurs at the 2' mark. As *Example 31b* shows, three different aggregates from Category III are presented consecutively over a two-minute period. Aggregates from Category I are performed simultaneously, creating a type of counterpoint which articulates the differences between the two categories while emphasizing the nature of the aggregates in each category as variations of each other. Finally, in regard to large-scale form, this performance may be divided into three sections (*Example 32*). The first section juxtaposes and contrasts categories I and III, and ends at 4'45". The second section makes use of categories I, II, and IV, emphasizing melodic

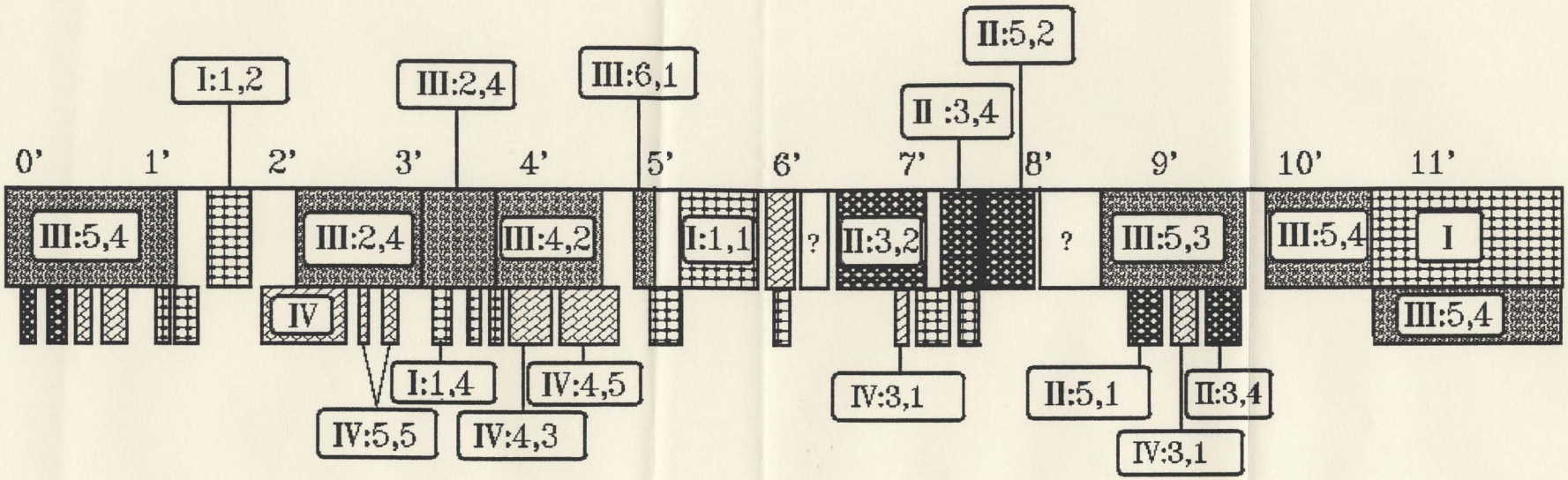


A. *Available Forms I* (Mays), vertical distribution of categories in the first minute



B. *Available Forms I* (Mays), distribution of categories in the second and third minutes

Example 31. Vertical and horizontal distribution of categories in the first



Example 32. Categories of aggregates and their relation to the structural disposition of Walter Mays' performance of *Available Forms I.*

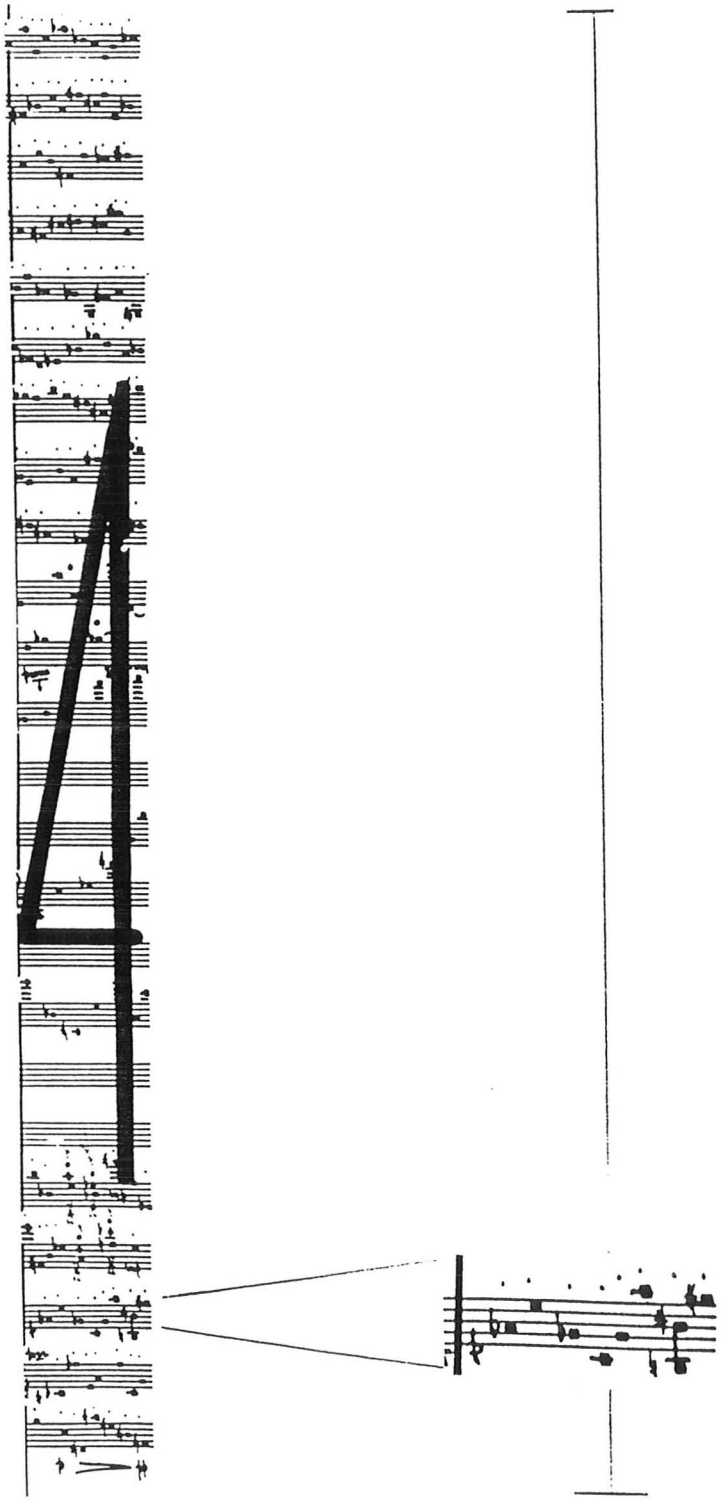
ideas. The final section resembles the opening, contrasting categories I and III over a long period, similar to Maderna's version.

One of the more interesting details of the Mays version is the melodic aspect present in the middle section. This section is by far the most complex, presenting a mélange of all categories and blending their characteristics by slowing the tempo of each aggregate. At the slower tempo, aggregates such as *II:3,4* (7'20") and *II:5,2* (7'40") imply harmonies due to the nature of the writing. Since the outer sections of this version emphasize categories I and III, this middle section, in which elements from Category II are played, brings to life a unique aspect of the work which is lacking in Maderna's version.

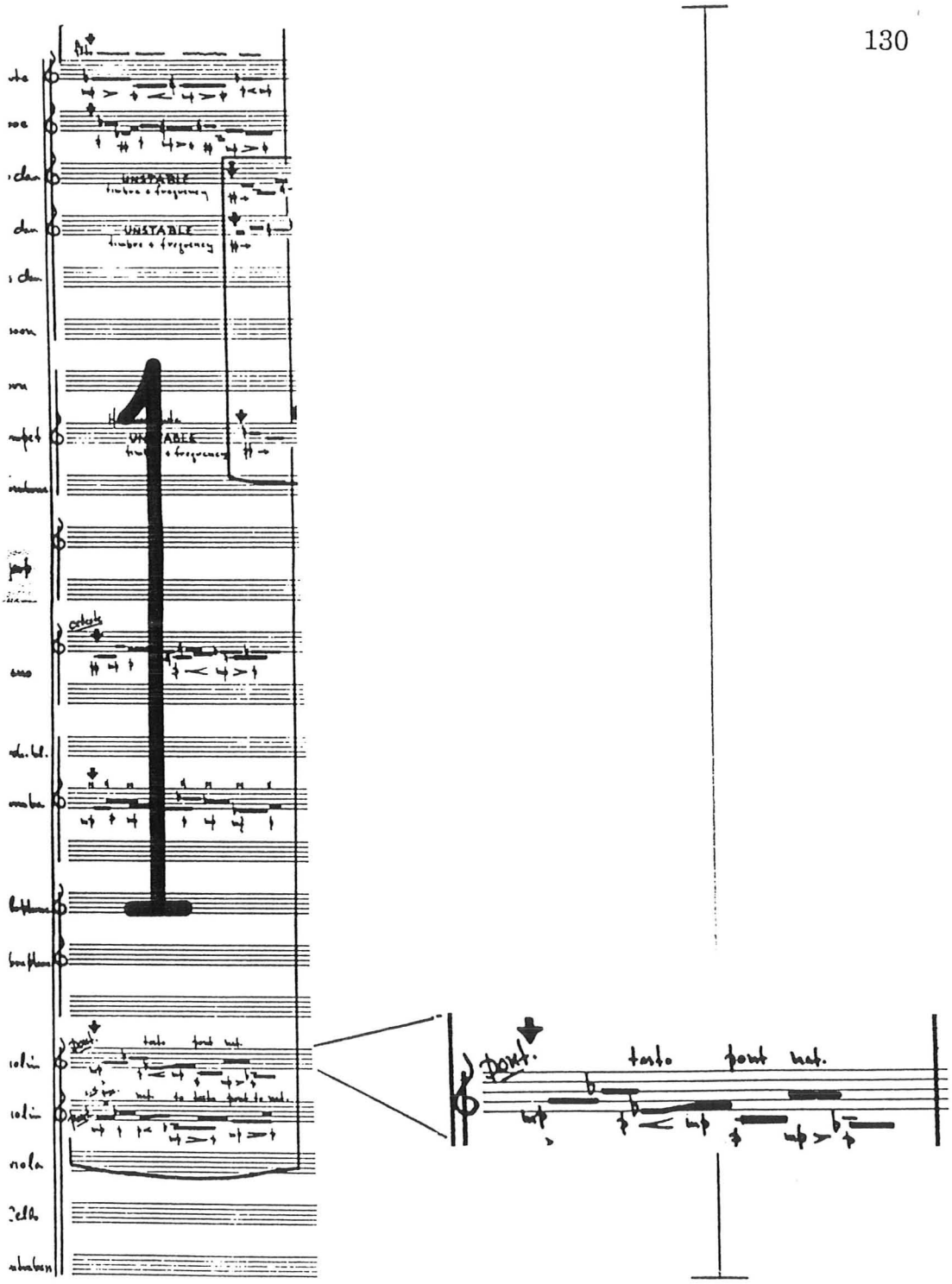
The analysis here presented of *Available Forms I* provides a structural point of reference to which both performances (or any other performances) may be compared. There is, however, a sense of sterility in such a perspective, a sense that both performances are somehow the same from a critical viewpoint. Although the intent of the analysis was to show how many physically different performances may emanate from the same score, and in what manner this occurs, there is a vast difference in the two versions of *Available Forms I* considered. Such difference is of course obvious in the sequence and arrangement of aggregates through time, but less obvious from an analytic standpoint is the way each aggregate is

treated individually during its existence as sound. During the listening experience, the aggregates may lose their categorical affiliation to a greater or lesser degree and become transparent, unmediated strands of musical thought. And it is the transparence, the diaphaneity, of the phenomenal object as it evades analytical categories that separates a "good performance" from a "mere performance." Such a statement of course refers to a situation in which listeners are aware of the said analytical categories to the extent that they can reflect on the juxtaposition between the analytic and phenomenal sides of the musical fabric.

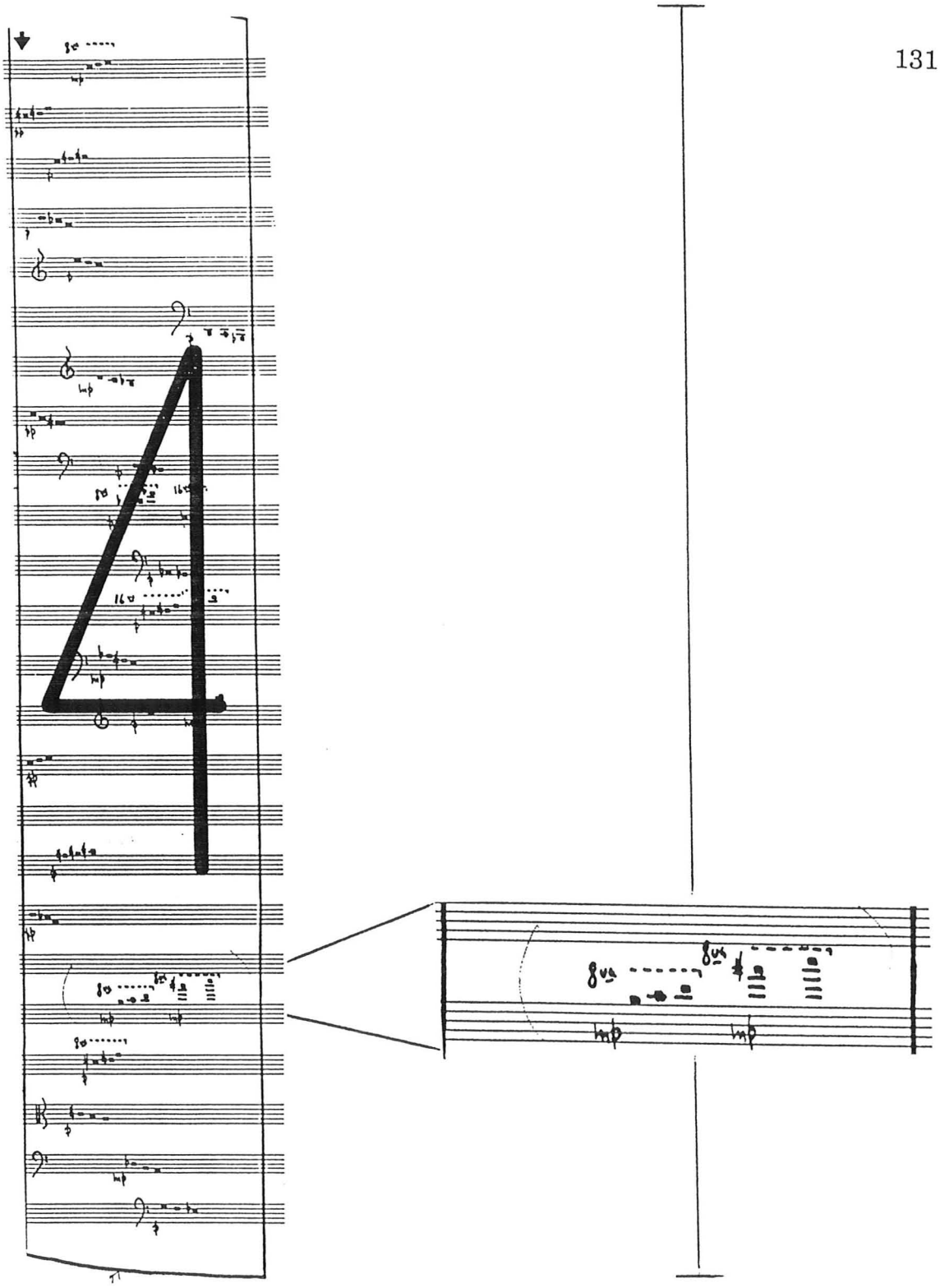
In *Available Forms I*, the evasion of the analytical categories through phenomenal representation is best achieved when the performance embraces the full extent of the indeterminate possibilities inherent in Brown's instructions, i.e. tempo and dynamic of aggregates, overlapping of aggregates, and the isolation of one instrument or group of instruments. It is in this way that Mays' recording achieves a sense of depth which is lacking in the Maderna version. Most striking are melodic fragments which are removed from their context in an aggregate. The solo viola at 3'02" from *I:1,4* (*Example 33*), the violin solos at 6'50" and 9'20" from *IV:3,1* (*Example 34*), and the violin solo at 9'35" from *II:3,4* (*Example 35*) are all self-contained units which do not aurally refer to any of the analytical categories. Such microcosmic phenomena, while masked by the



Example 33. *Available Forms I*, Mays version, Category I, page 1, aggregate 4, solo viola.



Example 34. *Available Forms I*, Mays version, Category IV, page 3, aggregate 1, solo violin.



Example 35. *Available Forms I*, Mays version, Category II, page 3, aggregate 4, solo violin.

generalization of each aggregate by way of the categories, remain available to the conductor during the creation of the work's sonic surface. While Maderna's performance is in no way banal, his tendency in presenting the material is to emphasize the categorical distinctions (for example, between Categories *I* and *III*) so that such opposition is not missed by the listener. For example, the tempo for the aggregates of Category I is nearly the same each time they occur. Also, there is no attempt on Maderna's part to modify instrumentation by isolation, and only limited attempts at combining more than two aggregates at a time in a way which masks the categorical distinction. Given an understanding of the nature of the categories, Maderna's version becomes a juxtaposition of them rather than a participation in them.

John Cage's *Variations III* (1962) is an open work in which the content is indeterminate. The final musical product which is experienced by an audience is the result of events which are determined by the performer from a list of possibilities which may or may not be performer-determined. By providing the "score" for *Variations III*, Cage has provided a disciplinary framework within which a very specific set of processes may occur, providing an infinite range of aural possibilities. The complete instructions for the work will be reproduced here:

Two transparent sheets of plastic, one having forty-two undifferentiated circles, the other blank. Cut the sheet having circles in such a way that there are forty-two small sheets, each having a complete circle. Let these fall on a sheet of paper, 8.5 x 11. If a circle does not overlap at least one other circle, remove it. Remove also any smaller groups of circles that are separated from the largest group, so that a single maze of circles remains, no one of them isolated from at least one other. Place the blank transparent plastic sheet over this complex.

Starting with any circle, observe the number of circles which overlap it. Make an action or actions having the corresponding number of interpenetrating variables (1+n). This done, move on to any one of the overlapping circles, again observing the number of interpenetrations, performing a suitable action or actions, and so on.

Some of all of one's obligation may be performed through ambient circumstances (environmental changes) by simply noticing or responding to them.

Though no means are given for the measurement of time or space (beginning, ending or questions of continuity) or the specific interpretation of circles, such measurement and determination means are not necessarily excluded from the "interpenetrating variables".

Some factors though not all of a given interpenetration or succession of several may be planned in advance. But leave room for the use of unforseen eventualities.

Any other activities are going on at the same time.[17]

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[17]John Cage, *Variations III* (New York: Henmar Press, 1963).

Given the above instructions, the performer's task is twofold. First, the performer must *compose* the specific schematic to be performed by dropping the circles on a sheet of paper. From the random combination of circles, it will be possible to find the largest constellation of circles and remove all others except for this constellation. *Example 36* illustrates this first step. Following this, the circles are to be performed (in no particular order) each with respect to the number of lines which intersect it. The resulting number (which is at least 1, and at most 82)[18] refers to the number of determinations a performer may make.

It is assumed that such determinations, or "actions having the corresponding number of interpenetrating variables," may include nearly anything, even the mere observation of ambient phenomena. For the sake of argument, it will herein be assumed that the performer is a cellist, who is making determinations based on cellistic possibilities in regards to pitch, range, dynamics, articulation, and duration, and allowing for the observation of ambient phenomena. The chart in *Example 37* presents a hypothetical list of those choices.

The work would thus proceed in the following fashion: The performer glances at the circle presented in *Example 38*. This circle is

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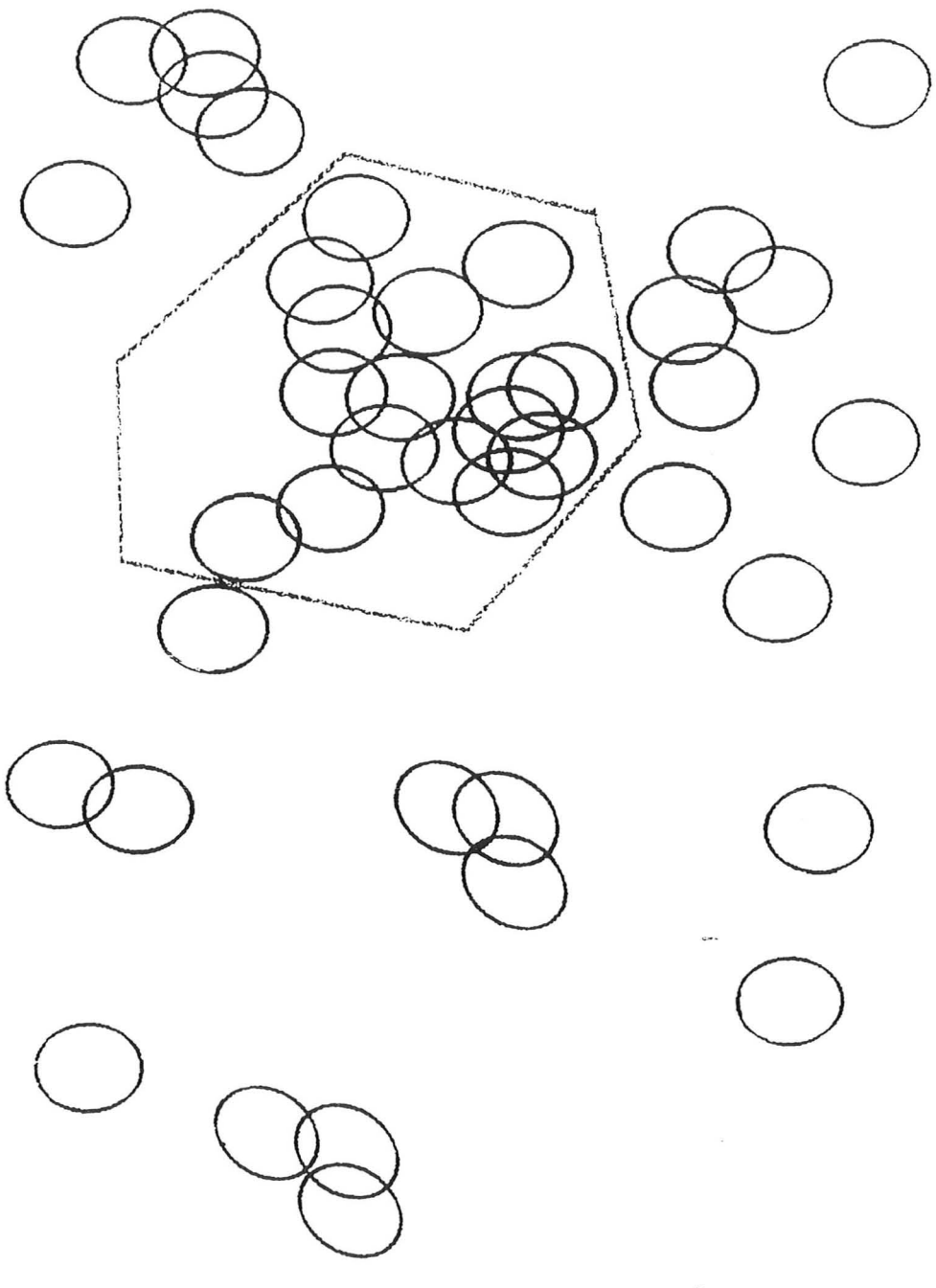
[18]A circle which just touches another creates one variable. If one circle is by chance intersected by the other 41, this creates 82 variables, since one circle can intersect at most only twice.

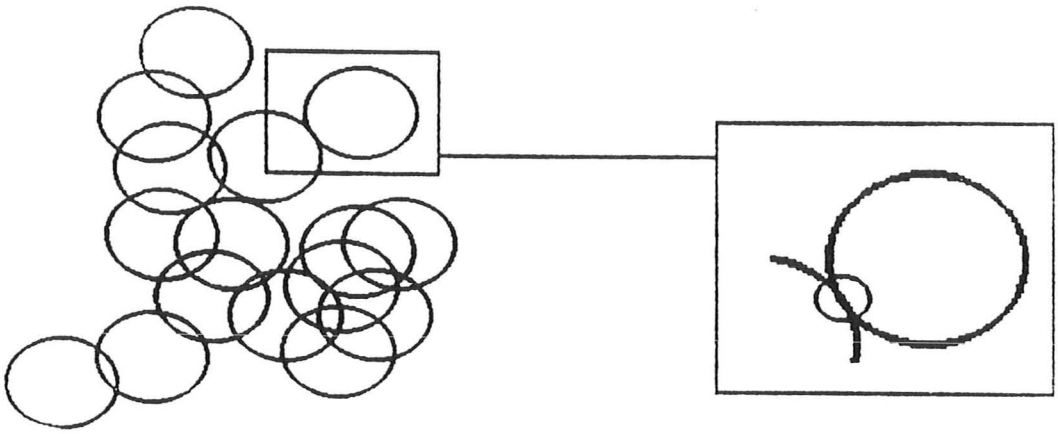


Example 36. Hypothetical distribution of circles from John Cage's *Variations III* (New York: Henmar Press, 1963).

HYPOTHETICAL LIST OF CHOICES
FOR A CELLIST

1. PLAY WITH BOW
2. PIZZICATO
3. PLAY BEHIND THE BRIDGE
4. PLAY ANY PITCH
5. SUL PONTICELLO
6. DROP INSTRUMENT FROM A HEIGHT OF THREE FEET
7. OBSERVE AMBIENT PHENOMENA
8. ETC., ETC. . .

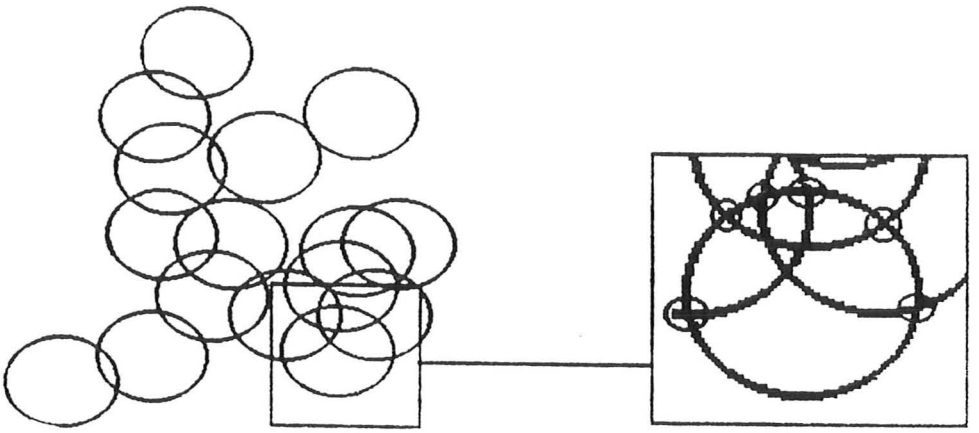
Example 37. Hypothetical list of choices for a cellist, from *Variations III.*



Example 38. Hypothetical example of a circle having one interpenetrating variable, from *Variations III.*

penetrated in only one place, and thus only one determination is to be made. The performer's choice could be to "play with the bow." Although the performer could have chosen any possibility, only one choice could be made. The action would then proceed, regardless of other elements such as dynamics, duration, pitch, etc. It may be argued, quite correctly, that the performer must, by performing the action, be at least somewhat involved in the determination of these other factors. It is Cage's feeling that distinctions between "choice" and "chance" are of no importance because a "chosen" sound is as good as a "chance" sound.

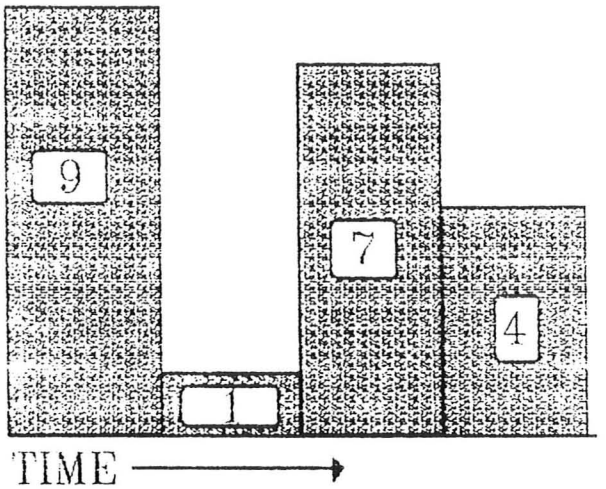
Continuing the hypothetical performance, the performer now glances at the circle detailed in *Example 39*. Since there are six interpenetrating variables, there are thus six determinations to be made. In this case, the performer's involvement with the decision is increased, and the outcome must be considered as "more determined" than the outcome before. The resulting action might be a "middle C," played sul-ponticello and FFF for a fixed duration, followed by the observation of two fortuitous events in the audience. Any other events which might be happening during this time would not, from the performer's perspective, be "framed" for observation within the realm of the work.



Example 39. Hypothetical example of a circle with six interpenetrating variables, from *Variations III*.

The assumption behind this work is similar to that of *4'33"*, in that ambient phenomena (audience sounds, natural noises, etc.), when positioned within the context of a performance, are as important as *fully determined* sounds or actions. The very private, performer-observed morphology of this work is a product of those choices, whether or not they are traditional sounds or the observation of traditionally secondary events. Considering the amount of ambient phenomena which might occur in any performance situation, the performer chooses which of those phenomena will be included in the work. While a traditional analysis would focus on the work as a product of the composer's intention, this type of work can be analyzed only with regard to perspective of the performer's decisions. Such an analysis must proceed by projecting the results of such decisions.

The results of such a projection would be a chart or graph which represents the number of decisions a performer makes over a period of time. From the perspective of a listener, such decisions are irrelevant. However, the nature of the work forces the performer to include certain phenomena based on the falling of the circles. Each circle, and its interpenetrating variables, represents one group of decisions, an aggregate. Thus, the realization of four circles would include four aggregates, each defined by the number of decisions made. *Example 40* could be a typical example. If four



Example 40. The hypothetical rise and fall of decision making in a performance of John Cage's *Variations III*.

circles are read by the performer, his decisions might proceed in this way: 9 - 1 - 7 - 4. The first aggregate would include more actions, or a more defined action, than the second aggregate, in which only one action or choice would be made. Such decisions are made within the context of a great many possibilities, including the possible sounds of a performer's instrument, the nearly infinite realm of ambient sounds, and any other activities which might be going on simultaneously. But regardless of the range of possibilities, the performer may only choose from those possibilities which are present at the time of the decision. The performer is at the mercy of the number of interpenetrating variables and the possibilities which exist at the time each circle is read. The work structures its significance at each of these moments of decision making.

CHAPTER 4

AESTHETICS AND CRITICISM

AN ALLEGORY AND SOME OBSERVATIONS

In the movie *The Wizard of Oz*, the wonderful wizard initially appears as a floating apparition, bellowing in a redoubtable bass-baritone voice while surrounded by fountains of fire. But after Dorothy and the others return to Oz with the wicked witch's broomstick, Dorothy's cairn terrier Toto inadvertently discovers a man behind a curtain operating the control panel through which the image of Oz was created. Their fear is suddenly dissolved. They are now able to distinguish between the phenomenal reality of the projected Oz and the veridical reality which *is* Oz, two connected yet wholly separate entities.

Music, like Oz, is ontologically peculiar.[1] For although "sound is an irreducible given of music,"[2] a performance is merely a temporary and

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[1]"Ontology" may be defined as "the theory of being *qua* being. . .the science of the essence of things." An "ontological object," or "the real or existing object of an act of knowledge" is distinguished from an "epistemological object," which is "the object envisaged by an act of knowledge whether the knowledge be veridical, illusory or even hallucinatory." Dagobert D. Runes, ed., *Dictionary of Philosophy* (Rowman & Littlefield Publishers, Inc., 1989), pp. 108, 235.

[2]Nattiez, *Music and Discourse*, p. 67.

partial reflection of a separate entity which is the *work* as it exists before and after the performance.[3] Roman Ingarden notes that "each particular musical work -- for example, Beethoven's Ninth Symphony -- in contrast to the obvious multiplicity of its performances, is always a unique entity. Hence it [the work] cannot be identical with them [the performances]."[4] Claude Lévi-Strauss refers to performances and the score of a musical work as mere "conscious approximations. . .of inevitably unconscious truths."[5] To him, the work is a "potential object" of which "only the shadows are actualized" in performance.[6] Unlike a sculpture, which once completed is physically permanent and changes only in regard to the multiple perspectives from which it may be viewed, "music is transitory. It goes by, instead of holding still for inspection."[7] Each performance is merely one

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[3]The concept of the *work* in Western music is what is being discussed, and it will be clarified as the argument proceeds. Now, it should be taken in the broadest sense as that which performances are *of*.

[4]Roman Ingarden, *The Ontology of the Work of Art*, trans. Raymond Meyer and John T. Goldthwait (Athens: Ohio University Press, 1989), p. 11.

[5]Ibid.

[6]Claude Lévi-Strauss, "The Structural Analysis of Painting and Music," in James M. Thompson, ed., *20th Century Theories of Art* (Ottawa: Carleton University Press, 1990), p. 327.

[7]Carl Dahlhaus, *Esthetics of Music*, trans. William Austin (Cambridge: Cambridge University Press, 1983), p. 11.

fragment of a musical work's "heteronomous existence,"[8] an existence mediated by a separate ontological reality.

The separateness of this ontic entity is important to the way we think about and discuss music. Two performances of William Walton's Concerto for Cello and Orchestra will differ with regard to phrase and nuance while reflecting the same "inner coherence of the relations among the tones" which constitutes the work and remains consistent in each performance.[9] Indeed, criticism may focus on many different performances and value the one which was *played better*, i.e. the one which, according to the critic's criteria, approached the ontological *truth* of the work by allowing a glimpse at the *sublime*. Moreover, a performance might be unacceptable as a performance of a specific work if it deviated from the schema or image of the work as it exists in the score and in the mind of the listener. And regardless of what the listener's criteria are (and they are no doubt affected by knowledge and experience of the work in question), the *work* concept relies on the existence of the ontological object.

Does the open work change our understanding of the *work* as discussed above? It has been observed that performances of an open work differ in a significant way from one another with respect to form and in

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[8]Nattiez, *Music and Discourse*, p. 69. The context of this phrase is a discussion of Ingarden's *Ontology of the Work of Art*.

[9]Dahlhaus, *Esthetics of Music*, p. 12.

some cases content. The differences are significant because the relationship between tones is altered or rearranged, making the perceivable differences between performances quantitatively and qualitatively more extreme than are tolerated between performances of traditional works. The performer ceases to be the interpreter of an already finished product,[10] and instead has a hand in the creation of a completely unique product. Umberto Eco notes:

> They [open works] appeal to the initiative of the individual performer, and hence they offer themselves not as finite works which prescribe specific repetition along given structural coordinates, but as "open" works, *which are brought to their conclusion by the performer at the same time he experiences them on an aesthetic plane.*[11]

And Thomas DeLio makes a similar observation:

> Thus, rather than representing form as an entity ontologically prior to process, the open structure treats process as ontologically prior to form. Traditional notions of "expression" and "drama" become irrelevant as *all vestige of priorness is replaced by process.*[12]

Of course, DeLio's averment of the demise of "expression" and "drama" in open works remains solidly encompassed by his view of such works as

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[10]"Interpreter" will be qualified shortly. For the time being, it is meant both in the sense of performing or recreating and in the sense of giving meaning to the work.

[11]Eco, *The Open Work*, p. 3. Italics mine.

[12]DeLio, *Circumscribing the Open Universe*, p. 3. Italics mine.

indeterminate in content, for it cannot be said that *Available Forms I* or *Klavierstück XI* are completely devoid of these qualities. But as general observations, the statements of both Eco and DeLio quite correctly note the essential difference in the open work's aesthetic: its presence as an unrepeatable phenomenal event. Traditional notions of the work's ontology rely on the idea that the work is somehow complete before the performance, and that the performance is merely the enactment of the work in the performer's historical and cultural context. The historical position of the work as a product of the composer's time is seen in contrast to the historical position of its recreation, and the conflict of priorness with presentness generates the cultural dialogue upon which criticism feeds. But the distance between the creator and the performer is bridged by the open work. The creation of the work takes place both at the time of composition and during the performance.

In this light, one should question whether it is possible for the critic to approach a performance with prior knowledge of the work. If the work *is* the performance and does not exist in any form outside its temporary realization in sound, it would seemingly disarm the critic of the tools of the trade by disallowing critical reflection (such as knowledge of a composer's intention, stylistic criterion, immanent characteristics of the score, etc.). However, despite the nonconformity of open works when viewed

against traditional musical compositions, the critic is certainly not left to wallow in the shallow waters of subjective description. Primarily, all performances of an open work are engendered by a single score, which is separate from them and of which they are a reflection. Such a score, with its specific rules and mechanisms, can be known. Also, openness is available to the listener/critic as a descriptive term which is appropriate in describing the open creative processes which are embodied in the work. And finally, understanding the differences between the indeterminate content works of Cage and Wolff and the determined content works of Brown, Stockhausen, and Boulez mediates the critical response. Rather than disarming the critic, openness modifies traditionally held tenets as to what music *is*.

CONTENT AND THE ONTOLOGICAL OBJECT IN OPEN WORKS

Nattiez suggests that the open work does not change the basic conception of the *work* as it is understood in its ontological manifestation. Although there are no "relevant constants" which allow a listener to identify *a posteriori* two performances of (for example) Stockhausen's *Klavierstück*

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[12]DeLio, *Circumscribing the Open Universe*, p. 3. Italics mine.

XI,[13] there still exists one work which *is* neither of these performances.

Nattiez notes:

> If beyond the *x* versions of *Klavierstück XI* we still speak of *one* work, this work cannot exist except in the realm of intention, as Stockhausen's own project.[14]

and Eco reaches a similar conclusion when he states that

> the *possibilities* which the work's openness makes available always work within a given *field of relations*. . .all these examples of "open" works and "works in movement" have this latent characteristic, which guarantees that they will always be seen as "works" and not just as a conglomeration of random components ready to emerge from the chaos in which they previously stood and permitted to assume any form whatsoever.[15]

Such conclusions can be reached by the above authors because their perspective is limited to works which have a determined content. Eco's examples of open works includes *Klavierstück XI*, Boulez's *Third Piano Sonata*, and even Luciano Berio's *Sequenza III*, which is not even open in any sense described herein.[16] And Nattiez discusses only the works of Pousseur and Stockhausen. Indeed, in works with a determined content,

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[13]Relevant constants would include sounds which are diachronically consistent from performance to performance. Nattiez, *Music and Discourse*, p. 86.

[14]Ibid.

[15]Eco, *The Open Work*, pp. 19, 20.

[16]Nattiez tends to agree, *Music and Discourse*, p. 84, ff. 12.

there is a sense that whatever aural result occurs during a performance was prescribed by the composer, and is a reflection on a musical object which is not the performance. Accordingly, Herman Sabbe notes that these works *do not* undermine "the cultural foundations of the European classical music tradition."[17]

Sabbe uses the term *transserial aleatorics* to describe the European version of open form as found preeminently in the works of Stockhausen and Boulez. Such a term embodies the European evolution of pitch equality as found in the dodecaphonic version of atonality, and the later neutralization of *all* musical parameters in the total serialism of Messiaen and Boulez. In *Klavierstück XI* and the *Third Piano Sonata*, the structural elements are neutralized and arbitrary, in the sense that they may be rearranged at the performer's discretion. Such a state is similar to the neutrality of the twelve pitch classes in dodecaphonic compositions, to which the composer fixes the succession. The difference is that in the open works the composer, in an attempt to honour the multiplicity of the dodecaphonic grid or any other serialization principle in which there are any number of possible permutations, has implanted such multiplicity in the score, to be mediated by the performer. These "aleatorics of

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[17]Herman Sabbe, "A Logic of Coherence and an Aesthetic of Contingency: European Versus American 'Open Structure' Music," *Interface* 16 (1987): 180.

morphological arrangement"[18] still rely on something permanent (the content) which can be permuted. And the permanence of this content identifies the composer as creator. The technique of openness, as Sabbe notes, is merely a "morphological shorthand" rather than a "symbol of an indeterminate, open universe."[19]

The literary, philosophic, and scientific arguments which Boulez and Stockhausen brought in defense of their works reflect the composers' concerns with preserving the control of the author over the final aural product(s). The aleatoricism with which they were working had in theory "no theoretical limit to derivability: any and all configurations derive from one generating system."[20] Both composers exercised a certain wisdom in distancing themselves from the sorcery of indeterminacy which they could not control, confining their compositional systems and generating mechanisms within tightly controlled formal bounds. Sabbe notes that in the European, *transserialist* brand of open structure music,

> the composer here is trying, and trying very hard, to integrate into the work as much of the world as possible -- trying to do so thanks to the multiplicative short-circuits of a labyrinthic structure which

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[18]Ibid., p. 178.

[19]Ibid., p. 179.

[20]Ibid.

> incorporates multiple but all quite definite alternative worlds.[21]

The resolution of uncertainty is particularly evident in Boulez's *Third Sonata*. Since each aggregate must be played only once, each choice made by the performer limits future choices and directs each performer to the same end. However, Sabbe's insistence on the composer's attitude denies the importance of the performer's role, as the performer is the appropriator of the work in its creation as aural form.

On the other hand, Cage can be seen in one sense as the sorcerer's apprentice, who creates works over which he has no control, situations of anarchy, "use-less" experiments. There is no reference, no metaphor, in *Variations III*. "Mimesis is perfect, while direct and complete: any sound appearing *is* (a) sound referred to."[22] Sabbe opines that Cage "is merely creating occasions" for music, "conditions in which some music becomes possible:"[23]

> Consequently, any creation can only mean endlessly ongoing exemplification, and, logically speaking, never ending instantiation of a class never to be.[24]

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[21]Ibid., p. 185.

[22]Ibid., p. 185, ff. 5.

[23]Ibid., p. 182.

[24]Ibid., p. 185.

However, it is possible to view such a situation positively. DeLio notes that in a work such as Wolff's *For 1, 2, or 3 People*, in which content is indeterminate, the "reality of creating becomes enmeshed within the very fabric of the [musical work] itself:"[25]

> In a sense, in this music, the performer becomes his own *object trouvé*; the subject of his discourse is the mechanism of that discourse. What is revealed, then, are the ways in which patterns of behavior shape human experience. By abstracting the artist's actions from the creative process, Wolff transforms the artwork into a metaphor for the physical embodiment and expression of meaning which is both fundamental to, and inseparable from, the process of being in the world.[26]

Such a position is notably different than the "search for self as possessor" which Sabbe attributes to the *transserial aleatoricists*, and also stands sharply against the position that a work of art is a reflection, or expression, of a separate ontic entity. An open work in which the content is indeterminate is *only* form, strictly the result of a forming activity. The work as sound exists as each individual exists, shaped by his or her surroundings, experiencing the present as it happens, reacting to external stimuli, *becoming*. There is no ontological *object*, but rather a process which mediates the sound object in its unfolding. Any performance, as a

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[25]DeLio, *Circumscribing the Open Universe*, p. 51.

[26]Ibid., p. 66.

phenomenal object, is in DeLio's terms "a metaphor *for* the physical embodiment and expression of meaning," rather than an interpretation *of* an object which is itself metaphorical in the sense of allowing for multiple interpretations. The result is

> a more open structure in which one's experience is firmly rooted in one's presence in the world and thus could never be viewed as "idea" either born apart from experience or capable of retaining any meaningfulness once removed from the context of that experience. As novelist Alain Robbe-Grillet once noted [*Pour un nouveau roman* (Paris: Editions Gallimard, 1963), p. 166], "the work is not a substitute for an exterior reality, but its own reality to itself."[27]

Both the neutrality of musical materials as described by Sabbe's term *transserial aleatorics* and the indeterminate content in works of Cage, Wolff, and Brown contrast with the view of content as *expressive*. Elements of expression, such as emotional signifiers, expressive markers, or phrase patterns are no longer active. Content, as "an ensemble of cultural and emotional elements capable of existing also outside the work in the forms of logical reflection of psychological effusion," is resolved into mere physical material, "which in numerous cases is really only a temporary and inessential vehicle for the ingenious solution to a question of poietics."[28] Form, "understood as the exterior manifestation of a cultural or

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[27]Ibid., pp. 1-2.

[28]Ibid., p. 178.

psychological content," becomes a "formal model which has been and can be elaborated within the context of a cultural discourse, and which need not assume the form of a concrete artistic object."[29] In the works of Stockhausen and Boulez, content is neutralized by the aleatoric morphology of the works' constructs: even though the materials are determined by the composer, the mechanics of the work make it impossible to see the content in any other way but as non-functioning material. In open works with indeterminate content, the composer's lack of concern with content denies its relevance. The poietics of the open work become its theme.

POSITIONING THE OPEN WORK: THE POIETIC PROCESS

A musical score is a symbolic form, to which a constellation of possible meanings may be constructed by a performer or listener. "The meaning of a text -- or, more precisely, the constellation of possible meanings -- is not a producer's transmission of some message that can subsequently be decoded by a 'receiver.'"[30] Rather, it involves both a *poietic*[31] process, "the result of a complex process of creation," and an

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[29]Ibid.

[30]Nattiez, *Music and Discourse*, p. 11.

[31]Nattiez notes that "with *poietic* [from the Greek "to make"], Gilson [E. Gilson, *Introduction aux arts du beau* (Paris: Vrin, 1963)] understood the determination of the conditions that make possible, and that underpin

esthesic[32] process, "the point of departure for a complex process of reception that reconstructs a 'message,'" the reconstruction being "heavily dependent upon the lived experience of the 'receiver.'"[33] *Interpretation* is understood in the context of this latter process, in which a *possible* reading is constructed in terms of "one particular taste, or perspective." A musical performer traditionally *interprets* a score primarily in this sense of giving that score a meaning, and secondarily in the sense of *performing*, or creating an aural realization. The reified score is then interpreted by a listener by uncovering and selecting from the "totality of incoming stimuli."[34]

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the creation of an artist's (or producer's or an artisan's) work -- thanks to which something now exists which would not have existed, except for them. For Gilson, the poietic is divided into three elements:

(1) deliberations on what must be done to produce the object;
(2) operations upon external materials
(3) the production of the work.

Ibid., p. 13.

[32]Nattiez notes that "the word *esthesic* was [Paul] Valéry's neologism," selected so as to avoid confusion, on etymological grounds, with "aesthetic." "Enjoying, contemplating or reading a work, musical performance, as well as scientific and analytical approaches to music, are de facto, situated on the side of the esthesic.

[33]Nattiez, *Music and Discourse*, pp. 10-17. The terms *poietic, esthesic,* and *trace* [score] describe Nattiez's "semiological tripartition."

[34]Eco, *The Open Work*, p. 21.

Viewed in this way, every symbolic form, every work of art, allows for multiple readings or interpretations. Umberto Eco, the "chief modern theorist of the open work,"[35] notes that

> *every* work of art, even though it is produced by following an explicit or implicit poetics of necessity, is effectively open to a virtually unlimited range of possible readings, each of which causes the work to acquire new vitality in terms of one particular taste, or perspective, or personal *performance*.[36]

But while a traditional work of art may be viewed as artistic by its multiplicity, it "is a complete and *closed* form in its uniqueness as a balanced organic whole,"[37] which

> may well vary in the ways it can be received but which always maintains a coherent identity of its own and which displays the personal imprint that makes it a specific, vital, and significant act of communication.[38]

In other words, it was *created* as a single object. The process of creation, the poietic process which gave rise to the work of art, was singular in its goal of making something, a finished product which could be considered in many ways.

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[35]Nattiez, *Music and Discourse*, pp. 82-83.

[36]Eco, *The Open Work*, p. 21.

[37]Ibid., p. 4

[38]Ibid., p. 20.

Open works, however, are open not only because they can be interpreted in many different ways, but because their openness is physical, i.e. it is an integral part of the poietic process. The goal of the composer of an open work is to transmute the traditionally esthesic multiplicity "into a normative poietic principle:"

> *normative*, since the openness of the work is perceived as a value that should be realized, and *poietic* because the perceptive [*esthesic*] indeterminacy is going to be transferred to production.[39]

Eco notes that, as open works are "characterized by the invitation to *make the work* together with the author,"[40] the performer becomes involved in the poietic process as a creator rather than an interpreter. As an example, consider Brown's *Available Forms I*, discussed in Chapter 3. Indeterminate mechanisms such as time notation, order of aggregates, and the possibilities for the blurring of boundaries between aggregates, create a score which engenders multiple, physically different realizations. Interpretation as an esthesic process ceases to be active at the level of performance, because neither the individual performers nor the conductor can envisage the final product as will appear in sound. This physical openness was intentionally created by Brown to achieve multiple results. The mechanics of Cage's

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[39]Nattiez, *Music and Discourse*, p. 83.

[40]Eco, *The Open Work*, p. 21.

Variations III are even more complex, as Cage all but eliminates his own intentions and those of the performer by allowing content to be determined through indeterminate processes. A performer cannot give meaning to Cage's score, but only create in a manner which is the antithesis of expression.

POSITIONING THE OPEN WORK: THE ESTHESIC PROCESS

The creation of an open work by a composer and performer(s) together is like a *game*. Games are played by two or more people who are familiar with and agree to certain rules by which the game is defined. Although people who watch games may or may not be familiar with the rules, it can be assumed that the enjoyment of watching a game is related to the extent of familiarity with the game and its tenets. A person unfamiliar with the rules of baseball, for example, may find it frustrating to watch this ritual of hitting, throwing, and running. On the other hand, those knowledgeable of baseball's rules may enjoy active non-participation, mentally correcting the mistakes of the players in terms of how *they* would have done it. There is also a sense that the heightened awareness of viewers, conscious of the possibilities in question during various stages of the game's play, enables them to experience suspense and drama by the unfolding of the action.

It is necessary to ask whether or not such an analogy can be applied to music: "is knowledge of the rules of the score or actions of the performer(s) in relation to those rules necessary for enjoyment?" "Does knowledge of the poietic processes increase enjoyment?" To the first question one might answer no, if one believed in the existence of universals which mediated a communicative process between the psyche of the composer and the psyche of the listener. To the second question, one can almost certainly answer yes, although the enjoyment may be of a different sort (perhaps less visceral).

In terms of the open work, these questions have a renewed relevance. Consider Wolff's statement about the listener and an indeterminate score:

> I once had an experience with another piece, a more elaborate one, but with similar principles, in which the performers had worked very, very hard on this piece. . they were students and had worked months. They had memorized the score, an indeterminate score at least of the complexity of *For 1, 2, or 3* [*People*], and they were performing. . .it was just an extraordinary performance. . .I was in seventh heaven. . .but I noticed as I. . .I began to get vibrations from the audience around me that they were getting very restive and unhappy and more and more uncomfortable and generally turned off by the whole situation, and after a while I began to realize what was going on. What was communicated to them was the pleasure that the players were having with this material. . .right. . .but the greater the pleasure that the players were communicating in their activity, the greater the frustration of the audience at

> being excluded from the source of that pleasure. Because it was not simply the playing of music in the usual sense, but it was this kind of game-like or, you know, interactive situation, and the audience had no idea what was the basis of that and why. . .so basically they just felt excluded, and were getting more and more unhappy about it.[41]

Wolff concludes that the listeners were unhappy because they had no knowledge of the choices being made by the performers. The work's *openness* was centered in the creative process and became a private game. However, the audience reaction was prompted by the visual image of the performers having more fun than they were, which could be attributed to many things not necessarily musical. The question that should be asked is whether openness is attributable to a work on a purely esthesic level, the level of the listener who is confronted with a sonorous form. Other questions then follow: Are there aspects of openness that can be defined in terms of the aural result? Does it matter if openness is *not* communicated to the listener?

These questions were discussed briefly in Chapter 2 (p. 75) in reference to Stockhausen's statement that the open work "has certain immanent characteristics that permit identification as 'open'."[42]

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[41]Christian Wolff, in conversation during a panel discussion, *Interface* 16 (1987): 188. Ellipses his.

[42]Karlheinz Stockhausen, "Interview et déclaration," *V.H. 101* (1970-1971), pp. 110-118.

Stockhausen uses phrases such as "disparate musical moments" and words like "non-linearity" in support of openness on the esthesic level. But it would be necessary to apply experimental psychology to determine whether these features define a musical idiom. The psychologist might endeavour to establish control groups of musicians and non-musicians, divide those groups into informed and uninformed listeners, and play them open and closed works in order to determine whether openness is inherent in the result or merely a silent aspect of the compositional procedure. Such a procedure, however, would be marred from the outset by differences in descriptive vocabulary and terminology: how does one define *non-linearity* or *discontinuity*? It is obvious that the choices which the performers have during a performance of open works such as Brown's *Available Forms I* or Cage's *Variations* are not available to a listener during the performance, when a listener has merely a single, aural image to which such listener may attribute whatever terms or structures seem relevant. Thus, since the listener is physically deprived of the "game" aspect of the performance, any descriptive term can only *hope* to pinpoint the poietic strategy behind the work's creation. Terms like "non-linearity" and "discontinuity", both which imply a lack of cause or necessity in the sequence of musical events, come the closest to being relevant for both the poietic and esthesic levels,

although it would be difficult to prove that they were in any way connected.

On the other hand, there is no reason to rule out a discussion of the perceivability of openness as a means of understanding open works. DeLio, although generally ruling out poietic openness as part of the listener's experience, believes that Wolff's *For 1, 2, or 3 People* "does convey this sense of openness:"

> It's not directed toward particular patterns of growth and change and things like this. It really constantly comes back on itself in a sense that it comes back on its own gestures and reforming those gestures with different sounds in a different configuration.[43]

And Wolff, in his article "Open to Whom and to What," notes that the term *open* has various connotations, including multiplicity, heterogeneity, change, participation, accessibility, etc., and as a descriptive term is quite apt in describing the type of non-homogenized or fragmented works of Xenakis or Ives. To Wolff (and DeLio), *open* "is not so much a technical issue (indeterminate techniques, whether applied to composing or performing) as a matter of how the music sounds."[44] Since technical (poietic) issues are avoided, Wolff does not attempt to correlate poietic mechanisms with the

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[43]Thomas DeLio, "Panel Discussion," *Interface* 16 (1987): 188.

[44]Christian Wolff, "Open to Whom and to What," *Interface* 16 (1987): 133.

reactions of a listener. Rather, his reactions are general ones to specific composers or works. For example:

> Some scores, in the density of their scoring, the extreme detail of prescriptive notation, seem (and I take it, intended to be) self-enclosed (e.g. Elliott Carter's work), and sound it. And yet others, just as dense and detailed, by a kind of refusal of integration or homogenizing, or by their conspicuous excess, sound open (e.g. Ives or Xenakis).[45]

Or:

> Its [Luigi Nono's string quartet *Fragmente --Stille, an Diotima*] openness is also marked by (1) a continuously fragmentary texture. . including extensive use of silence and almost continuously variable notation or durations. . .(2) by the character of its continuity -- suggesting, rather than structure, a process. . .the music also feels as though it could stop at any time, and (3) by a kind of obscurity.[46]

There is a sense that the "extensive use of silence" instills a great feeling of openness. David Tudor's performance of Brown's *December 1952* effectively communicates the poietic openness by giving precedence to the large amount of silent space in the score (see page 29). Charles Rosen makes effective use of silence in his 1977 performance of Boulez's *Third Piano Sonata* (*Formant 3, Constellation -- Miroir*), such pauses providing a

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[45]Ibid., p. 135.

[46]Ibid., p. 136.

gentle hint of each section's interchangeability with the other. Wolff goes so far as to mention Beethoven in this regard:

> A Beethoven score, I take it, is "closed," but I can imagine it, in some degree, played in an open way, or at least I have found myself sometimes hearing moments of such a score, especially slower ones, fermatas, and especially sustained final chords, as open, wishing there were a piece made up entirely of such moments.[47]

And Feldman's piano works are a good example of a work in which there is no poietic indeterminacy but a great deal of esthesic indeterminacy. The slow moving, quiet chords give the impression of stasis, or lack of goal.

Non-linearity and stasis imply aspects of spatial perception, in which the entire object is meant to be perceived instantaneously, in a time-neutral environment. In arts which move through time, such concepts are difficult to grasp. But in literature, Eliot, Pound, and Joyce

> ideally intend the reader to apprehend their work spatially, in a moment of time, rather than as a sequence.[48]

By eliminating the normal expectations of sequence, the reader is forced "to perceive the elements of the poem as juxtaposed in space rather than

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[47]Ibid., p. 134.

[48]Frank Joseph, "Spatial Form in Modern Literature," *The Widening Gyre: Crisis and Mastery in Modern Literature* (Bloomington: Indiana University Press, 1986), p. 8.

unrolling in time."[49] When applied to music, the spatial metaphor resounds in the poietic process. The scores of Brown's *December 1952*, Wolff's *For 1, 2, or 3 People*, Stockhausen's *Klavierstück XI*, Boulez's *Third Piano Sonata*, etc., convey the message of openness to the performer through such a spatial gesture. Esthesically, the listener should ideally be able to perceive the discontinuity or lack of necessity in the work, except for the fact that music moves or proceeds *through* time whether we like it to or not, and does not have the ability to bring the listener to a different time in the same way a literary work does. However, music can *refer* to earlier moments in the work by repetition or variation. Traditional forms, such as the sonata, rondo, minuet, etc., are defined partly by the type of repetition employed. In this sense, they are static, immobile, and closed, compared with works in which such repetition plays no part. Thus, openness can mean the avoidance of the familiar, the ability *not* to make use of traditional formal devices. This is what Eco means when he states:

> On a wider level (as a sub*genus* in the *species* "work in movement") there exist works which, though organically completed, are "open" to a continuous generation of internal relations which the addressee must uncover and select in his act of perceiving the totality of incoming stimuli.[50]

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[49]Ibid.

[50]Eco, *The Open Work*, p. 21.

Traditional forms which are tied to a "term-to-term determination" rely on the listener's vocabulary of these forms to communicate the formal idea, as noted by Gottfried Koenig:

> traditional composing is not directed towards "purely musical" goals but prompted by aspects of performance technique which, reinforced by traditional behaviour patterns, promote form.[51]

With open works which avoid such traditional patterns of behavior, the listener's role is increased. Rather than passively observing and recognizing the form of the work, it is up to the listener to

> place himself deliberately in the midst of an inexhaustible network of relationships and to choose for himself, so to speak, his own modes of approach, his reference points and his scale, and to endeavor to use as many dimensions as he possibly can at the same time and thus dynamize, multiply, and extend to the utmost degree his perceptual faculties.[52]

Indeed, such positioning by the listener applies not only to works in which openness is a poietic phenomenon, but to post-dodecaphonic serialist and others in which form becomes an activity implemented for its own sake.

On a broader level, *two* performances of the same open work do convey a sense of physical openness: they are different aural images. In

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[51]Gottfried Michael Koenig, "Genesis of Form in Technically Conditioned Environments," *Interface* 16 (1987): 165.

[52]Henri Pousseur, "La nuova sensibilita musicale," *Incontri musicali* 2 (1958): 25, as quoted in Eco, *The Open Work*, p. 11.

this case the poietic intent is realized on an esthesic level, provided the listener understands that both performances are of the same work. "But even then," notes Nattiez, "the intellectual and perceptive processes will not be unlike that involved in, say, hearing two Haydn piano sonatas."[53] What the listener perceives is not openness, but difference. Comparisons of Brown's *Available Forms I* to a Calder mobile work on the poietic level, but fail on the esthesic level.

> Sculpture -- even mobile sculpture -- is offered globally to our perceptive faculties; if it moves, the variations inscribe themselves within a perceptive field that would be the same if it had remained immobile. In music, on the other hand, a variation does not exist except in relation to a musical given engendered (as a consequence of music's linear temporality) before or after, but never during the variation itself.[54]

What the listener never participates in is the aspect of choice given the performer, the game. The best the listener can hope for in that regard is a collection of pictures showing the mobile in its various states.

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[53]Nattiez, *Music and Discourse*, p. 85.

[54]Ibid., p. 85.

OPEN STRUCTURE AND THE MASTERPIECE

> But open systems are not traditionally very satisfying to us. . .; all our masterpieces are closed systems in which we feel a total space to have been 'rounded off,' all the mooted possibilities to have been treated; we feel that nothing has been omitted and nothing is extraneous.[55]

We assume that by closing a system, rounding it off, and treating the mooted possibilities of it, we are in possession of something which we can know. It is a comfortable feeling of control, an outgrowth of the Medieval quest for an encyclopedic knowledge which "strives to attain a sequentially structured perfection -- from A to Z -- and, in doing so, to enclose the world and thus achieve 'comprehensive coverage' of the 'sum' of knowledge."[56] The open work, however, is a text "whose performance is the weaving of the certitude of the void into the incertitude of the present,"[57] a non-encyclopedic form which encloses nothing. Rather, the most important aspect of its function is the interaction with the performer. It is, to use literary-critical jargon, a *performative*: that which necessitates performance, not *observance* or *consumption*; an *act*, or rather the *act* of

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[55]Harvey, *The Music of Stockhausen*, p. 78.

[56]Vincent Descombes, "Variations on the Subject of the Encyclopaedic Book," *Oxford Literary Review* 3:2 (1978): 56, as quoted in Lorraine Weir, *Writing Joyce: A Semiotics of the Joyce System* (Bloomington: Indiana University Press, 1989), p. 40.

[57]Weir, *Writing Joyce*, p. 47.

doing *(performing)*, rather than the outcome of that *act.* There is a process, the performer confronting the symbolic form (score), acquiring competence in its workings, and mediating its polysemic topology, but no product. The performer is confronted by possibilities, a map of a foreign terrain, which affect and continually modify the choices which the performer makes. Each open work presents a new set of choices, a new terrain, with its own set of rules and navigational difficulties which the performer both conforms to *and* isolates in terms of his or her own personal bias. The work is *acted* in the performer's image while at the same time modifying that image in terms of itself.

Such forming and acting is in a sense decadent. In a socio-political sense, considerations of truth or morality are removed from the process of creation by the use of indeterminate means. The lack of consideration for the eventual *sound* qualities of the works, particularly in works of indeterminate content, and the acceptance of any of the infinitely possible results place these creations above judgement: they are no longer right or wrong, good or bad, moral or immoral, but rather infinite, neutral, anhistorical and universal.[58] They appropriate the world as now, with a

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[58]This is not to say that there cannot be good or bad performances of either determined or indeterminate content works. It is merely to say that the aesthetic point of view which governs the creation of these works (the *poietic*) is a decadent one.

"conviction that everything is there for everyone to take."[59] Certainly one no longer need judge one's acts, possess knowledge or reflect on the knowledge and perception of others. And while criticism may not be moral censure, it invariably relies on the perception by one subject (the critic) of another subject (the work of art, or the creator of the work of art), an impression that is by no means neutral given the *subjectivity* of the perceiver in viewing the world in relation to him- or herself.

As a tool for evading interpretation, open works are quite effective. But the open work's "flight from interpretation" does not mean that these works are no longer worth listening to.[60] Susan Sontag notes:

> *Transparence* is the highest, most liberating value in art -- and in criticism -- today. Transparence means experiencing the luminousness of the thing in itself, of things being what they are.[61]

The Zen in Cage appreciates things for what they are, almost to the point of denying immediate pleasures of sound. But Cage's philosophy is positively centered on the work of art itself, not the otherness of a separate ontological object rooted in expression. Open works are ultimately abstract, open in their ability to exist in sound, deaf to cries of judgement. Sontag notes:

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[59]Sabbe, "A Logic of Coherence," p. 184.

[60]Susan Sontag, *Against Interpretation* (New York: Anchor Books, 1986), p. 10.

[61]Ibid., p. 13.

> If excessive stress on *content* provokes the arrogance of interpretation, more extended and more thorough descriptions of *form* would silence. What is needed is a vocabulary --a descriptive, rather than prescriptive, vocabulary -- for forms. The best criticism, and it is uncommon, is of this sort that dissolves considerations of content into those of form.[62]

Such a descriptive rather than prescriptive vocabulary, however, must evolve from a complete understanding of the composed work. One risks extreme banality in relying only on onesighted phenomenal descriptions of any work of art. For even though the open work's aesthetic is that of an unrepeatable, phenomenal experience, removed from poietic or historical intentions, it still retains characteristics common to other works which are not open. First, open works proceed through time, diachronically. The succession of sounds creates juxtapositions and change from which a sense of mystery, a "desire to find out what happens,"[63] emerges. And second, open works can be analysed or described in a broad, synoptic fashion in which the work is understood as a whole apart from its context in time. Although listeners cannot participate in the process of choice given the performer(s), they can appreciate a performance in terms of an aesthetic viewpoint (dominant in works of indeterminate content), or a consistent

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[62]Ibid., p. 12.

[63]Edward T. Cone, *Music: A View from Delft*, ed. Robert P. Morgan (Chicago: University of Chicago Press, 1989), p. 79.

background (determined content) which emerges through multiple listenings or study.

Ideally, the listener/critic should integrate both sides of the musical fabric in what Edward Cone refers to as a "Third Reading:"[64]

> Although it [Third Reading] cannot avoid attending to the overall pattern investigated by synoptic analysis, it will allow itself to recognize that pattern only as a gradually emerging one, and it will concentrate on the strategies of concealment and disclosure by which the author controls the process.[65]

Appreciating an open work's *newness* and *unrepeatability* in terms of its background is imperative if one is to understand it as a work of art. If an open work is not perceived in this way, it is reduced to a fleeting novelty, or stated negatively, flatulent improvisation. Open works reward contemplation by providing such background, and "one cannot simply turn up one's nose at musical results that are different at each performance."[66]

The synoptic side of the musical fabric is, admittedly, easier to disinter in open works with a determined content, such as Brown, Stockhausen, Boulez, Pousseur, etc. The analysis of *Available Forms I* presented in Chapter 3, for example, begins by presenting an analytical

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[64]Ibid, p. 81.

[65]Ibid.

[66]Nattiez, *Music and Discourse*, p. 86.

breakdown of the materials of the composer in terms of its function and then applies this information diachronically to two separate performances in the manner of a phenomenal description. Such description has meaning because of the appropriateness of the analytical perspective, itself phenomenally based. And given the underlying synoptic background, the listener is able to understand the drama or expression of a particular performance. In the case of Mays' version of *Available Forms I*, the "strategies of concealment and disclosure" are more interesting to the informed listener.

The open works of Cage, Wolff, and Brown (*December 1952*), in which content is indeterminate, are more problematic because of the lack of correlation between the sounds and their source in the score. Nevertheless, the poietics of an indeterminate content open form work are something that can be known and understood, and such understanding is crucial to a proper critical perspective on performances of it. If the synoptic, analytical view of a determined content work positions the functioning elements of that work outside of their diachronic or phenomenal significance, the same courtesy can be given to works of indeterminate content, in which the aesthetic goals behind the work serve as the analytical perspective which allows the work to be seen as a work of art. The necessary aesthetic distance is achieved when the poietics of Cage's *Variations III* or other

similar works are understood in the context of its performance as an integral part of the musical fabric. The fact that Cage allows sounds to "be sounds" is as important a context as the hierarchically motivated tonal concept which embraces the works of Haydn and Mozart. Although the historical context is missing from Cage's works, the philosophy behind these works allows us to consider them in much the same way as any other work. It is simply that the philosophy, rather than the sound itself, distances the work as an object of contemplation.

APPENDIX

The following diagrams represent each of the four categories of texture prevalent in *Available Forms I.* Each page contains three diagrams. The first diagram gives information regarding relative density of the aggregate: average number of notes per instrument, number of instruments, and total notes (if all instruments are playing). The second diagram lists the occurrences of specific pitches within each aggregate listed. The final diagram lists the occurrences of intervals as appear horizontally in each instrument. The figures in the second and third diagrams are meant to reflect aspects of the entire aggregate, rather than individual instruments.

Category I may be described as highly dense. In general, all aggregates in this category include the entire ensemble. The notes which are played are short and in most cases staccato. The diagram referring to pitch shows that it is a relatively neutral element in the aggregates, i.e. all twelve pitches of the chromatic scale are evenly distributed (quantitatively) throughout each instrument and aggregate. The diagram referring to intervals shows similar results, although Brown does seem to favor the use

of m2/M7 (and m9) and P4/P5, and avoids the use of the tritone.[1] Intervals greater than an octave are reduced, e.g. m9 = m2. The static neutrality of the pitch, intervals, and attack is a quality shared by all aggregates which are members of this category.

Category II is much less dense and more diverse than Category I. Most of its members are goal-directed, either in range or interval. Again, pitch is a neutral aspect, and intervals are not obviously favoured except in the case of *II:3,4*.

The general characteristic of category III is a lack of horizontal motion in individual parts. Comparing this category with category I, the differences become obvious. For example, *I:1,1* is written for 18 instruments, which play 197 notes. *I:1,1* also uses a diverse array of intervals horizontally, favoring m2/M7 and P4/P5. *III:4,2*, however, uses only 4 instruments, which play 4 notes. There is no horizontal movement, as each instrument merely holds a single tone for the duration of the aggregate. This explains the lack of data in the third diagram of Category III. One exception to the lack of horizontal motion is *III:6,1*. While six instruments (oboe, Eb clarinet, Bb clarinet, bassoon, trumpet, and viola) sustain single pitches (although timbre and frequency are unstable), the

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[1]Quist notes that this avoidance of the tritone, and a preference for intervals of the ninth and seventh, are stylistic traits of Brown's music. p. 75.

vibraphone plays many different notes in the style of category 1. As such, an asterisk is listed in the first diagram to explain the discrepancy. Total notes are listed as "6" and do not include the vibraphone.

Category IV is defined by the use of colour or indeterminate pitch means. As such, it is impossible in certain instances to list exact number of notes. The presence of an asterisk indicates that the figure is accurate in terms of specifically notated pitches, but obviously would not include pitches generated from indeterminate means at time of performance. Aggregate 3 on page 4 has not been defined in terms of intervals. This aggregate is scored for pitched idiophones, and the attack may be of any one of four types.

The neutrality of pitch content suggests the subjugation of *expressive* content by denying any one pitch or interval class a hierarchically elevated status. Brown's creative vision of spontaneity and unrepeatability are thus well served, as the pitch content becomes merely the material for the activity of forming. Thus any *Available Form* which the material engenders, instead of demonstrating a resolution of that content in terms of a psychological or cultural profile, presents the result of a forming process.

Available Forms I
Category I

Page	1	1	1	1	2
Aggregate	1	2	3	4	1
Notes/Instrument	10	10	16	7	11
No. of Instruments	18	18	18	18	18
Total Notes	197	197	289	134	200

Pitches per aggregate

	Pitch:	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
Page	Agg.												
1	1	8	17	17	25	19	15	13	16	20	16	16	15
1	2	15	18	18	17	22	16	17	17	16	18	13	9
1	3	24	24	14	26	23	29	28	19	26	30	31	25
1	4	6	13	5	11	13	12	16	8	12	12	15	10
2	1	14	15	4	26	14	24	24	12	15	13	21	18

Occurrences of each interval class per aggregate

	Interval:	m2/M7	M2/m7	m3/M6	M3/m6	P4/P5	Aug.4
Page	Agg.						
1	1	50	25	23	25	50	15
1	2	35	12	31	14	59	19
1	3	63	24	63	20	74	21
1	4	19	13	26	12	41	7
2	1	44	23	20	13	66	7

Available Forms I
Category II

Page	2	2	2	3	3	4	5	5	6	6
Aggregate	2	3	5	1	4	1	1	2	2	4
Notes/Instrument	13	9	11	8	4	6	4	3	9	6
No. of Instruments	6	8	4	6	18	9	18	18	5	8
Total Notes	81	77	46	46	71	49	82	47	47	44

Pitches per aggregate

	Pitch:	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
Page	Agg.												
2	2	9	9	9	7	6	5	8	7	10	6	3	2
2	3	9	7	5	6	7	6	6	6	5	8	5	7
2	5	3	0	1	2	4	4	3	2	4	3	3	3
3	1	4	4	2	5	6	5	5	4	3	3	4	1
3	4	8	6	7	4	7	6	7	3	8	5	4	6
4	1	3	4	5	4	3	4	4	3	3	6	6	4
5	1	4	9	5	5	7	6	9	7	6	8	9	7
5	2	3	4	2	4	5	4	5	4	3	6	4	3
6	2	3	5	2	3	3	5	4	3	2	5	6	6
6	4	1	4	7	4	5	2	3	5	2	4	2	5

Occurrences of each interval class per aggregate

	Interval:	m2/M7	M2/m7	m3/M6	M3/m6	P4/P5	Aug.4
Page	Agg.						
2	2	10	3	6	5	31	8
2	3	9	11	10	12	17	9
2	5	6	5	2	3	10	1
3	1	7	8	9	5	11	0
3	4	0	39	8	0	3	1
4	1	8	4	7	6	10	2
5	1	7	8	14	12	10	6
5	2	2	4	7	6	4	4
6	2	6	7	7	9	8	4
6	4	9	8	3	1	12	2

Page	2	4	5	5	5	6
Aggregate	4	2	3	4	5	1
Notes/Instrument	1	1	3	1	3	1*
No. of Instruments	14	4	6	4	6	7
Total Notes	14	4	17	4	17	6*

Pitches per aggregate

	Pitch:	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
Page	Agg.												
2	4	1	2	2	1	1	1	1	1	1	1	1	1
4	2	1	1	1	0	0	0	0	0	0	0	0	1
5	3	2	2	2	1	1	1	1	1	1	2	1	2
5	4	0	0	0	0	1	1	1	0	1	0	0	0
5	5	2	1	1	1	2	1	1	2	2	2	1	1
6	1	5	7	3	1	0	4	1	6	4	1	0	4

Occurrences of each interval class per aggregate

	Interval:	m2/M7	M2/m7	m3/M6	M3/m6	P4/P5	Aug.4
Page	Agg.						
2	4						
4	2						
5	3			no horizontal movement			
5	4						
5	5						
6	1	7		3	4	3	7	4

Page	3	3	4	4	4	6
Aggregate	2	3	3	4	5	3
Notes/Instrument	12	5	*	7*	12*	16
No. of Instruments	3	3	4	3	3	5
Total Notes	35	16	*	20*	37*	83

Pitches per aggregate

Page	Agg.	Pitch: C	C#	D	D#	E	F	F#	G	G#	A	A#	B
3	2	1	6	1	3	2	4	2	2	5	2	5	2
3	3	2	1	0	1	3	3	2	1	0	0	1	2
4	3	1	2	1	0	1	3	2	1	0	1	3	2
4	4	2	0	1	1	3	3	2	0	0	3	0	5
4	5	2	1	7	1	1	1	1	8	4	6	1	4
6	3	6	7	2	6	7	6	7	7	5	9	11	10

Occurrences of each interval class per aggregate

Page	Agg.	Interval: m2/M7	M2/m7	m3/M6	M3/m6	P4/P5	Aug.4
3	2	6	5	7	4	9	1
3	3	2	0	3	0	7	1
4	3	no horizontal motion					
4	4	6	2	0	0	5	3
4	5	4	7	3	6	14	0
6	3	29	7	16	6	15	3

BIBLIOGRAPHY

"Panel Discussion." *Interface* 16 (1987): 187-199.

Bataille, Georges. "The Labyrinth." In *Deconstruction in Context*, edited by Mark C. Taylor. Chicago: University of Chicago Press, 1986.

Berg, Stephen, and Mezey, Robert, eds. *Naked Poetry: Recent American Poetry in Open Forms*. Indianapolis: The Bobbs-Merrill Company, Inc., 1969.

Black, Robert. "Boulez's Third Piano Sonata: Surface and Sensibility." *Perspectives of New Music* 20 (1981-82): 183-198.

Blass, Joseph Herring. *Indeterminacy as a Factor in Scientific and Artistic Attitudes of the Twentieth Century*. Florida State University: PhD Dissertation, 1968.

Boulez, Pierre. *Conversations with Célestin Deliège*. London: Eulenburg Books, 1976.

_____. *Orientations*, edited by Jean-Jacques Nattiez, translated by Martin Cooper. Cambridge: Harvard University Press, 1986.

_____. *Notes of an Apprenticeship*, translated by Herbert Weinstock. New York: Albert A. Knopf, 1968.

Brown, Earle. "Form in New Music." *Source: Music of the Avant-garde* I (1964): 49-51.

_____. "The Notation and Performance of New Music." *Musical Quarterly* 72 (1986): 180-201.

_____. "Earle Brown." In *The Music Makers*, edited by Deena and Bernard Rosenberg. New York: Columbia University Press, 1979.

Cage, John. *Silence: Lectures and Writings by John Cage*. Middletown, Connecticut: Wesleyan University Press, 1973.

_____. *I-VI*. Cambridge: Harvard University Press, 1990.

Campana, Deborah. *Form and Structure in the Music of John Cage*. Northwestern University: PhD Dissertation, 1985.

Chase, Gilbert. *American Music*. New York: McGraw Hill, 1966.

Chou, Wen-Chung. "Asian Concepts and Twentieth Century Western Composers." *The Musical Quarterly* 57 (1971): 211-229.

_____. "Open Rather Than Bounded." In *Perspectives of American Composers*, edited by Benjamin Boretz and Edward T. Cone. New York: W.W. Norton & Co., 1971.

Cope, David. *New Directions in Music*. 2d ed. Dubuque: WM. C. Brown Company Publishers, 1976.

Cowell, Henry. "Relating Music and Concert Dance." *Dance Observer* 4 (1937): 1, 7-9.

Dahlhaus, Carl. *Esthetics of Music*, translated by William Austin. Cambridge: Cambridge University Press, 1983.

DeLio, Thomas. *Circumscribing the Open Universe*. Lanham: University Press of America, 1984.

Dufallo, Richard. *Trackings: Composers Speak with Richard Dufallo*. Oxford: Oxford University Press, 1989.

Eco, Umberto. *The Open Work*, translated by Anna Cancogni. Cambridge: Harvard University Press, 1989.

_____. *The Aesthetics of Chaosmos: The Middle Ages of James Joyce*, translated by Ellen Esrock. Cambridge: Harvard University Press, 1989.

Faas, Ekbert, ed. *Towards a New American Poetics: Essays & Interviews*. Santa Barbara: Black Sparrow Press, 1978.

Faas, Ekbert. "Interview with Karlheinz Stockhausen Held August 11, 1976." *Interface* 6 (1977): 187-204.

Feldman, Morton. "An Interview with Robert Ashley." In *Contemporary Composers on Contemporary Music*, edited by Elliot Schwartz and Barney Childs. New York: Holt, Rinehard and Winston, 1967.

Gable, David. "Boulez's Two Cultures: The Post-War European Synthesis and Tradition." *Journal of the American Musicological Society* (1990): 427-456.

Griffiths, Paul. *Modern Music: The Avant-Garde Since 1945*. New York: George Braziller, 1981.

Hamm, Charles. "John Cage." In *Twentieth-Century American Masters*. London: Macmillan Press Ltd., 1987.

Harvey, Jonathan. *The Music of Karlheinz Stockhausen*. London: Faber & Faber, 1975.

Hedges, Stephen A. "Dice Music in the Eighteenth Century." *Music and Letters* 59 (1978): 180-187.

Heyworth, Peter. "The First Fifty Years." In *Pierre Boulez: A Symposium*, edited by William Glock. New York: Da Capo Press, 1986.

Ingarden, Roman. *The Ontology of the Work of Art*, translated by Raymond Meyer and John T. Goldthwait. Athens: Ohio University Press, 1989.

_____. *The Work of Music and the Problem of Its Identity*, translated by Adam Czerniawski, edited by G. Harrell. Berkeley: University of California Press, 1986.

Koenig, Gottfried Michael. "Genesis of Form in Technically Conditioned Environments." *Interface* 6 (1987): 165-175.

Kostelanetz, Richard. *Conversing with Cage*. New York: Limelight Editions, 1988.

Kurtz, Michael. *Stockhausen, Eine Biographie*. Kassel: Bärenreiter, 1988.

Lévi-Strauss, Claude. "The Structural Analysis of Painting and Music." In *20th-Century Theories of Art*, edited by James M. Thompson. Ottawa: Carleton University Press, 1990.

Ligeti, György. "Metamorphoses of Musical Form." *Die Reihe* 7 (1975): 5-19.

_____. "Some Remarks on Boulez' 3rd Piano Sonata." *Die Reihe* 5 (1975): 56-58.

Lloyd, Norman. "Sound-Companion for Dance." *Dance Scope* (Spring, 1966): 10-12.

Mallarmé, Stéphane. *Un coup de dés jamais n'abolira le hasard*, translated by Daisy Aldan. New York: Tiber Press, 1956.

Meyer, Leonard B. *Music, the Arts, and Ideas: Patterns and Predictions in Twentieth Century Culture*. Chicago: University of Chicago Press, 1967.

Nattiez, Jean-Jacques. *Music and Discourse: Toward a Semiology of Music*. Translated by Carolyn Abbate. Princeton: Princeton University Press, 1990.

Nelson, Raymond. *Kenneth Patchen and American Mysticism*. Chapel Hill: The University of North Carolina Press, 1984.

Nicholls, David. *American Experimental Music 1890-1940*. Cambridge: Cambridge University Press, 1990.

Nyman, Michael. *Experimental Music: Cage and Beyond*. London: Studio Vista, 1974.

Penrose, Roger. *The Emperor's New Mind: Concerning Computers, Minds, and the Laws of Physics*. New York: Oxford University Press, 1989.

Pousseur, Henri. "Music, Form and Practice." *Die Reihe* 6 (1975): 77-93.

Quist, Pamela Layman. *Indeterminate Form in the Work of Earle Brown*. Peabody Conservatory of Music: DMA Dissertation, 1984.

Reynolds, Roger. "Indeterminacy: Some Considerations." *Perspectives of New Music* 4 (1965): 138.

Runes, Dagobert D., ed. *Dictionary of Philosophy*. Rowman & Littlefield Publishers, Inc., 1989.

Sabbe, Herman. "A Logic of Coherence and an Aesthetic of Contingency: European Versus American 'Open Structure' Music." *Interface* 16 (1987): 180.

Seeger, Charles. "On Dissonant Counterpoint." *Modern Music* 7 (1930): 28.

_____. "Ruth Crawford." In *American Composers on American Music*: 111.

Sontag, Susan. *Against Interpretation*. New York: Anchor Books, 1986.

Stacey, Peter F. *Boulez and the Modern Concept*. Aldershot, England: Scolar Press, 1987.

Tan, Margaret Leng. "'Taking a Nap, I Pound the Rice:' Eastern Influences on John Cage." In *John Cage at Seventy-Five*, edited by Richard Flemming and William Duckworth. Lewisburg: Bucknell University Press, 1989.

Techniques of the Great Masters of Art. Secaucus, NJ: Chartwell Books Inc., 1985.

Thomson, Virgil. "Current Chronicle." *The Musical Quarterly* 38 (1952): 124.

Tisdall, Caroline, and Bozzolla, Angelo. *Futurism*. New York: Oxford University Press, 1978.

Walker, Alan. *An Anatomy of Musical Criticism*. Philadelphia: Chilton Book Company, 1968.

Watkins, Glenn. *Soundings: Music in the Twentieth Century*. New York: Schirmer Books, 1988.

Weir, Lorraine. *Writing Joyce: A Semiotics of the Joyce System.* Bloomington: Indiana University Press, 1989.

Wolff, Christian. "Open to Whom and to What." *Interface* 16 (1987): 133-144.

MUSICAL WORKS

Boulez, Pierre. Third Piano Sonata. Vienna: Universal, 1963.

Boucourechliev, André. *Archipel III.* Paris: Editions Musicales Alphonse Leduc, 1970.

Brown, Earle. *Available Forms I.* New York: Associated, 1962.

_____. *December, 1952.* New York: Associated Music Publishers, Inc., 1961.

_____. *Twenty-Five Pages.* Vienna: Universal, 1953.

Cage, John. *Variations I.* New York: Henmar Press, 1958.

_____. *Variations II.* New York: Henmar Press, 1962.

_____. *Variations III.* New York: Henmar Press, 1963.

_____. *Concert for Piano.* New York: Henmar Press, 1960.

Cowell, Henry. *Hilarious Curtain Opener and Ritournelle. New Music* Magazine, 1945.

Feldman, Morton. *Intersection III.* New York: C.F. Peters, 1962.

Haubenstock-Ramati, Roman. *Pour Piano.* Paris: Ariadne, 1973.

_____. *Multiple 5.* Vienna: Universal, 1969.

Ives, Charles. "Hallowe'en," from *Three Outdoor Scenes.* New York: Boelke-Bomart, Inc., 1949.

Russolo, Luigi. *The Awakening of a City*. From reproduction as printed in Caroline Tisdall and Angelo Bozzolla, *Futurism*. New York: Oxford University Press, 1978, p. 117.

Stockhausen, Karlheinz. *Klavierstück XI*. Vienna: Universal, 1957.

Wolff, Christian. *For 1, 2, or 3 People*. New York: C.F. Peters, 1964.