

Indeterminacy and Chance Music:

John Cage's Response to Serialism

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The American composer and music theorist John Cage is best known for his courage in presenting ideas that challenged the established definition of music composition and, even beyond that, the definition of *music*.¹ This is the reason that he is considered as one of the most important composers of the twentieth century. His 1952 composition *4'33"* is a good example of his desire to resist the common meaning of a piece of music by challenging the most basic idea of a musical piece, one that demands that the work include sonic elements. He crossed the red line by composing a piece which does not have sound: a piece of music which is not *music*, and is thus a controversial approach to what we call *music*.² Although Cage had some traditional music training, including composition lessons with well-known composers such as Henry Cowell and Arnold Schoenberg,³ he did not follow any of the previous styles of composition and, unlike other innovative composers who first study the traditional styles before forging their own path, Cage broke rules and created his own unique musical language since the start of his compositional career.⁴

¹ George J. Leonard, *Into the Light of Things: The Art of the Commonplace from Wordsworth to John Cage* (Chicago: University of Chicago Press, 1995), 120.

² Richard Kostelanetz, ed., *John Cage* (New York: Da Capo Press, 1991), 69–70.

³ As quoted by John Cage in "Mosaic," *Kenyon Review* 27 (Summer 1965), 537.

⁴ Denis Lejeunne, *The Radical Use of Chance in 20th Century Art* (Amsterdam: Rodopi, 2012), 185–89.

In this article, I will examine John Cage's response to the music philosophy and compositional conventions developed by his most avant-garde contemporaries who were involved in the development of serialism, as shown through Cage's compositions. First, I investigate John Cage's *Music of Changes* (1951) for solo piano. *Music of Changes* is an example of chance music, as a response to total serialism and to the completely organized compositions based on total serialism.⁵ Second, I discuss the influence of Eastern and Middle Eastern philosophy on Cage's unique interpretation of the structural composition. Finally, I will discuss how Cage's identity as a Zen Buddhist influenced his reactions to the major composition movements of the twentieth century.

Cage was a unique artist in the twentieth century and a very influential figure in the modern music period not only because of his innovative work and ideas, but also because of the way he challenged the dominance of established and well-known composers of his time.⁶ While he had some traditional training in composition, his first several compositions demonstrated serialist techniques, under the influence of Arnold Schoenberg, Cage never tried to tie himself to any of the major movements of the time. His music did not belong to a pre-existing genre or group of artists, although some considered his music belonging to what his student Allan Kaprow called *Musical Happening*.⁷

⁵ Pierre Boulez, "Alea," *Perspectives of New Music* 3, No. 1 (1964): 42–53.

⁶ Peter Gutmann, "The Sound of Silence," *Classical Notes*, 1999, <http://www.classicalnotes.net/columns/silence.html> (accessed December 2, 2017).

⁷ Gary Botting, "Happenings," in *The Theatre of Protest in America* (Edmonton: Harden House, 1972), 13.

Serialism Background

Anton Webern, Alban Berg, Karlheinz Stockhausen, Pierre Boulez, Luigi Nono, Milton Babbitt, Charles Wuorinen and Jean Barraqué were the notable composers who composed according to the principles of total serialism: music employing pre-selected series of various [or multiple] aspects of music such as duration, dynamics, and register as well as series of pitches.⁸ This method of composition had two major characteristics: the first, the harmonic atmosphere was totally different than that of Romantic and Classic-period music, because the primary rule when organizing a series was to avoid creating major-minor triads and any reminiscence of traditional and familiar harmonies. By creating twelve-tone rows, composers avoided the predominance of any single note caused by being repeated more than others; this preference essentially led to a lack of tonic gravity.⁹ Second, unlike traditional composers, total serialists willingly gave up their freedom in assigning dynamics, articulations, and other musical elements, instead indicating these features using designated series of that element. Although it is not impossible to find some manipulation in total serial pieces, places in which the composer chooses not to follow their series precisely, in general these rules created a very strict framework for composers. What made total serialist compositions innovative was the composers' approach to arranging the series in the piece along with the free use of the instruments.

⁸ Morag Josephine Grant, *Serial Music, Serial Aesthetics: Compositional Theory in Post-War Europe* (Cambridge: Cambridge University Press, 2001), 73–104.

⁹ George Perle, *Serial Composition and Atonality: An Introduction to the Music of Schoenberg, Berg, and Webern* (Berkeley: University of California Press, 1991), 1–43.

Composers employed their creativity when writing the series, but after setting the pitch, dynamic, articulation, register, and rhythmic series, these elements became fixed for the composition. Any later changes they might want to make—for example, using a pitch in a different order than the pitch series they had crafted—would necessitate returning to the beginning of this process and re-ordering their original series.

Cage's Studies with Schoenberg

John Cage had trainings in painting. In 1932, he decided to focus on music composition rather than painting, as he later admitted: “The people who heard my music had better things to say about it than the people who looked at my paintings had to say about my paintings.”¹⁰ Cage had some experience writing music, but did not have much formal training in classical music.¹¹ While he was mainly inspired by Schoenberg's twelve-tone technique, he composed some of his early pieces such as *Six Short Inventions on the Subjects of the Solo* (1934) and *Composition for Three Voices* (1934) using his own creative system of 25-tone rows, an innovative variation on Schoenberg's famous dodecaphony.¹² Cage sent some of his pieces to Henry Cowell, who encouraged him to first study fundamentals of music composition with Adolph Weiss, one of the most famous students of Schoenberg in the United States,¹³ and then with Arnold Schoenberg, who was then teaching at The University of Southern

¹⁰ Richard Kostelanetz (ed.), *Conversing With Cage*, 2nd ed. (New York: Routledge, 2003), 4.

¹¹ Kostelanetz (ed.), *John Cage*, 32.

¹² Kostelanetz (ed.), *Conversing with Cage*, 61.

¹³ *Cambridge Companion to John Cage*, 24.

California and The University of California, Los Angeles.¹⁴ Finally, in 1933, he started his composition lessons with Schoenberg first at USC and UCLA and then in private classes.

Studying with Schoenberg was one of the biggest influences on Cage, as he mentioned in one of his lectures in 1958:

After I had been studying with him for two years, Schoenberg said, “In order to write music, you must have a feeling for harmony.” I explained to him that I had no feeling for harmony. He then said that I would always encounter an obstacle, that it would be as though I came to a wall through which I could not pass. I said, “In that case I will devote my life to beating my head against that wall.”¹⁵

However, Cage did not consider harmony functionally in his music, even though his teacher, Schoenberg, insisted that harmony is the most fundamental structure of the music.¹⁶ It was obvious from Cage’s later works that he did not follow Schoenberg’s compositional approach as did Berg and Webern. Schoenberg did not consider Cage a good student with a future in composition; Cage noted in a lecture that Schoenberg had once told him, “You will come to a wall and you won’t be able to get through” and the young, eager John Cage replied, “Then I’ll spend my life knocking my head against that wall”—an exchange that shows the different perspectives of the two composers.¹⁷

¹⁴ David Nicholls (ed.), *The Cambridge Companion to John Cage* (Cambridge: Cambridge University Press, 2002), 24; Dorothy Crawford, *A Windfall of Musicians: Hitler’s Émigrés and Exiles in Southern California*

(New Haven and London: Yale University Press, 2009)

¹⁵ John Cage, *Silence: Lectures and Writings* (Wesleyan University Press, first ed. 1961), 260.

¹⁶ James Pritchett, *The Music of John Cage* (Cambridge: Cambridge University Press, 1993), 73–90.

¹⁷ Nicholls 2002, 83.

After a several compositions, Cage decided that the limitations of working in a strict framework of series where pitch and frequency are the principal variables made the technique uninteresting to him, and he gave up serial music.¹⁸ This experience studying with Schoenberg and writing serial music was a first step for the young composer to understand his lack of interest in composing a type of music in which every aspect should be set and calculated precisely: a process that leads to an organized, rational music. Instead, he turned his efforts away from structured music towards exactly the opposite approach: chance music and indeterminacy. There is a crucial difference between chance music – chance operations involved in the composition of the music – and indeterminate music, wherein elements of the composition are left up to the choice of the performer. Both techniques result in music that has random-sounding elements to the listener, but the level on which the “chance” process occurs is very different. (At the level of the composer vs. at the level of the performer.)

Indeterminacy: Cage’s Response to Serialism

Not so long after his time studying with Schoenberg, Cage began to employ indeterminacy in his music as a tool for composition. Describing indeterminacy, composer John Cage said: “My intention is to let things be themselves.” Cage initially defined indeterminacy as “the ability of a piece to be performed in substantially different

¹⁸ John Cage, *An Autobiographical Statement*, written for the Inamori Foundation and delivered in Kyoto as a commemorative lecture in response to having received the Kyoto Prize in November 1989.

ways.”¹⁹ He worked on different chance music techniques (E.g., I Ching and throwing dice) in his compositions and began to organize new models of compositions that now we could consider to be Cage’s response to serialism. Using indeterminate elements in his compositions, he stood against the dominance of the developing techniques of serialism.

Let’s begin by defining chance music, or the use of indeterminate techniques at the level of composition. While writing a piece, a composer employs chance operations to determine musical elements. Once the work is finished, the score is followed by performers exactly in the same way that all traditional music scores are.²⁰ John Cage began to use different ways of achieving a random selection of given items and used that for every element of the music, in a way similar to serialism. James Pritchett explains the concept of using chance music:

External forces of irrationality (such as Zen Buddhism) are invoked as the cause of this break. Under such influences, it is believed, Cage decided to substitute the throw of dice for his own tastes, so that he could ultimately remove any trace of his personality from the composed work.”²¹

By 1952, Cage had written *4’33”*, the silent piece; thus, in the words of one writer, “the authority of the composer [had been] extinguished.”²²

¹⁹ James Pritchett, *The Music of John Cage* (Cambridge: Cambridge University Press, 1993), 108.

²⁰ Sever Tipei, “Fundamentals of Music Theory and Practice IV: Cage and Indeterminacy,” University of Illinois at Urbana-Champaign, Spring 2008, <http://ems.music.illinois.edu/courses/tipei/M202/> (accessed December 2, 2017). This definition should not be mistaken with aleatoric music—indeterminacy at the level of performance. The performer is asked to make decisions which will

²¹ Pritchett, *The Music of John Cage*, 1–5.

²² Paul Griffiths, *Cage* (London: Oxford University Press, 1981), 28.

The first stage of writing indeterminate music is to make a list of elements from which the composer wants to choose. Then, the composer creates rules for the process of converting chance operations to musical materials, and will also need to determine some limits, such as the maximum number of repetitions in each element or the minimum number of different pitches in each operation.

Cage used a wide variety of systems to obtain random results for his compositions. For example, flipping a coin for a number of times and the number of results for each side corresponded to a unique element of music. Another of Cage's favorite ways to achieve a random result was throwing dice. In 2015, I took several composition courses in Darmstadt, Germany with Nader Mashayekhi, one of the close friends and followers of John Cage. Once he explained to me that Cage had made two special dice and threw them in a bowl when he was writing music. Each number on each die referred to a certain pitch and rhythmic figure.²³ For example, the first thrown die indicated the pitch, the second showed the rhythmic figure, and the third chose the register, and so forth. Finally, Cage was able to compose a piece entirely by throwing dice, as he did in many of his chance music pieces such as *Music of Changes*.

Siver Tipei explains the subjective part of indeterminate music:

²³ Nader Mashayekhi, Personal communication, Darmstadt Summer Festival, 2015.

When writing chance music, a composer leaves many aspects of the composition to chance but still has to make some subjective decisions such as: to determine the length of the piece or to specify (or not) the instrumentation. Cage wants us to listen to individual sounds out of the context of a melody, texture, etc. and remarks that there would be no need for musicians if we had ears (i.e. if we were aware of our sonic environment). Implied here is also the idea that one does not need a special training to produce music and that music is whatever we decide to call by that name and listen to as such.²⁴

The first well-known piece of chance music that Cage wrote was *Imaginary Landscape No.4* (1951), a series of five consecutive pieces for different media written by use of chance operations. He also used random happenings in the third movement of his *Concerto for Prepared Piano* (1951).²⁵ The second major and longest work that Cage wrote completely based on indeterminacy was *Music of Changes* for solo piano (1951). The piece was composed by applying decisions made using the *I Ching*, a Chinese classic text that is commonly used as a divination system. The *I Ching* was applied to large charts of sounds, durations, dynamics, tempo and densities. Cage himself, however, regarded *Music of Changes* as a determinate work, because it is completely fixed from one performance to another.²⁶

²⁴ Siver Tipei, "Fundamentals of Music Theory and Practice IV: Cage and Indeterminacy," *University of Illinois at Urbana-Champaign*, Spring 2008, <http://ems.music.illinois.edu/courses/tipei/M202/>

²⁵ James Pritchett, "From Choice to Chance: John Cage's Concerto for Prepared Piano," *Perspectives of New Music* 26, No. 1 (Fall 1988): 50–81.

²⁶ Pritchett, *The Music of John Cage*, 108–24.

Cage and Eastern Philosophy

In order to fully understand Cage's philosophy in terms of employing chance operations, it is necessary to know his connection to Zen Buddhism. John Cage became interested in and influenced by Zen Buddhism in the late 1940s, when he attended D.T. Suzuki's lectures at Columbia University.²⁷ Suzuki was a prominent Zen Buddhist. In Zen Buddhism, the *Big Mind* refers to the existence of a universal potential for consciousness or understanding. And the *Small Mind* is ours, and a smaller part of the *Big Mind*.²⁸ Zen Buddhism results in "erasing the difference between subject and object: a theme sponsored also by contemporary Physics (Quantum Theory). An object's existence depends on subjective perception (consciousness). Fields of mutual influence."²⁹ Some of the characteristics of Zen Buddhism are recognizable in Cage's "hierarchical, non-discriminating, non-judgmental thinking, such as *spontaneity*, or *non-clinging/open-mindedness* which means that one should be aware and receptive but not attach him/herself to anything."³⁰

In his *Autobiographical Statement* written for the Inamori Foundation after having received the Kyoto Prize in November 1989, Cage was asked about the relationship between Zen Buddhism and his music, to which he responded:

When I was young and still writing an unstructured music, albeit methodical and not improvised, one of my teachers, Adolph Weiss, used to complain that no sooner had I started a piece than I brought it to an end. I introduced silence. I was a ground, so to speak, in which emptiness could

²⁷ Tjpei.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

grow. At college I had given up high school thoughts about devoting my life to religion. But after dropping out and traveling to Europe I became interested in modern music and painting, listening-looking and making, finally devoting myself to writing music, which, twenty years later, becoming graphic, returned me now and then for visits to painting (prints, drawings, watercolors, the costumes and decors for *Europeras 1& 2*).³¹

John Cage admitted the huge influence of Zen Philosophy on the thoughts behind his music and says: “The taste of Zen for me comes from the admixture of humor, intransigence, and detachment. It makes me think of Marcel Duchamp, though for him we would have to add the erotic.”³²

Indeterminacy and Zen Buddhism

During Cage’s discovery time in 1940s and 50s, he found a huge interest in Eastern philosophies, particularly Indian philosophy.³³ He studied Zen Buddhism for two years and its worldview and philosophy was inspiring enough to John Cage to come with the idea of or chance-controlled music, which he started composing in 1951.

James Pritchett explains the tie between Cage’s indeterminate musical ideas and Zen Buddhism:

³¹ John Cage, *An Autobiographical Statement*, written for the Inamori Foundation and delivered in Kyoto as a commemorative lecture in response to having received the Kyoto Prize in November 1989.

³² *Ibid.*

³³ Denis Lejeune 2012, 185-189.

Throughout the 1940s and '50s Cage began to delve increasingly into Eastern philosophies, primarily Zen Buddhism, through which he began to view composition as a natural process subject not only to the whims and interpretations of the performer but also to complete chance, which he termed "indeterminacy." To achieve this end Cage began using deliberately ambiguous notation to guarantee a unique performance each time. His composition Concert for piano and orchestra (1957) was a mammoth 63-page work using dozens of different notation techniques, many of which had never before been used.³⁴

One of the most important differences between Western philosophy and Eastern philosophy is their contrasting approach to understanding the world.

Unlike Western philosophers who draw the world on a horizontal line with two ends,³⁵ Eastern philosophy, especially in the Middle East (Persian, Indian, and Turkish philosophers), thinks of the world and all of existence as a circular shape. In the West, however, existence and the world are understood as a line with two ends: one goes to the ultimate positive, while the other end goes to the ultimate negative, so if you keep going on one side of the line, you never end up returning to the place from which you departed. Conversely, in Eastern philosophy holds that everything comes back to its first spot; consequently, going to the end of the world means that you are coming to the beginning. This idea could be found in John

³⁴ James Pritchett 2012, 88-121

³⁵ Paul O. Ingram and Frederick John Streng, *Buddhist-Christian Dialogue: Mutual Renewal and Transformation* (University of Hawaii Press, 1986), 148-49.

Cage's reaction to total serialist music: he believed that the completely organized music is the same thing as the music that is written using hundred percent chance operations. The idea that total irregularity and ultimate disarray can be considered a kind of strict discipline and essentially a type of regularity and arrangement was one of the most significant influences on Cage of Eastern philosophies, Indian philosophies, and specifically Zen Buddhism. . Similarly, one concept in Indian philosophy is that the world is an organized system and works precisely, like a clock; yet simultaneously, events that occur in the world have a relationship of total disarrangement to each other. A similar idea can be seen in indeterminate music: Cage suggests a world of chance-controlled events but at the heart of those chance operations is strong sense of discipline and arrangement.

Conclusion:

Indeterminacy: Cage's Response to Serialism

John Cage started his serious academic composition experience with Schoenberg writing dodecaphonic and serial music. Soon after, he figured out that it is not his interest to work in such a rigid and strict framework of composition. His reaction to this very organized music was writing pieces based on chance and random operation such as throwing dice or flipping coin where the composer doesn't have any control on the output. He called this music *indeterminacy*. At the same time, Cage learnt about Eastern countries' philosophy and studied Zen Buddhism for a while. These studies helped him

to have a manifest for his indeterminate music. Finally he wrote one of the biggest chance music pieces, *Music of Changes* for solo piano, a 45-minute piece written using the *I Ching*, a classical Chinese text usually used for divination. Cage used the *I Ching* for achieving randomly chosen results to be used in his piece *Music of Changes*.

I also discussed how Indian and Middle Eastern philosophers think of the world of existence as a circle, not a two-end line (like Western philosophers), and how this idea influenced John Cage's approach to his revolutionary concept of indeterminate music. At the end, according to first experience of Cage with Serialism, and then, the impact of Zen Buddhism on his music, we can connect the ultimate determinate world (Serialism) to the ultimate indeterminate world (Indeterminacy) as both ends of a circle, stopping on the same spot. It wouldn't be too far from the truth that Indeterminacy, and its development process Cage went through to achieve it (especially in *Music of Changes*), was his response and reaction to Serialism as the dominant movement of composition in the mid-twentieth century.

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