

48A. "Time Turned into Space."<sup>1</sup>

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### Abstract

In some esoteric doctrines, time is not linear but cyclical, or even experienced as non-existent. This leads to a conception of music as spatial, rather than temporal, and as resulting from the interplay of the universal principles of expansion and contraction. Platonic cosmology, based on the principles of the Same and the Different, also manifests in music on various quasi-fractal levels. The postwar avant-garde, especially, fostered the idea of music as a means for transcending time.

Parsifal: *Ich schreite kaum, doch  
wähne mich schon weit.*

Gurnemanz: *Du siehst, mein Sohn, zum  
Raum wird hier die Zeit.*

Richard Wagner, *Parsifal*

### Time Cycles

When Parsifal returns to the Grail kingdom in the third act of Wagner's initiatic drama, he finds himself in an unfamiliar state. "I'm hardly walking," he says, as the music plods deliberately along, "but I think I've already gone a long way." His mentor Gurnemanz replies enigmatically: "You see, my son, that here time turns into space." Stage designers used to illustrate this by making the the backcloth move, while the two knights paced on the spot. Naïve as that may be, it contains a clue to the phenomenon of feeling oneself, if only for a moment, as a timeless spectator to the stream of existence. Mystics leave us in no doubt that this what they experience in fuller measure: that time is illusory and that there is a state of consciousness above and beyond it.

Such experiences apart, one can hardly think or speak about time without some kind of visualization. Past, present, and future take their places on an indefinite straight line, or as the pages of a book with a definite beginning and end (like the Bible). The historian of religions Mircea Eliade contrasted the linear time of the monotheisms, whose history begins with creation and ends with judgment, with the cyclical time of other religions.<sup>2</sup> For the latter, the appropriate visualization would be circle or a spiral, and the biblical story only a single turn of the wheel.

This view accords with the experience of cyclical rhythms both inside and outside ourselves, such as heartbeat and breathing, the alternation of night and day, the turnings of the seasons and the planets. Modern science supports it with its discovery that at one extreme, the galaxies are in a state of quasi-eternal rotation, while at the other extreme, it asks us to imagine electrons spinning round "shells" and the vibration of sub-atomic "strings."

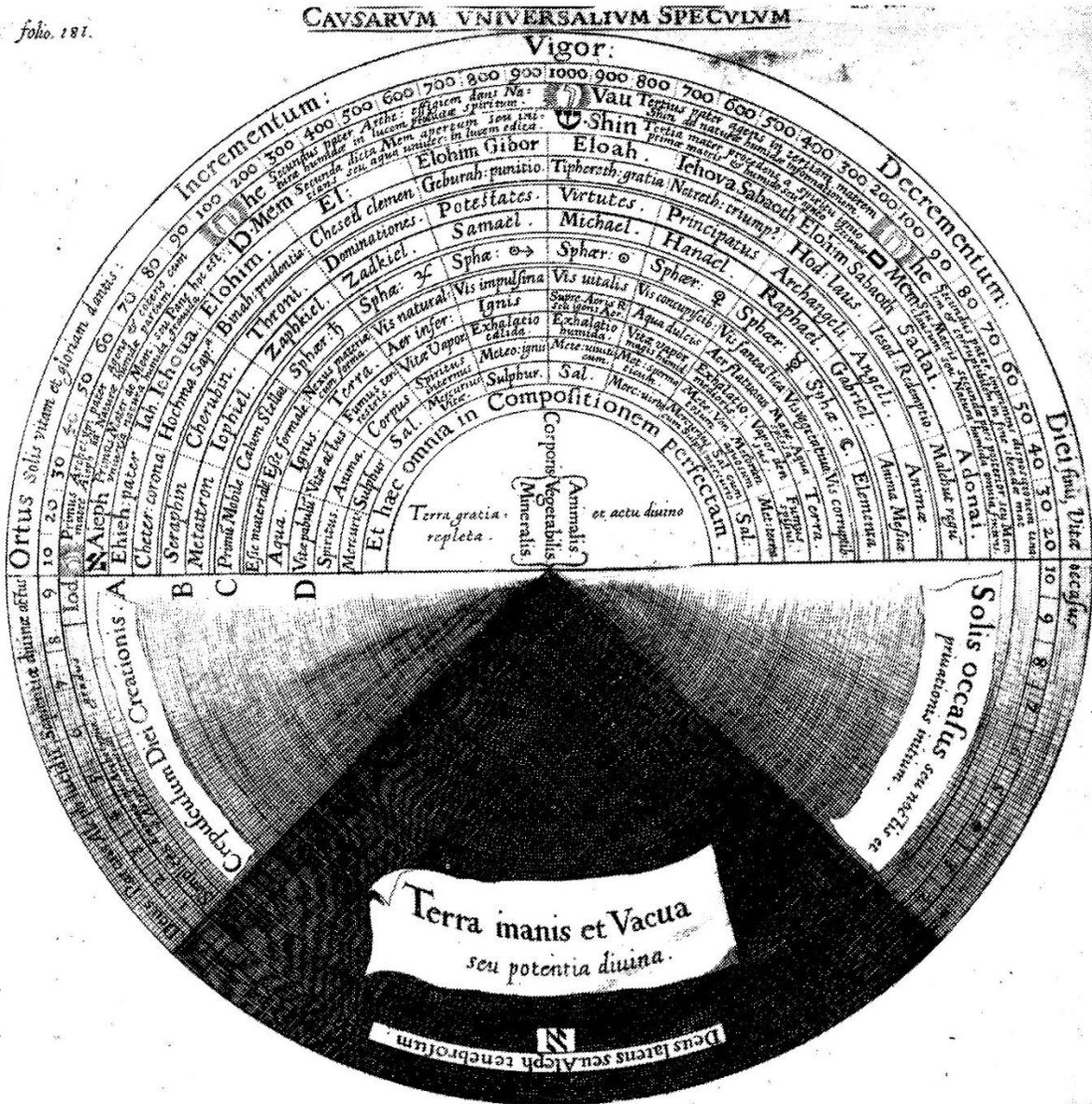
In the West, it is the esoteric philosophers who have favored a cyclical representation of time. For instance, the Christian Hermetist Robert Fludd (1574-1637) designed symbolic diagrams to unite his concepts of sacred time and space. At their simplest, a circle is crossed by a

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<sup>1</sup> Part of this article is adapted from the author's "Il tempo trasformato in spazio: Riflessioni sull'occhio, sull'orecchio e sulla circolarità del tempo," in Albert Mayr, Antonello Colimberti and Gabriele Montagano, eds., *L'ascolto del tempo: musiche inaudibili e ambiente ritmico* (Florence: Mpx2 editore, 1995): 49-57.

<sup>2</sup> See Mircea Eliade, *The Myth of the Eternal Return* (Princeton: Princeton University Press, 1954).

diameter representing the horizon. The sun rises at the left end (East), passes its zenith at the highest point of the circle (South), then descends to the right and the West. The upper semicircle thus corresponds to day, the lower one to the night and to darkness. These qualities lend themselves readily to theological interpretations. In the more elaborate diagram shown here,<sup>3</sup> all that exists is in the upper semicircle, organized by a typically Hermetic hierarchy of angels, planets, elements, etc. The lowest quadrant represents the “non-created”: a dark and vacant state, flanked by twilight conditions preceding and following creation. The diagram is both temporal, depicting the birth of the universe and its return to its unmanifested source, and spatial, depicting the spheres of existence surrounding the earth.



<sup>3</sup> Robert Fludd, [Utriusque Cosmi Historia] Tomi Secundi Tractatus Secundus: De Praeternaturali Utriusque Mundi Historia (Frankfurt: Johann Theodor de Bry, 1621): 181.

## 1. Robert Fludd, “The Mirror of Universal Causation,” 1621

Fludd rejected the heliocentric cosmology of Copernicus, Galileo, and Kepler. His geocentric universe began when God infused light into the primordial darkness and gave form to it, as related in the first verses of Genesis. The result was a compound of two qualities or principles, known to us through the dualities of light and darkness, form and matter, rarefaction and compression. After the sixth day of creation the cosmos settled into its present arrangement of concentric spheres, differentiated by the proportions they contain of these two qualities. The center of the earth, where light and the formative force are totally absent, most resembles the primordial matter. The elements of water, air, and fire are progressively more expansive, their matter less dense. The planetary spheres, made from ether, are less material still; the two qualities reach equilibrium in the sun, which in this sense alone is the midpoint of the universe. Thereafter form prevails, as the stars and angelic spheres are ever more expanded, rarefied, and luminous. At the extreme is God himself, who is all light and form and whose sphere is infinite.

Leaving aside Fludd’s well-known contribution to the theory of cosmic harmony, we turn for corroboration to Antoine Fabre d’Olivet (1767-1825), whose writings stand at the head of the French occult revival. A child of the Enlightenment rather than the Renaissance, he still read the book of Genesis as a cosmogonic treatise beginning from two principles. They are the active, expansive force, allegorized as God’s spirit or breath, and the passive, contractive force, pictured as “darkness upon the face of the deep.” Fabre d’Olivet comments: “We will find here this eternal system of two opposed forces, which the sages and savants of all the centuries, from Parmenides and Pythagoras to Descartes and Newton, have seen in Nature, and called by different names.”<sup>4</sup>

The concept of the primordial principles as expansion and contraction had deep roots in alchemy, where they appear as the processes of dissolution and coagulation (hence the much-repeated adage *solve et coagula*). Fludd’s contemporary Jacob Boehme knew them as the two tendencies latent in God, experienced by us as his love and his wrath. They underlie Fabre d’Olivet’s more developed system as the active, progressive power of Providence and the passive, retributive power of Destiny, between which humans steer through a third power, Will.

He also applied them to music. Like many esoteric philosophers, Fabre d’Olivet sought a “harmony of the spheres,” founding it on a correspondence of the seven Chaldean planets with the seven tones of the diatonic scale. He derives the latter from a sequence of fifths or fourths, starting either from F (assigned to Venus) and continuing upward by fifths to C, G, D, A, E, and B, or else starting at B (assigned to Saturn) and continuing by fourths to E, A, D, G, C, and F. Both procedures give the same seven pitch-classes, but which is the right one? Reluctant to favor either version over the other, Fabre d’Olivet accepts F and B as symbolizing the twin principles of creation. He comments: “B produced from F represents Love or the expansive force; F produced from B represents Chaos or the compressive force: the primordial principles of the universe.”<sup>5</sup>

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<sup>4</sup> *On trouvera dans l’un et l’autre, ce système éternel des deux forces opposées, que les sages et les savans de tous les siècles, depuis Parménide et Pythagore, jusqu’à Descartes et Newton, ont vues dans la Nature, et signalées par des nom différens.* Antoine Fabre d’Olivet, *La langue hébraïque restituée*, part 2 (Paris: Barrois & Eberhart, 1816): 31n.

<sup>5</sup> *Si produit par fa représente l’Amour ou la Force expansive; fa produit par si représente le Chaos ou la Force compressive: principes primordiaux de l’univers.* Fabre d’Olivet, “Exposé succinct du système musical,” in *La vraie maçonnerie et la céleste culture* (Lausanne: La Proue, 1973): 71.

Whatever we may think of such speculations, they are also the primordial principles of practical music. Consider the simple example of a kettledrum stroke. As the drumhead vibrates in and out, it alternately compresses and rarefies the adjacent air. The elastic medium of the air conveys these variations to the eardrum, which reproduces in miniature the movements of the drumhead. The compression and rarefaction of the air inside the ear are translated into nervous impulses and transmitted to the auditive center of the brain.

When the cycles of compression and rarefaction last for about  $1/2^8$  of a second, we hear Middle C. About five octaves higher, they become inaudible, but the environment is still filled with vibrations too rapid for us to sense. Electromagnetic pulsations of between 4 and 8 trillionths of a second produce visible light. Eventually they reach an absolute minimum which is the quantum limit of the physical universe. In the other direction, vibrations pass from the lowest perceptible pitch of about 1/16 per second (the 32-foot organ pipe) to the fastest pulses that we perceive as a rhythm. Longer cycles control physiological and cosmic processes already mentioned. The precessional cycle, conventionally counted as 25,920 solar years, circumscribes human history. Beyond that are still longer cycles, culminating like Fludd's diagram in the birth and death of a universe.

According to one scientific theory, all of matter was originally contained in a miniscule point which at the "Big Bang" began to expand to the dimensions of the present universe, and after reaching a certain point it will contract again to nothing. But paradoxically it is this "nothing," whether at the heart of the atom or beyond the indefinite expansion of the universe, which mystics venerate as the ultimate and unique reality. Some call it the Thrice-Unknown Darkness. Physics shades into metaphysics as it struggles with the concepts of dark matter and the zero point. Stephen Hawking, in conversation with Renée Weber, said: "...in a certain sense the energy of the universe would be constant; it is a constant whose value is zero. The positive energy of the matter is exactly balanced by the negative energy of the gravitational field. So the universe can start off with zero energy and still create matter."<sup>6</sup> If one substitutes for "positive energy" expansion, and for "negative energy" contraction, this becomes a restatement of the metaphysical principle that a universe arises of itself, without in the least affecting that which is beyond being.

The physical production of music offers an analogue for this on a scale that we can actually grasp. There is a symmetry in all the vibrations that make up a musical piece: each expansion is balanced by a contraction, and at the end both the drumhead and the eardrum have returned to their resting-place as though they had never left it. The piece emerges from silence and returns to silence, and this silence is latent throughout, though we do not generally perceive it. Likewise the doctrines of the East teach that the pains and pleasures of existence distract us from the substratum of its uncreated perfection, unless we have achieved the state that Hindus call liberation and Buddhists enlightenment, in which the world-illusion is present simultaneously with its contrary.

### The Same and the Different

Plato, using the voice of the Pythagorean philosopher Timaeus, describes the creation of the World Soul as taking place between the duality of the Bounded and the Boundless—evidently another version of contraction and expansion—and as a composite of the Same and the Different.

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<sup>6</sup> Renée Weber, *Dialogues with Scientists and Sages: The Search for Unity* (London: Routledge & Kegan Paul, 1986): 208.

Plato refers these to the fixed stars and the planets, but like all his myths they also invite a musical interpretation.

Let us start with one of the best-known melodies of classical music:



## 2. Beethoven, *Ode an die Freude*

In analytical terms, the form is AABA. On a larger scale, the same formula describes classical sonata form:

- A exposition
- A repeat of exposition
- B development
- A recapitulation

In Platonic language, the first pair of the formula manifests “Sameness,” the latter pair “Difference.” The fourth term may be omitted, leaving simply AAB, which is the form of the medieval ballade or madrigal, the Barform of the Meistersingers, and many songs, carols, and hymns like the tune of *The Star-spangled Banner*. Here B alone expresses Difference in relation to the Sameness of the two As. But that is like a straight line, which ends somewhere differently from where it started. To add another “A” gives it the cyclical form, ending where it began. There seems to be a special satisfaction in that, as witness the almost invariable form of the pop song:

- A verse 1 and chorus
- A verse 2 and chorus
- B bridge (usually instrumental)
- A final chorus

and the commonest poetic form in the English language, the limerick:

There was a Young Lady of Tyre,  
Who swept the loud chords of a lyre;  
At the sound of each sweep  
She enraptured the deep,  
And enchanted the city of Tyre.

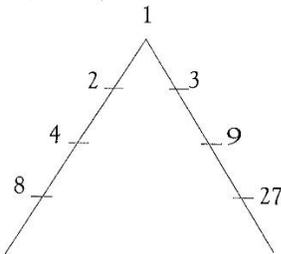
(Edward Lear)

The formula AABA appears in another context, which could hardly be more basic to the art and science of music, namely in the first four members of the harmonic series.



### 3. First terms of the harmonic series

The Cs represent Sameness, while G inserts the element of Difference. I mentioned above that Fabre d'Olivet derives the scale from a progression of fifths, and it is indeed this interval that sets the whole system in motion. Plato recognized this in his description of the two “strips” of the Same and the Different out of which the Demiurge made the World Soul. One of them contained the numbers 1, 2, 4, 8, and the other 1, 3, 9, 27. The Pythagoreans pictured them in the shape of the Greek letter Lambda:

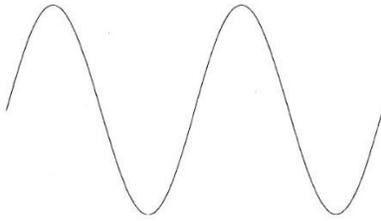


### 4. The Pythagorean Lambda

That these progressions stand for Sameness and Difference becomes evident when we translate the numbers into frequencies. Multiplication by powers of 2 is harmonically sterile, for it merely repeats the same pitch-class at octave displacements. In contrast, multiplication by 3 yields an indefinite succession of perfect fifths, each a new and unique tone. Although tempered tuning makes it a “circle of fifths,” forcing B# (the tone of  $3^{12}$ ) into identity with C, it is strictly speaking a spiral, because no power of 3 can ever coincide with a power of 2. The perfect fifth is the lifeblood both of tuning systems, and of classical sonata form with its obligatory modulation to the dominant.

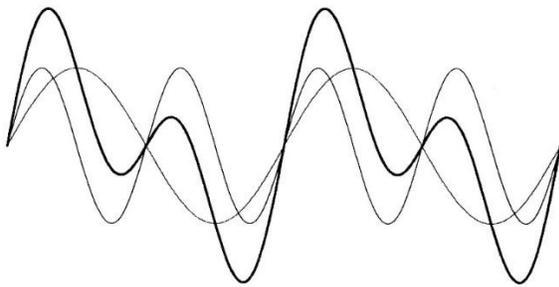
Music is indeed a fractal phenomenon, replicating the same patterns at every order of magnitude, only in time rather than in space. In the domain of rhythm they appear as duple and triple meters. Marching goes by twos, inducing Sameness and uniformity, but in the days of Galliards, Courantes, Sarabands, Minuets, and Waltzes, people preferred to dance to three in a bar.

Continuing this fractal investigation, we find Sameness and Difference at a microscopic level, in the wave-forms which are graphs of contraction and expansion. Any sound, no matter how complex, can be expressed by a single curve that registers compression versus rarefaction of the air at the point of impact on microphone or eardrum. A single, pure tone makes a sinusoidal wave, repeating in perfect uniformity:



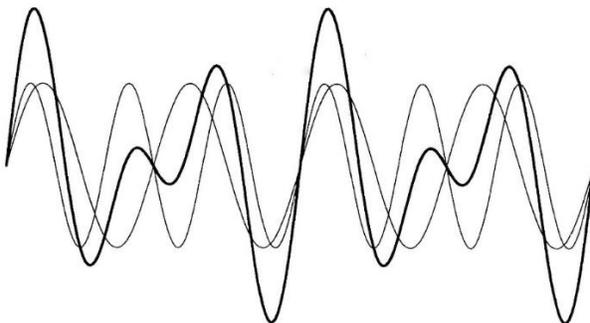
5. Wave-form of a single tone

In sounding two tones an octave apart, two sinusoidal waves of equal amplitude proportioned as 1:2 combine in a more complex graph. Time (the horizontal axis) is here divided by the repetition of two unequal events, a stronger and a weaker compression.



6. Wave-form of an octave

Using the formal notation developed above, we could describe the simple sine-wave as AAAA... and that of the octave interval as ABABAB... With the interval of a perfect fifth (ratio 2:3) the resultant wave alternates a strong compression (B) with two weaker ones (AA). This wave form approximates BAABAABA..., combining Sameness and Difference in a single pattern:



7. Wave-form of a perfect fifth

Thus the perfect fifth sections time into patterns similar to those that give satisfaction on the formal level; or is it vice versa? The ear and brain decode in microseconds those patterns which serve as the foundation stones of consonance, harmony, meter, and form. Furthermore, as

Pythagoras discovered (if he was the first to derive harmony from number), we sense through hearing the mathematical principles of the universe, and music images the endless complexities of their unfolding. The physicist seeks the same in his own laborious way, hopeful that ever more complex machinery will yield the secret of existence. But it comes in a language too remote from the five senses to be meaningful to any but a handful of his peers, hence presented to the public through simplistic imagery that will become obsolete as science progresses. Music on the other hand has always and everywhere been a source of wisdom, recognized by philosophers as giving direct access to metaphysical realities.

### Time Stilled

Goethe's Faust was given the opportunity of saying to the passing moment "*Verweile doch, du bist so schön*" ("Do stay: you are so beautiful!"), effectively bringing time to a standstill. This would save him from the power of Mephistopheles, the prince of this world, because it would mean that Faust had attained the state of the creator. The world appears eternally beautiful to God because he sees the harmony of it all—unless he is a god who incarnates, so as to experience its less beautiful aspects. Some philosophers say that we ourselves are gods of this kind, partly divine and partly incarnate, and that the purpose of life is to rediscover our hidden divinity. If we succeed in this, even for a moment, we can know the timeless condition, the divine view of our existence. In the branch of Western esotericism to which *Parsifal* belongs, this is the gift of the Holy Grail.

To the Platonic or any traditionalist mentality, the highest purpose of the arts is to point us in this direction. Paintings may have a lesser purpose, such as humor, flattery, or social criticism, but at the top of the hierarchy are those which capture a passing moment and endow it with immortality. Sculpture and architecture also defy the passing of time, displaying, as long as their material lasts, the eternal ideas that gave them birth. The museum curator and metaphysical scholar Ananda K. Coomaraswamy summed up this aesthetic by entitling one of his essays, "That Beauty is a State."<sup>7</sup>

Music is different from those arts, because it takes place in time. At its simplest, it unites the particles of time and imposes a meaning on them, forming a series of tones into a melody or sounds into a rhythm. In so doing it creates a state of consciousness with its own laws and characteristics, side by side with our physical environment or even, if we are deeply concentrated, replacing it. Through its subtle interplay of the Same and the Different, music speaks to us of a form of existence not of this world. It is like Robert Fludd's cosmic diagram come to life, with its occult sympathies and resonances, its geometric forms, its numbers that are not mere quantities but living organisms.

But perhaps the transformation of time into a visionary space is still only the substitution of one illusion for another. Both time and space belong to the upper hemisphere of Fludd's diagram, which represents the created world between the expansion of cosmic dawn and the contraction of dusk. Hermetists do not ignore the other hemisphere, the Thrice-Unknown Darkness which may appear to creatures as the ultimate in contraction: void, inhospitable, and even evil, since it presumes their annihilation. But they do not talk much about it, because of their admiration for the created world. It is the oriental philosophies that assert the superior reality of the non-created, the formless, before which all the gods in their heavens are but a

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<sup>7</sup> Ananda K. Coomaraswamy, "That Beauty is a State," in *The Dance of Shiva: Fourteen Indian Essays* (New York: The Sunwise Turn, Inc., 1918): 38-45.

breath, and all the energies of the universe annul themselves as though they had never existed. On the human level, this is the ego-less state, in which the person takes part in existence but does not self-identify with it. Yogis and adepts apart, there are interesting accounts by fairly ordinary people who have found themselves, without apparent effort, in this condition. So it is not too much to aspire to it.

Such aspiration seems to have inspired several composers of the postwar avant-garde. It is enough to mention John Cage's philosophy, influenced by Coomaraswamy's aesthetics as well as by Zen Buddhism. He counsels respect for silence, and the acceptance of every sound-event (and perhaps every non-sound event, too) without judgment or attachment. Karlheinz Stockhausen in his middle period made similar gestures with his "intuitive music," which was supposed to eliminate the ego of the performer, and to be received by the listener in a spirit similar to Cage's egoless acceptance. Even the apparently secular Pierre Boulez invited this kind of participation, writing of his *Éclats-multiples* (1970) that "It's a non-directional concept of time: one isn't going towards a goal, but one lives in the compressed instant."<sup>8</sup>

Whether or not one needs music for this is another question. Hans Kayser (1891-1964), the most profound harmonic philosopher of modern times, added to his diagrams of tone-numbers the inaudible and non-rational values of  $0/1$ ,  $0/2$ ,  $0/3$ ... and  $1/0$ ,  $2/0$ ,  $3/0$ ... to represent the Infinite/Non-being out of which the tone-world emerges.<sup>9</sup> But once that was said, he applied himself to exploring that world in all its variety and complexity. And what could be more complex than the task of a performer undertaking the works of those composers I have named? The states I have described are a luxury of the listener, perhaps more as an adjunct to meditational or spiritual practice than with due regard to the composer's and performer's efforts. We are not all Parsifals. To enjoy music in time, and time enhanced through music, may be more faithful to its own intentions, and to those of the universe.

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<sup>8</sup> *C'est une conception du temps non directionnelle, on ne va pas vers un but, mais on vit dans l'instant comprimé.* Booklet accompanying recording: Pierre Boulez, *Oeuvres complètes* (Hamburg: Deutsche Grammophon, 2013): 83.

<sup>9</sup> Hans Kayser, *Lehrbuch der Harmonik* (Zurich, Occident Verlag, 1950): 274-86.