

LOCAL ANTHROPOGENIES – CONTEMPORARY COSMOGONIES

SEQUENTIAL MUSIC, DANCE, THEATRE, TECTURES

RESEQUENCING (DE MEY)

This paper discusses the contemporary cosmogonies in music, danse, theatre, (archi)ecture, the confluence of which will reveal itself in the process.

1. MUSIC

In his 1947 *Entretiens sur la musique*, Furtwängler looks upon classical tonal music, of which he proved an excellent ambassador, and Schoenberg's and Webern's atonal music, which he discovers from 1918 onwards, as two *cosmogonies* responding to two very distinct *cosmologies*. In tonal music Furtwängler discerns a Ptolemaic cosmology, where Homo fancies himself at the centre of the Universe, as an inhabitant of an immobile Earth. And in atonal music, he discerns a cosmogony that relies on a Copernician cosmology, where Earth and even the Sun are lost in the Universe, carrying Homo « as a grain of sand »

We will be pursuing this cosmogonic view of music, nevertheless shifting its punctuation. (a) Rather than the classical music, as Furtwängler so eagerly put it, it is the Renaissance music which should be considered as ptolemaïc music, with its *counterpoint* disclosing to us the aristoteleciian or neoplatonician substance shocks, whose faculties and operations each create genuine spaces and times; in a similar way as do, at the very same moment, Uccello's horsekicks in painting and the jolts of Machiavelli's and Montaigne's prose in literature. (b) On the contrary, from 1600 onwards, and especially from 1700 onwards, *tonal music*, also referred to as 'classical', responds to a physics that positions events according to the continuity of Galileo's « transformation groups » and Newton's « absolute space ». Whereas *atonal serial music*, from 1920 on, echoes Einstein's relativist and Planck's quantal cosmology. (d) Finally, 1970 sees the birth of a music much more biological than physical, which we will refer to as *sequential*.

1A Tonal music, galilean and newtonian (1600-1900)

On the morrow of 1600, on Galileo's inclined planes, marbles are supposed to roll down without friction, just like they would falling down the tower of Pisa. The Italian prose in the *Dialogo*, which the physicist uses to explain himself, is strikingly smooth, similar to Malherbe's contemporary verse, and Pascal's prose. Half a century later, Newton will accomplish a cosmology of the perfect continuity, speculating on an absolute space. Every event in the world takes place according to the derivatives of an infinitesimal calculus, common to both Newton and Leibniz.

As a cosmogony, tonal music pursues the same views, for instance, in Lully's Louis XIV court ballets. All the same, this classical music was not conceived in one day, if we take into consideration that *L'Art de toucher le clavecin*, at the end of the 17th century, is still burdened with ornamental fireworks, besides which measure is still mighty free ; by way of introduction, Couperin's only concern is that an eighth be shorter than a quarter, and longer than a sixteenth note. Yet finally, by 1700, Werckmeister succeeds in evenly tempering the scale by dividing the octaves into twelve equal semitones ; Bach will soon demonstrate, by means of his well-tempered harpsichord, that this system, or any a similar one, permits the creation of five or six octaves at the least, music in minor and major and in fact in any tonality, without irregularities between the fifth and third chords.

To the point where, around 1750, Rameau believed the time was right for a strictly physical approach of consonance, based on the fact that any fundamental tone (a C, D, A) simultaneously produces, in any case towards the high-pitch, *partial* sounds, in other words, possessing a wavelength equal to a half, a third, or a quarter of its own ; for instance, a C simultaneously produces a C-octave, a dominant G in the following octave, and then a subdominant E. From Rameau's point of view, *partials* account for *harmony*, insomuch that the French would call them *harmoniques*. Harmony consists of *cadences*, strings of notes where the intervals that answer for melody, find their « resolution ». Hence, to be read top-down: B-G-D>>> C- G- E.

Harpsichord, definitely well-tempered by 1800, and therefore becoming more and more a homogeneous sonorous field, governed by supposedly natural harmony rules, such as the Newtonian and Galilean Mechanical Laws. Musicians were politely requested to obey a homogeneous, metronomical and calibrated time, and to define it in view of their own pieces (Beethoven plans to slow down much of his tempi in the completed edition of his works). As a consequence, music scores were read as if it concerned the cartesian coordinates of a physical system: the horizontal axis supporting time, the vertical axis annotating the sonorous events with pitch, length, intensity. Shortly after, Helmholtz's resonators will prove that the *timbres* depend on the difference in intensities of the partials of the fundamentals accordingly to each instrument.

One can imagine the Homo composer's pride, both as an interpreter or listener. The Kapelmeister was a God. Or the Devil. Let's not forget that the physicist Laplace declared, around 1800: « If you provided me with the positions, speeds and the directions of the atoms in a state of the Universe, I would be able to predict the entire future ». Anyhow, man controlled his music like a king governed his kingdom, and God rules the King. The « moi » that Descartes refers to was never so utterly a blocklettered "Moi" as it was by the bourgeois musician, giving rise to Fichte's autogenerative *Ich* in philosophy, around 1800. Hegel, then, will see his « I that is a we, and a we being an I » fully accomplished among the audience of a concert hall. Save

for their complexity, learned and popular music both belong to the same tonal system, supposedly « natural » and shared by all. cocAll « musical forms » (suite, sonate, caprice, impromptu, intermezzo, etc.), naturally abounded with reprises and *da capoes*, for their tonality is Echo, in the same way that the perspective in classical painting is Narcissus, Echo's fiancé. Sonorous mirrors and visual mirrors cooperate to define the outline of the Kantian « I » and its unconditional freedom. Fellini definitely pictures this absolutism well in *Prova d'orchestra*. Listening to Wagner and Beethoven conducted by Furtwängler, Hitler admits, sent shivers up and down his spine.

Three musicians were enough to embrace the essential of this authoritarian system so heavily obsessed with precision. BACH turned tonality and its two modes major and minor into a music of the Absolute Time, a fugated eternity, horizontal as well as vertical, therefore harmonically and melodically complex, yet very simple in terms of timbre and rhythm, virtually cardiacal. Mozart, in contradiction to BACH, would turn them into a music of mood swings, rotating in his operas, panicky yet nevertheless instantaneously mastered in the fierce intervals of the piano concerto Köchel 466 ; sudden mood swings, which, by grace of their accompanying melody, would remain enwrapped, composed (dominated) as if from above. Combining both, Beethoven - in the spirit of Lamarck's *Philosophie zoologique* (1809) - would make them the trial of historical time, in a Napoleonic way, involving multiple simultaneous themes, reconcilable only dialectically, as in Hegel's *Phenomenologie des Geistes*, Hegel being a contemporary, strictly speaking.

Are we forgetting Händel and Haydn? No. For they coincide with tonality in itself, Händel in its cumulative capacity, and Haydn in its unrestrained capacity of eruptions. As for classical music after Beethoven, by then basically accomplished, its future was already becoming apparent: differentiating resolutions, accomplished by means of sentimental or existential insistences in Schubert's case, or by means of a metamusic (cfr. metalanguage), alternately creating vertiginous cross constructions and an abiding impression of the far-distant and a resounding echo caught in an abyss, in Schumann's case. Until all is swallowed up by Wagner's *modal chromatism* and the Tristan and Isolde *Leitmotive*. Making room for Spengler's 1917 release of *Der Untergang des Abendlandes*.

1B. Atonal music, einsteinian et planckian (1920-1970)

What was to become of the unity and unconditional freedom of a tonal and harmonic Ego in two modes, once Golgi had succeeded in obtaining the first photographs of neurons in 1902, and, above all, once Ramon y Cajal were awarded the 1906 Nobel Prize for having photographed neuronal connections? A neuronal network allows myriads of connections and layerings, but it does not obviously fit in a Metaphysical or Freudian Ego, except perhaps disguised as a nervous function among others, that of a *self*, continuing the beginning of a *self* of an anterior animality (Damasio).

In fact, the totalitarian tonal unity was no less uprooted by the new theories in Physics. From 1905, Einstein had been maintaining that, with regards to speed nearing the speed of light, Galileo's transformations group had to be replaced with Lorentz's, thus discharging Newton's idea of an absolute space (independent of time). Simultaneously, Planck discovered that energy could not split indefinitely inside a radiating black body, and that it contained a certain « grain », indicating that causality is not necessarily continuous. The Universe consisted of the irreducible Discontinuous, exempt from the Continuous inherent to newtonian infinitesimal calculus.

Whether consciously or unconsciously, all cosmogonic artists would eventually respond to these new cosmologies ; Picasso in painting, James Joyce in literature, Marcel Duchamp in general semiotics and painting. However, it was in music that both problem and solution would bring about a radical change. For tonality, along with harmony and its cadences, had responded even more directly to newtonian and galilean cosmology than the pictorial perspective or the I-you-(s)he psychology in literature. Consequently, the musical cosmologies above all needed to free themselves of tonality.

1B1. Non-repetition and its combinatorial variations

Let's pay some attention to Schönberg's unstoppable reasoning. Each repetition of a tone is enough to induct a tonality. As a consequence, in order to avoid tonal successions, it is necessary to produce a kind of music that avoids repeating one of the twelve semitones of the scale before having used the other remaining eleven semitones. Therefore, to be *atonal*, a musical composition will have to produce a suite of nonrepeating tones. And for any type of development, one is subject to variations complying to the same programme, the four most prominent of which are: (a) moving tones to other octaves (b) the inversion of the sequencing ; (b) its retrogradation ; (c) its inverted retrogradation ; (d) transposing new sequences thus obtained to each of the twelve semitones.

When we apply this strictly coherent panoply and protocol, the basic sequence becomes a *series* ; which we refer to as *serial music*. The combinatory aspect of this system is omnipresent in the arts of the same period. In Borges' *Bibliothèque de Babel*. In the OULIPO poetry (OUvroir de Littérature POtentielle, workshop of potential literature), creating thousands of poems with only repetitions such as : « Marquise, vos beaux yeux me font mourir d'amour. D'amour, Marquise, vos beaux yeux me font mourir. Vos beaux yeux, d'amour, Marquise, me font mourir. Etc. » In the « series » of the « nouveau roman » according to Butor and Perec.

1B2. A music of intervals (vs chords)

Tonality thus cast aside, Webern is credited with assessing the system's positive challenges in 1930, with the introduction of the *Interval*, replacing *Chord* and Cadence. A classical chord, according to the galilean-newtonian continuous, consists either of superimposed tones that are directly consonant betwixt each other, or of tones locked in a closing cadence, according to harmonic instructions. But, in atonality, two or more notes simultaneously expressed or set in a rigorous succession, will engender groups that lack internal – and a fortiori external – harmonic effect, installing listeners within instabilities, or at the very least metastabilities. Moving them from the security of a Cosmos to the adventure of a Universe

Of course, some intervals were privileged. Tonal partials forming an octave, and then a dominant, and subdominant one, the augmented and diminished octaves are then multiplied, followed by the augmented and diminished dominant and subdominant ones. Webern's *Variations Opus 27*, published in 1937, opens with octave intervals, to be read from bottom to top : « F / E » ; « F sharp / G » ; « A / B flat ».

1B3. The between

Instead of surrendering to a space-time frame of reference, like the classical chords, each and every serial interval creates a new reference frame, indicating, according to einsteinian cosmology, that there is no privileged point of view ; also indicating, according to the quantum mechanics, that the interactions between the state-moments of the system are no longer triggered by continuous influences, but instead by undecomposable leaps (shifts). Thus music encounters the *betwixt*, the *between*, which Paul Klee at the Bauhaus, in the same period, represents as the singular object of painting between two objects. And which Giacometti, between two passers-by, perceived as the sole object of sculpture. A *Between* both spatial and temporal, twilling the « non-being » and the « being ». Or even Heidegger' « beings » et « Sein ».

Certain Rilke and Valéry poems define both « poetry » and the « beloved ». Already in his pre-serial period, Anton Webern occasionally reverted to some of Rilke's verse, to define both his music and the « beloved », as in his *Zwei Lieder*, opus 6, which ends like this: " Du machst mich allein. Dich einzig kann ich vertauschen (exchange). Eine Weile bist du ; dan wieder ist es das Rauschen, oder ist ein Duft ohne Rest. Ach, in den Armen, hab ich sie alle verloren, du nur, du wirst immer wiedergeboren: weil ich niemals dich anhielt, halt ich dich fest". "I embrace you all the more strongly for not squeezing you in my arms".

1B4. The absence of interlude

As its entymology suggests, *cadence* (cadentia, cadere, falling) provided the listener with a secure return to a « natural place » (Aristotelean and Neoplatonic), following a moment of perturbation, or perhaps well-measured unbalance, expressive, as we say. The interval however, is not *gravitational*, moving the listener in spite of himself into a coreless space-time. Coincidentally, by the end of the serial system, by 1960, man would start the practice of living weightlessly.

1B5. Composed and component timbre

The timbres, those sonorous « colours » relating to the intensities of the partials that are characteristic of each instrument, served to enrich the classical chord, to complete its slurs, but destabilized them ; thus it was reduced to accompany the melody, rhythm and intensity, comparable to the ornaments on the harpsichord. On the contrary, working within the Interval, *timbre* will grow into a musical event by itself, or even into the dominant, or final event. In jazz it will overcome the melody, otherwise reduced to a « band's » obliging rally. The blanks of the voice in Armstrong's singing are more effectual than the filled spaces

This prevalence of timbre concurs with the introduction of new tools for producing et memorizing it. Following the second World War, *synthesizers* in the instrumentation *and computing* in construction allow its composition in the fullest sense, in the same way that pitch, length and intensity would have been composed in the past. Partial, playing a role of harmonic connection in classical music, would henceforth be exploited as means of diversification, intensification, unpredictability of the Interval. For nothing is more quantal than timbres. Messiaen would look for them among their masters, the Birds. His 1930 *Préludes* include an introduction piece which is called *La Colombe*, as atonal as Rameau's *La Poule* is tonal.

From 1960 on, mobile recorders, such as the Nagra, make it possible to capture the timbres of mammals in the savannah, of the cetacean in the oceans, of the polyphonic pygmies in the woods. The « natural », « authentic » aspect no longer consists of tone, but of timbre, as a plurification of partials.

1B6. Valorization of noise

In the same way in which Michelangelo accomplished classical sculpture by valorizing visual noise in his *Slaves' and Pietas'*, Beethoven would accomplish classical music by valorizing auditory noise. As a young boy, he would treat his violon as a percussion instrument ; and Therese Brunswick, upon visiting him for the first time, was moved by his piano's dissonance ; his major works are conceived such as to produce a melody that emerges from the matrix of a previously introduced sometimes even prolonged noise ; the final measures of his last sonate opus 111 succeed in drowning a melody in the noise up to four times, first towards the high-pitch, then towards the low, again towards the high-pitch, and finally, towards the low. Yet, with this master of the cadence, even noise enters the field of the differential newtonian equations, and melody is always at hand, just behind us or still coming.

The noise of serial atonality, on the contrary, is, cosmologically speaking, that of the 1948 Information Theory (formare, in, forming) « sound/information » couple. 1963 will see the discovery of the isotropic cosmological sound 2,7° K, considered a fossilized radiation dating from the Big Bang. Its discovery will irreversibly transform Homo from a cosmic dweller into Homo as an inhabitant of the Universe.

1B7. The rhythm of timbre

From now on, rhythm, as a control over Time, becomes the playground in which timbre can fully express and develop itself. Webern's and Messiaen's ritardando and rallentando are countless and therefore abbreviated into « rit..... » and « ral..... », and inserted to allow the Intervals to develop and display all of their partials. With the metronome now becoming redundant, Schönberg, in addition, stubbornly declares in his *Cours de Musique*, that all the classical dynamics, - *allegro, largo, andante, adagio, largo, sostenuto*, - used for indicating moods in classics, as well as the steps, paces, movements that give vent to those moods, have become merely markings of abstract and very global speeds. Which perfectly matches those musical compositions now independent of cadence and chords (where the eternal Cosmos demonstrates its conclusion), using Intervals instead, and opening the way to a Universe consisting of partials

1B8. The initial multiple

Henceforward, the titles of the works evoke the Multiple more often than the 'One'. Messiaen's *Les sons impalpables du rêve, Un reflet dans le vent, Le Nombre léger* for instance. The latter of which reminds us that, since 1900, mathematicians had been wondering whether the Number should start from the 'One' - as hoped for by an entire post-Platonic West - or rather, to the contrary, from the ***Multiple***, as was suggested by Dedekind around 1900 (*Badiou, Le Nombre et les nombres*).

1B9. The unpredicted

In its 1972 edition, the *Harvard Dictionary of Music* summarizes the characteristics of serial music as such: *unpredictability, pre-eminence of discontinuity, zero degree of musical articulation, irreversible movement, generalized nonperiodicity, perpetual renewal* (for instance, the lowest note followed by the highest, the longest followed by the shortest). And wonders whether this particular system, to which we owe the genuine speleology of sounds engendered in Stockhausen's *Klavierstücke IX*, more often than not inverts that which what it is in pursuit of, namely when variation is narrowed down and multiplied to such an extent as to break into monotony and statism

This possibly explains why only two human generations between 1920 and 1970 set about the possibilities of serial music, contrasting to three long centuries of classical music. But, musicians need not worry for long, for 1970 will bring about a cosmological change engendering a change in musical cosmogony

1C. Living formations and sequential music (1970)



Les chemins des écritures # 41, 200 x 230 cm

Ever since the beginning, Homo, above all an angular and angularising primate, and therefore a technician, had lived under the impression, as testify his religious or rationalist philosophies, that all formational actions (Gestaltung), both animated and inanimate, were a matter of *modelling*, or *plasticity*. Yahweh models Adam, in the same way in which the Greek demiurges would create a table, a statue or a temple. Speech was considered the modelling of opposite sounds. And music a modelling of intensive sounds, especially if written out.

Now, from 1960 on, the paradigms in Physics were starting to surrender to the paradigms in Biology. The latter of which will - apart from a few modelling operations that make it possible to create bladders, stomachs, valves, lungs, as well as set up skeletons - initially apply a non-plastician formational method: the sequence with its *resequenciations*. In fact, (re)sequenced formations, had been introduced from 1850 onwards, with Berzelius' discovery of *proteins*. But more than a century passed before we would clearly acknowledge that the inexhaustible variety in proteins, in other words their creative force, depended on the way in which 20 amino-acids, assembled by RNA-collectors, are sequenced on ribosomal RNA according to the sequenciation of RNA messengers. (The latter in turn having been choreographed by the sequenciation of DNA genes in a double helix DNA, itself perhaps modelled by resequencing «supragenetic modulators »?).

Really, (re)sequenciation was not altogether absent from serial music, yet there it exclusively served the purpose of creating intervals and their combinatories. On the contrary, from 1970 onwards, the year in which Anfinsen's team unfolded a protein, at once stripping it of its anatomical and physiological faculties, and then allowed it to refold, with the result that it recovered all its faculties, (re)sequenciation will be established as the biochemical paradigm, whether consciously or not, of a « sequential music», or « resequencial », also known as, albeit rather plainly, « *repetitive* ».

This conversion of cosmogonies (becoming biologist rather than physicist) need not necessarily entail musical disruptions, mainly because, strictly speaking, music had always been concerned with sequential matter. (a) It disposes of elements limited in numbers, - pentatonic, hemitonic, anhemitonic scales, - rather resembling the limited number of 20 amino acids in living beings. (b) The musical semitones can be sequenced and resequenced at leisure, both in *series* (as treated above), or in simple inexhaustibly varying *successions*. (c) The elements are sufficiently homogenic to enable interaction, somewhat like the amino acids disposing of an identical part, through which they are linked, and another differing one. (d) In the same way in which a limited number of chemical bonds (covalent, ionic, hydrogen, hydrophobe) is enough to establish sufficiently varying attractions among the amino acids allowing billions of proteins, and thus of organisms, in music the resonances between the partials of tones, when the latter are displaced in their sequence, generate millions of musical productions. (e) Insomuch as the timbres, produced by synthesizers and captured by its recorders, engender infinite rhythms.

Serial music was quite a confined system, and allowed us to exhaustively browse all its facets. *Sequential* music, on the contrary, is evolutionist, of an unpredictability not pursued, chased, hunted, but rather encountered, served, almost suffered, in the order of a *happening*. An attempt at summarizing its implications inevitably leads to pay attention to some of its exemplary *happenings*.

(1) ***Irrepressible resequenciation.*** – First of all, a ***happening a contrario***. 1960 synthesizers enabled the production of stable chords, programmed in tone as well as in the partials of tones. Emitting a perfectly stable chord, captive in an immobile container, like an architecture, synthesizers provide the perfect opportunity for a hinduizing musician, such as ***La Monte Young***, to create a nirvana, a non-breath, of the absolute non-event. Yet, owing to their internal irrational relationships, musical partials create metastable events, especially when captured by auditory nervous systems, with their transductions, organs of Corti, their afferences incessantly corrected by efferences. We can point to the nirvana, but as to the impossible.

(2) ***Environmental sound effects.*** – To generate spontaneous resequenciations, why not bring together successions of notes, and even successive silences, in an environment thematized as a site of hap, chance, opportunity, fortune, accidents, hazards, risks and luck? ***John Cage*** puts a grand piano in the middle of a crossroads, waiting for the drone of passing trucks to either engender a musical phrase intentionally played by himself, or simply play Helmholtz' resonances on the sound-board without any musician.

(3) ***Resequenciating distortions.*** – Tonal music instruments had been conceived and adjusted to directly obey organs (fingers, hands, exhaling lungs), they themselves obedient to neuronal decisions in the brain. The only major exception was the hunting-horn, with its echo reminiscent of the depths of the forest, which Schumann so eagerly uses to create impressions of spatial and temporal distances. But our new synthesizers allow the creation of autonomous relays between the performer's initiatives and the sounds that one can hear. ***Pauline Oliveros*** created similar relays, semi-controlled, semi-autonomous, engendering active, passive and actively passive sound resequenciations.

(4) ***Diffusive delay-actions.*** – By 1970, ***Steve Reich*** borrows the language phrase *Come out to show them*, records it in a loop, but in a way that each return is delayed with respect to the preceding one. The basic monodic suite recurs in two voices, then eight, then sixteen, until finally its complexification becomes complication, then confusion, eventually losing itself in the noise, in the radical sense of the Information Theory couple « information/sound ». A truly pure cosmogony according to a thermodynamic cosmology, where every event of the Universe becomes a local negentropy (Pierre Curie), a state far away from equilibrium (Prigogine), nevertheless not negating the increase of general ambient entropy, equal at least, that finally reabsorbs it. With this aiming, the content of the basic text does not matter. Nevertheless, the mere fact of evoking blood as seen and shown during a racial « riot » makes it clear that all facts are subject to the general laws of Universe, like those of Thermodynamics, even our most intimate emotions.

(5) ***Prolonged delay-actions*** - Our brains are basically constructed to exchange perceptions and muscular movement with a nearby environment, hence their mechanism exhibits certain speeds, certain intensities, and certain moderated contrasts. By putting any of the latter off-range, the subject will either revert to a state of inattentiveness, or will alternately be introduced to an unprecedented space-time referential, « excited » as René Thom says. Of the same nature as *Come out*, and featured on the same record, ***Steve Reich's For four organs*** repeats a musical suite, this time progressively prolonging it: « J'ai senti mon corps devenir vaste comme l'Univers ». « I could feel my body

becoming as far-reaching as the Universe », as a female physicist once said after listening to this happening lying down. Other nervous distortions are equally musically pregnant, such as synthesizers producing a sound bordering on its silence, reaching to a kind of palpation of the last excited neurons.

(6) *Thematized interactions of numerous brains*. – It will not have gone unnoticed that the perceived object in all of these sonorous happenings is, as much as the musical event itself, the cerebral events that are provoked. By way of conclusion, let's take a look at *Steve Reich's For six pianos*. Piano, with its keyboard, sound-board, strings, hammers and dampers is a particularly organizing instrument ; Arabs call its equivalent, centrally lined up in the central forefront of the stage, the Greek *Kanôn*, the law, the referential frame ; the piano indicates the *A* to all strings. Let us suppose then six piano's, and six pianistic brains, playing a suite of notes, prescribing them a few well-defined possibilities of variation, just like in serial music, but to be performed *ad libitum*. We have created an opportunity to unveil, and even thematize, the perceptual-motor activity of six brains in interhearing, intercorrecting, and thus (re)sequencing intercerebralities.

For an Anthropogeny, it is important to stress the learned or popular character of these productions. As much as serial atonal music is restrained and restraining and therefore ideally also *academic*, in continuity with the tonal music preceding it - Gould estimated he was destined to correct some « incorrections » made by John Sebastian Bach, - sequential music is *popular*. It can be heard in our human cradles, even in the anterior animality, more generally in the elementary musics ; century after century the *Chansons à penser africaines* survived by its inexhaustibly re-forming repetitions. Popular music here does not only coexist with learned music, more often it is privileged, particularly in civilizations where traditionally melody emerges from rhythm, and rhythm itself emerges from partials.

Paradoxically, in the second half of the 20th century, resequencial music has been a case where cosmogony was almost preceding cosmology. More accutely, the sequential musician succeeded in culturally thematizing resequenciation before biologists did. Because, even though they are used to handling it from dusk till dawn, biologists nevertheless continue, out of mental and linguistic habit, to speak often in terms of *plasticity* (« the brain is plastic », « all living is plastic ». In *Discovering Enzymes*, and in order to prove the originality of formations obtained through the resequenciation, typical of the amino acids, Dressler and Potter concluded by saying in 1991: « there is something musical in them ».

2. DANCE

Dance and music are so closely related in Anthropogeny, that it is difficult to define which came first. We might even consider music as a simplified dance, almost mental, to the point where Bach and Handel would use the « **dance suites** » as the initiating musical form: toccata, allemande, courante, sarabande, rondo, etc. Indeed Homo, being animal, and technician

as well as semiotician, his motion would become marching, his marching measure, both giving rise to rhythm. Dance thematizes both rhythm and measure, as well as the movement it is supported by. Thanks to independent sensori-motor circuits, each with their particular memory – how else do we understand the hundreds of detailed movements which a classical dancer remembers? – and also, more instantaneously, the influence of Baldwin's reactions, i.e. motricity inducting a perception, which in turn entails another motricity, in a tireless auto-engendering (in many cultures dancers can keep dancing through day and night). The echoes that are a part of sound and musical tone afford potently for the autoengendering of dance. In exchange, this reengendering stirs up sound echoes and musical tones.

Consequently, the dancer's spontaneous purpose since history has been to equal in his limbs the essential cosmic movements as conceived by his group. Both the Balinese dancing girl and the Dogon dancer perform the universal rhythms ; in the same way in which the French and Austrian royal ballets expressed royal governance, the latter itself referred to as being of « divine law ». As insisted on by Suzanne Langer's *Feeling and Form* in 1960, the « apt » dancer should above first produce potent *mental images*, that afterwards incarnate in his march and gesture. In spite of his restless nights, Nourejev could be found at the barre at the crack of dawn, warming up his anatomy and physiology in accordance with the imagination kindled by his late day reading.

Now, from 1970 on, at the time the Physical paradigms had begun to surrender to the Biological paradigms, a new league of dancers appears in several western countries, cultivating a dance characterized by the absence of a preliminary mental image, even of any programme, without choreography. As if, from now on, instead of straining to become a fugitive body miming an eternal Cosmos, one was expecting to be a fugitive body which, reduced to its elementarities, would collaborate with a Universe still to come. The dancer's discipline is struggling to clear its mind, coercing the body to disobey, striving to discover the provocative commotion of a pure **ad-venir (to-come/happen)**.

An extreme example of which is *Tippeke*, where Therese De Keersmaker wanders about the woods, aimlessly, jolted by tics, (Dutch *Tippelen*, moving in very small steps, erratically), reminding us of a *Markov chain*, where the subsequent states of a system depend on the last state, without necessarily being contained in a succession of anterior states ; reminding us even of a *Markov process*, similar to the Brownian motion, where similar ultimate states are continuous and also distributed stochastically. Both notions date from 1938, and are therefore contemporary to serial music.

However, with the same dancer and the same film maker and musician, Thierry Demey, modern innovative dance usually proved to be *more sequential than serial*. Striving to create those situations in which human organisms are brought to recover their emergence states in an Evolution that is diffusive (punctuated equilibria, "bushing") rather than orthogenetic ; the feeling of being a specimen belonging to an evolutionary species, a feeling which is enhanced by working together in a troop. An occasion of feeling himself as a radiolarian, an insect or a quadruped (Vincent Fleury). Or to activate the seven elementary catastrophes of differential Topology according to which the cellular layers that shape every organism were channeled into crease, fold, dovetail, butterfly, hyperbolic, elliptic and parabolic umbilic (René Thom). Or even to hint to those resequenciations, by which, in the primary elementarity of its organism, amino acids started, some ten or so years ago, in fact four billion years ago, to carry proteins, the latter themselves responsible for sustaining ultrastructures, which in turn then sustain cells,

and organs, until producing living beings of whom it has become a part, as a game of interfaces between interior and exterior environments. Without any confusion between the different states of those emergences. But without strict punctuation as well.

Literary works bear witness, at the same moment, to the same inversion between the mental and the physical. In the traditional novel, the motion of limbs serves to carry out a pre-determined purpose, whereas, in Luc Eranvil's *Zelsa* (2000, www.zelsa.be), it is the limb action that eventuates in a hint of outlined purposes, and one reads, without any punctuation: « alors comptant distraire son trouble ses jambes s'étirèrent hors de la couche elles le menèrent sur le pont respirant l'air cinglant mâchant la brume qui serpentait autour d'elle sa bouche alla porter la nouvelle à l'équipage rassemblé... ». Salman Rushdie's *Satanic Verses* (1988) also abounds in similar reversals of means and ends, corporal initiatives eventuating in vaguely engendering ends.

To which sculpture as well responded. In von Hagen's *Körperwelten*, around 1990, the bodies are those of real living beings, nevertheless « plastinated » *postmortally*, in other words: transformed through impregnation in a transparent substance, primarily revealing arterial and venous networks. Almost the opposite to Vesalius' « corporal factory » (*De fabrica corporis humani*), which represents organisms mainly as a network of bones, conceived as « partes integrantes » of physically wholes subject to spiritual wholes, following a destiny predetermined by a Demiurge. That which is initially perceived in plastination, is the sanguine branching engendering physiologies in an almost stochastic way, which then fractally engenders anatomies, producing, during the time of a life, mechanical or rhythmic actions that determine animal, technical and semiotic destinies.

In October 2006, in Saint-Germain-en-Laye, these new views were presented at an academic happening. Pascal Pick, an anthropologist, explains the successive occurrence of the organic movement of the Living Being, from the bacteria up until Homo. To illustrate his point, he was accompanied by a dancer, commissioned not only to mime the described movements, but even more so to reinvent them by means of his body. The professor's naked feet represented the link between the abstract lecture and the more concrete movements of the artistic performance. The latter was called: *Dancing with Evolution*. But it might just as well have been : *Dancing the Evolution*.

3. THEATRE

Theatre is closely related to dance, even originating from it, in Greece, when the performed songs in Dionysos' processions were interrupted by dialogues. Theatre and dance of a same era often resemble each other just as much as music and dance.

Hence, in Bob Wilson's *Le regard du sourd*, also known as the first monument of *sequential theatre* in the seventies, certain actors, acting almost as dancers, moved so slowly,

in such a genetically primitive way, that crossing the scene took them a quarter of an hour (the stretching fifteen minutes in both *For four organs* and *Come out to show them*). It is this same Bob Wilson who also, shortly after, with Philip Glass's repetitive (resequencing) music, will bring about *Einstein on the Beach*, where the central action in six performance hours consists of immersing an audience in the patiences and evolutionary detours of fifteen billion years of a Universe, in which they themselves merely figure as states-moments.

Theatre being language as well, Peter Handke picks up the case of the Austrian werewolf-child *Kaspar*, using it to force a body blessed with both a human larynx and pharynx, to not only reinvent movement and measure, but also reinvent the transition from sound to tone, to musical tone (intensive) and linguistic tone (distinctive).

Strikingly, in all cases, location is essential. Except for the beach, between Earth and Ocean in *Einstein on the Beach*, performances would often take place in obsolete factories, serving as intersections between Workroom and Nature, such as the Cartoucherie de Vincennes for Mouchkine's Théâtre du Soleil, or even Plan K in Brussels, which successively accommodated Bob Wilson, De Keersmaker, von Hagen, as well as providing room for an exhibition on the new (archi)tectures theories by the Harvard School of Design.

A good example of the power of location is a setting of broken pottery, in Italy, which at the end of the performance is tramped across by a flock of sheep, and where the film maker Thierry Demey shoots a theatrical happening, danced by a company which this time is not directed by De Keersmaecker, but by his sister Anne Demey, and using the music of Vivaldi. What apparent contradiction: an ultracontemporary sequential dance and Vivaldi, a classical musician, and therefore galilean-newtonian ! It is under these circumstances however that our Venetian-redheaded priest reveals perhaps his true nature: prophetically all in all a sequential musician. Which at once explains the disdain or bewilderment that lasted three and a half centuries regarding his *Stravaganze*, as well as its sudden and tremendous success following 1970. Not to mention that Bach, who was keen on duplicative (partly sequential) note for note and phrase for phrase (the final to *St. Matthew's Passion*), more often than not drew inspiration from it. As if (biochemical) resequencing were hiddenly the most archaic and the most prospective principle in humans.

4. TECTURES

Why « tectures »? Because, frankly, the word « architecture » does not suit anthropogeny. To start with, it acquires significance after 5000 B.C. only, in other words, starting from the primary empires of Sumer, of Egypt, of India, of China, of American Indians, where constructions, becoming more and more extensive, required a competent and authoritative survey, preferably by a work manager, *arkHos*, *arki-tectôn*, of a growing number of craftsmen; giving rise to the terms *arkHi-tektionia*, *archi-tectura*. Besides, and for this same reason, « architecture » reminds us today of buildings first, and secondarily of furniture. The

neologicistic « Tecture » applies to both, subsuming them under the range of *tektein* : constructing as in entertwining, superimposing, assembling.

The tectures, thus apprehended, have two different anthropogenic roles. (A) Homo is a mammal, with an indelible souvenir of spending 10 lunar months in a matrix; the tectures, surrounding as opposed to the surrounded sculptures and the transversally displayed paintings, encourage the continuation of a *uterine enclosure* (B) On the other hand, hominian activity, being rhythmic in its pace, engenders a genuine *social theatre*, in turn requiring a *mise en scène*, in which the tectures, buildings and furniture, provide the *scene*. We should now inquire into how these tectures, as contemporary cosmogonies, managed to fulfill both of those functions in the 20th century.

From 1920 onwards, **Bauhaus** theories are reminiscent of serial music, in any case in their propensity towards the combinatory, the decentrement, non-gravity, austerity. In this way, in 1930, Le Corbusier's Villa Savoye's main entrance is no longer positioned in the centre of an evenly numbered colonnade, as had been the case ever since the Parthenon, but instead, it is positioned behind the central pillar of an unevenly numbered colonnade, which one has to circle in order to enter the house ; the bathroom preaches Swedish gymnastics, almost as ascetic as one of Schönberg's or Webern's pieces of « serial » music ; the building of La Tourette « starts from its rooftopline and touches the soil as it can ». At that moment, we find ourselves at the culminating point of the *energy machines* - old as Homo itself – their predominance established in 1800 with the steam engine, and thier climax coinciding with nazism, fascism, stalinism, eugenism, youth movements, nudism, and Otte's Mundaneum, a wordly totalizing Bibliotheca which Le Corbusier credited with a project, on the eve of the Second World War. Following this War, the School of Ulm, carries on the same principles into the 1970's, yet in the strain of the new *information machines*, by now made of much lighter material and brushed stainless steel-colours.

During the 1960's, all that gives rise to the notion of *industrial design*, where building and furniture will merge into one single discipline, sharing the same freedom of residence and construction principle. Ideally, man was supposed conceiving himself up to the last details his own home (Yona Friedman, Lucien Kroll, Elmar Wertz), supported in his instant choices by new materials such as plastics, quasi instantly applied to light wire frameworks, mainless dismantled as well as reconstructed (Gataloup). Cardboard houses (Guy Rottier) were proposed, just like houses revolving on their axis, thus allowing sunlight to penetrate the living-room non stop. In an attempt to put an end to the « arrogance of skyscrapers », Paul Virilio et Claude Parent, drew/designed homes, and entire cities, winding obliquely into the sky. Walking on a slanting ground was ideally deemed to stimulate humane freedom at every step.

But, in 1972, this theoretical fever abruptly comes to an end in just a few months. Why? It's conceivable that the « construction by the inhabitant » had reached its point of saturation and mannerism, as happens to all doctrines. Or maybe, in the end, Homo this mammalian was not looking for a home to remodel daily, maybe he wanted it to be awaiting him, to welcome him, to provide him with the comfort of his uterine archaism ; we know that Le Corbusier, builder of estates (housing projects) and of cities *ab ovo* (Chandigar), in his old days, had a weak spot for a cabin by the Mediterranean Sea, leaving it at noon to bathe in this water which he referred to as « the Ancient », perhaps in remembrance of Hölderlin's Archipelagos. Or maybe, the other Arts were on the brink of discovering something entirely new and

unpredictable , such as resequenciated formations (Gestaltung), which tecture, with its particularly inert and weighty material, was relatively unfit to explore.

And, indeed, creating a *resequential architecture* would take up to a good thirty years. Enzo Piano's Centre Pompidou in 1977 is still but a premonition, continuing the Bauhaus and Ulm School spirit in its insect-like exterior frame, in its general transparency, its energy exchanges marked by the different colours indicating water, electricity, information, and its monumental escalator proclaiming the non-separation of floors, and its multifunctional (synergetically working) spaces. Whereas some of its functions could be considered resequential, the building's shape, consisting of plain parallelepipeds, cannot. This stagnancy of formal invention will become even more perceptible in the work of the Boffil ateliers, eager to apply the most contemporary construction resources to the benefit of multiplying Greek colonnades. As for the term « post-modernism », it turns out well in excluding the Gestaltung of Bauhaus « modernism », but badly in providing a new one.

Basically, we had to wait until 2000, for Frank Gehry's Bilbao Guggenheim Museum to announce a different shape - a resequenciating one, in other words biological rather than physical. And only recently, in 2006, the break was confirmed in a project designed by the same architect for the Centre de la Création d'art in Paris. Certainly, opponents will claim that the museum's architecture is but an exception. Nevertheless the private homes meanwhile built by Frank Gehry reveal the same resequenciating aspirations.

Besides, the biological paradigms appear to have invaded industry. The body of the building in Tom Mayne's « Phare Tower » project in Paris, is coated with what the architect himself refers to as a 'skin', saying that : « It becomes *metabolic* the skin, it moves ».

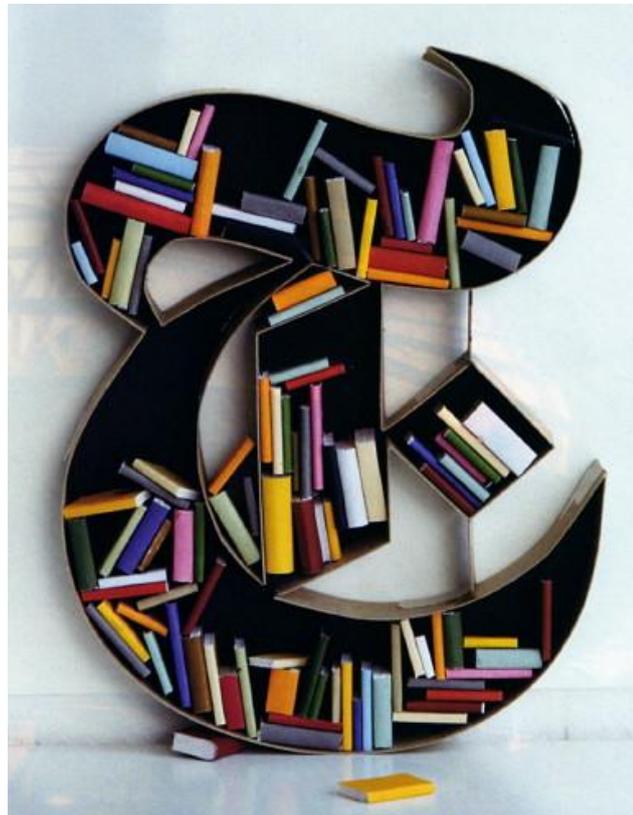


Villa Nurbs by Ruiz Geli

5. CONCLUSION

Ontologies and epistemologies since 1970

Cosmogonies, those artistic equals to cosmologies, generally act as works of art. They should therefore sustain the existence of human groupings by rhythming their existential fate-option, in other words their topologies, their cybernetics, their logico-semiotics, their presentivities. Are we capable yet of qualifying these four aspects of contemporary comogonies? Why not give it a try?

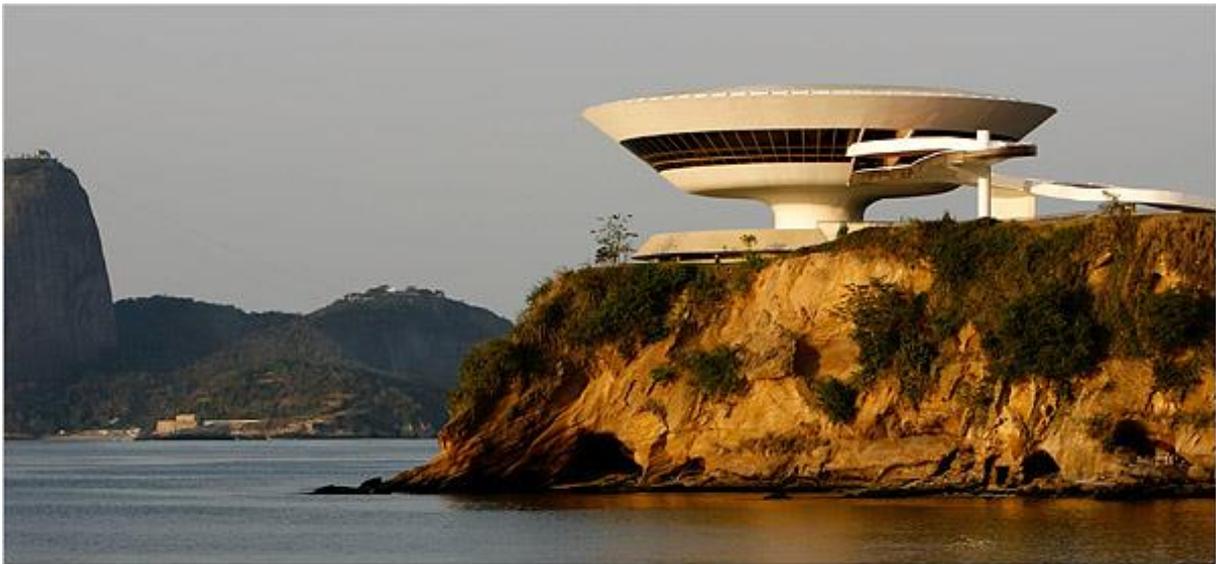


T designed by Ronan and Erwan Bouroullec

In **general topology**, i.e. in following couples: « nearby / remote », « continuous / discontinuous », « contiguous / not contiguous », « closed / open », « embracing / embraced », « way / non-way », the second term would be favoured. Amongst the seven elementary catastrophes of **differential topology**, would be promoted the crease, the dovetail, the hyperbolic and elliptic umbilics rather than the fold, the butterfly wing or the parabolic

umbilics. **Cybernetics** would be marked by triggering (quantal) or positive or negative feedback instead of progressive emergence. **Logico-semiotics**, metaphorical in the anterior worlds, would become metonymical. As far as **presentivity** is concerned, « absence-presence » equals « presence-absence ». Did not Conway suggest that we can deduct all numbers from a cut between two empty sets?

As for the basic ontologies and epistemologies, let's summarize the views that we developed during the course of this chapter. (1) General transition from a Cosmos (World, Order, Dharma, Tao, Mana, Quick), dictating ethics and morality, to a **Universe being invented and adventured**, in which Homo is a novelistic state-moment, either inventing ethics and morality, or dismissing them. (2) A Universe based on *modules* rather than partes integrantes. (3) Where centred and accomplished forms surrender to pluricentric and open *networks*. (4) Where instead of accomplished individuals (in-dividua, indivisible), there are only convergent processes of *individuation*. (5) Where individuations consist less in resilient interior milieux confronting exterior environments, than in *interfaces* between both, according to S.J. Gould's *punctuated equilibria*. (6) Where, consequently, stable and instable states make way for *metastable* states (Gilbert Simondon). (7) And where the ancestral « I-Me » becomes a kind of X-self.



Niterói Contemporary Art Museum by Oscar Niemeyer

Henri Van Lier

Translated by Siegrid Maes