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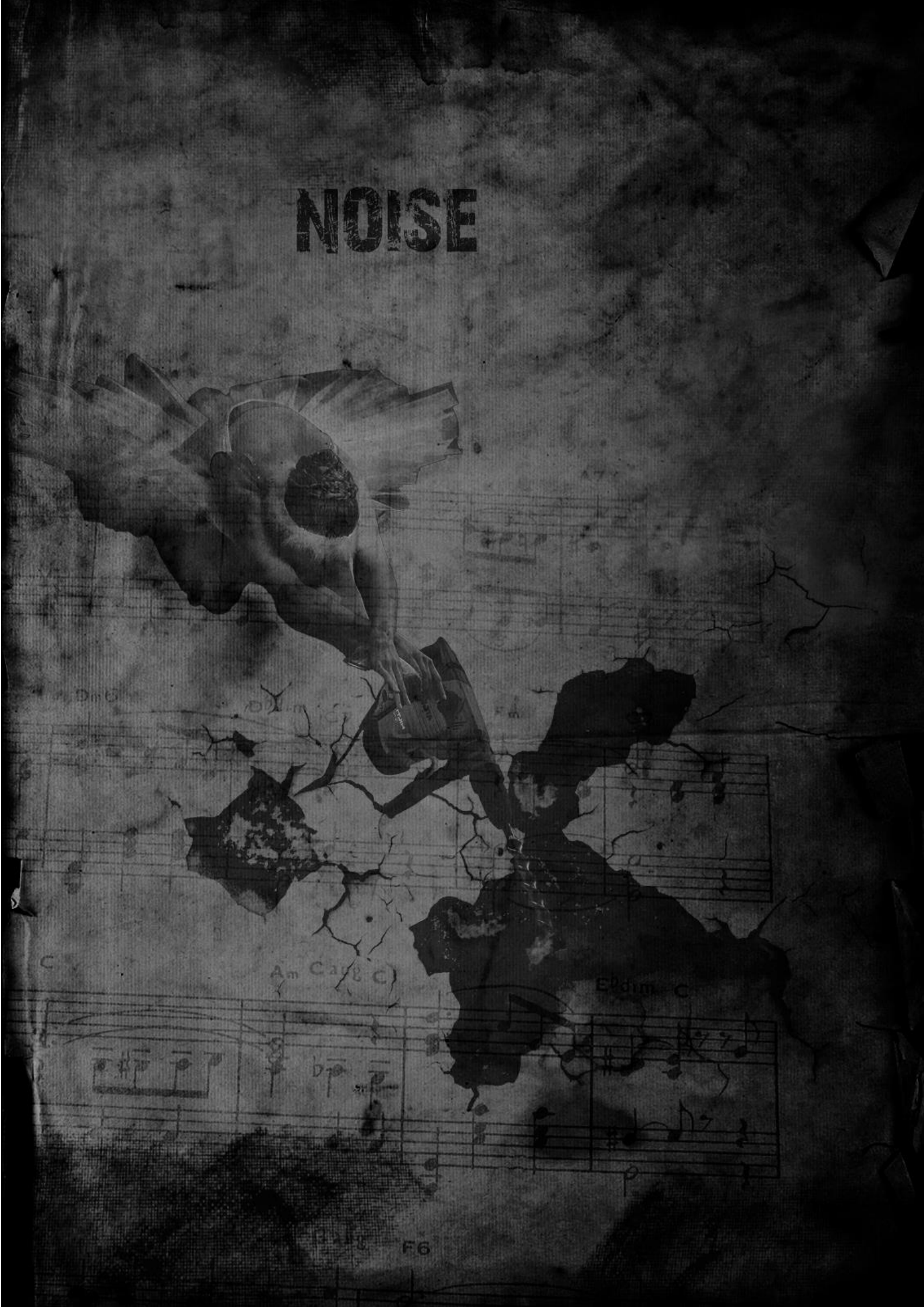
GAME OF TONES

(NEVIENS NIEKUR)

NOISE



In the beginning was the noise.

The audible sound spectrum (that frequency range that the human ear is able to perceive) is a vast ocean of sound waves that ranges from 20 Hz to 20 kHz. From this immense continuum of white noise, the various cultures of the world have chosen a few sound waves that were especially significant to them and with them they have elaborated complex musical systems. The foundational gesture that made the elaboration of a musical language possible was the quantization of the audible sound continuum: the transformation of a subtle gradient of frequencies without a solution of continuity into a small and select group of sound waves that maintain certain logical relationships between them, creating a consistent pattern of musical intervals. If one of the most surprising discoveries in modern physics is the fact that both matter and energy are quantized, it is curious to note how precisely the possibility of making a musical journey through the audible sound spectrum is the result of their quantization in a discreet and limited number of sound wave packages that we call musical notes. Moving musically through the audible sound spectrum implies jumping from quantum to quantum (from note to note, from counterpoint to counterpoint, from chord to chord, from octave to octave)

SILENCE

Silence is a way of being of timelessness. Without internal tensions, without beginning, without death: it means total rest. Silence is one of the names of absolute perfection: sound nothingness.

Sound is born when silence is broken. The sound is a vibration that runs through the silence. The sound is an altered silence: a flat silence. The shortest distance between silence and sound is the beat. The pulse is the smallest alteration of the silence: the beat of your heart, its vital pulsation. With the pulse, silence is born to temporality. This new sound regime that opens the pulsation will consist of a dialogue between silence and sound. The creative game between tension and rest begins, albeit in its most elemental and predictable variant: pulse by pulse.

The temporal clock of the beat, paradoxically, marks with its tireless ticking a timeless conception of time: the eternal return of the identical. A totally reversible time, symmetrical and without entropy. The order of the pulsation is governed by a monotonous repetition. It is time that passes in a completely regular and periodic way. A pulsating system is almost perfect. Although not as much as that of silence. It signifies the beginning of a new form of order, just a little more imperfect than that of silence: a regular, systematic and repetitive alternation between silences and beat. A beat is the interval that separates two silences, a silence is the interval that separates two beats.

The pulsation inaugurates the sound order of the metronome.

TIME

Metronome walking is not yet a musical displacement in time. Time travel in a musical way implies an alteration of the order of the pulsation. The rhythm is a system of accentuation of the regular and repetitive temporality of the pulsation.

Rhythm is a form of temporal order, but not as perfect as that of metronome monotony. By accentuating a few beats even more steadily, the perfection of the old order of regular intervals between silence and sound is broken. Rhythm is a new way of dialoguing with silence: the rhythmic pulsation. Walking with compass is already a musical way of traveling through time. The rhythmic texture of a musical work is a complex system resulting from the interaction of four main elements: the tempo (bpm), the compass, the musical figures (the duration of the notes: whole, half, quarter, eighth notes ...) and the rhythmic patterns generated by percussion instruments. Probably the oldest musical manifestations of humanity were of a rhythmic nature. With permission of the voice (its prosody, melodic intonation and variations of syllabic or vocal heights). Some form of synthesis of instrumental rhythm and vocal melodic would be at the most remote origin of musical sonority: the mother cell of the musical fact. Melody and rhythm are the most common ingredients shared by musical traditions around the world. Instead, harmony is a less frequent feature.

Although it is possible to produce a musical composition made only of rhythm (without melody or harmony, or even instruments: mere rhythmic blows performed with the hands or feet), the opposite is impossible. Every musical note, every harmonic chord, has a duration in time, and therefore inevitably

set a certain rhythm, however monotonous and repetitive it may be. There can't be a melody or harmony without rythm.

The beat is the clock of musical time. But his relentless ticking only conceives temporality as an eternal return of the same. The true musical time is only born with the bar. The bar is the big bang of the birth of musical spacetime.

I'll talk about bar because, although it doesn't exist everywhere and hasn't always existed, it has become a kind of universal standard for elementary beat accentuation. By this concept I refer to any basic form, more or less constant, of rhythmic accentuation of chronological time. The same happens with the concept of beat and metronome to measure time, which are relatively recent, to refer to the non-rhythmic chronological clock.

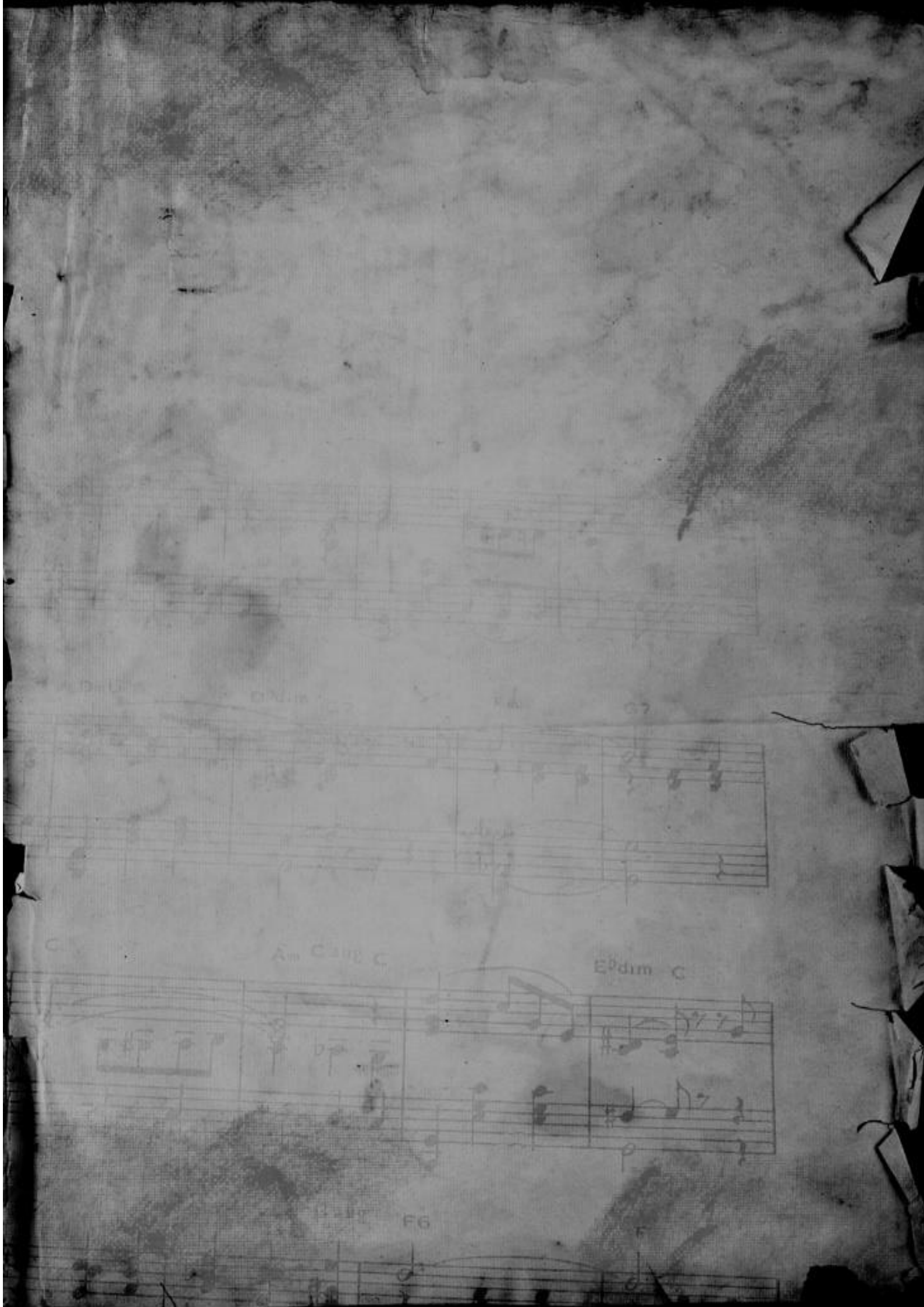
The bar is a rhythmic ostinato that transforms the chronological time of the metronome (the clock of the absolute monotony of the beats) into the musical time of the rhythm. It is a rhythmic pattern of accentuation of pulses in the form of an ostinato that constitutes the first great rhythmic base that sustains the temporality of the entire musical work. And that by interacting with that other source of musical temporality that is the musical figures, it will end up defining the complex rhythmic texture of a work. Rhythmic ostinato that can be temporarily suspended through resources such as syncopation or setback, among whose faculties is the power to break bars. The measure is the basic unit of measurement of musical time. A pattern of voiced accents that transforms a monotonous sequence of beats into a rhythm. This rhythmic ostinato establishes a natural pattern of borders between temporal units that we call compás and whose first pulse is considered the main protagonist: the downbeat. The temporal unit of the measure begins with a specially marked beat that receives special treatment within the series of beats that make up the measure. The way to accentuate that special prominence of the first beat is by making it the place where the most relevant events of the compass occur. For example, if a chord is to be placed somewhere, it is precisely in the first beat or precisely in that downbeat is where the longest notes are placed. From the graphic point of view of musical writing, it is clear that in this way the privileged character of that first beat of the measure is accentuated: we see that many times it

has notes longer than the beats that precede it, as well as a more sound texture. dense. Visually it is a privileged time that clearly marks and accentuates the natural border of the bar of the compass. The paradox is that from the point of view of sound perception, the opposite occurs. There is

a lack of synchrony between what we see and what we hear that has rarely been pointed out.

The basic rhythmic sequence of a 4-beat measure is usually written as TA-ta-ta-ta // TA-ta-ta-ta // TA-ta-ta-ta ... but we actually hear it as TA // ta- ta-ta TA // ta-ta-ta TA // ta-ta-TA ... That is to say, the loud time our brain responsible for organizing sound patterns understands it as the final time (not the initial) of a rhythmic sequence. It is because of this desynchrony between seeing and hearing that, when we believe that we are intensifying the natural border of the bar by making the first beat strong, we are actually doing the opposite: as happens with setback or syncopation in reality. we are shifting the boundary between time units to the interval between the first and the second time. Believing that we strengthen the natural border of the compass, we are breaking it. To reinforce that rhythmic ostinato that establishes the bar of the compass, we should paradoxically do the opposite of what is normally done: mark the last beat of the measure as the strong beat and make the first beat the weakest. Only in this way would our ear perceive that first beat of the measure as the beginning (and not the end) of a new rhythmic cell and, in this way, there would be total synchrony between the bar of the measure that we see in the score and the rhythmic sequence that we hear.

In the beginning was the bar. That is, the musical genesis of Time.


E♭dim C
FG

The origins of the western musical system go back to Greek reflections on the art of sounds. Pythagoras was the one who inaugurated the path of the intervalic relations that characterize our diatonic musical system. His observations on string vibrations and the interval relationships between the consonant sound waves they produce have been deepened and expanded by modern acoustics. In addition to the physical foundations of Western musical language, Pythagoras also established the metaphysical foundations of the musical language of medieval modes: the perfect consonance (diapason or octave, diatesaron or fifth and diapente or fourth) as a sound resonance of the harmony of the spheres, a representation of the geometry of the universe conceived as a mathematical harmony of perfect musical intervals. A mathematics of sounds that harmonized with the orbits of the planets. Number and geometry, the two fundamental pillars of mathematical thought, that were finally able to merge with the physical world in the perfect chord of the "universal laws" of movement thanks to that 17th century Pythagoras that was Newton. The dream come true of a mathematical representation of the harmony of the music of the spheres that would give birth to modern science.

This mystical conception of musical aesthetics, be it in its Pythagorean or medieval variant, would have as a consequence to privilege the perfect consonance and to consider legitimate only the octave, fifth and fourth interval relations. The authentic music of the celestial spheres.

The medieval reworking of the eight Byzantine modes (oktoechoi) present in the liturgy of the Greek Orthodox Church in the form of the eight Gregorian or ecclesiastical modes of plain singing, adopting the denominations of the ancient Greek Tonoi (Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian and Locrian) inaugurated the great synthesis of modern musical theory that would lead to the tonal system.

The Greeks created the diatonic alphabet (diatonikós: through the tones) of the western musical language. For a whole millennium (Middle Ages and Renaissance) western musical practice was based on a system of modes. The key itself would not begin to be established but from the Baroque and for three centuries it would become the foundation of what is known as the musical period of common practice (17th, 18th and 19th centuries: Baroque, Classicism and Romanticism)

Byzantine Echoi and Greek Tonoi were born the Gregorian Modoi. The ecclesiastical or Gregorian musical system consisted of eight modes consisting of two ascending tetrachords (unlike the descending Greek tonoi). Starting from the four authentic modes (Dorian or Protus authenticus, Phrygian or Deuterus authenticus, Lydian or Tritus authenticus, Mixolidian or Tetrardus authenticus) the four plagal modes were formed (Hypodorian or Aeolian, Hypophrigian or Locrian, Hipolidian or Ionian, Hypomixolidian) displacing the upper tetrachord below the first note in the authentic mode. Each mode had two prominent notes: the finalis (the tonic in the authentic modes) that used to be the note with which the song ended and the repercussion or tenor (the fifth in the authentic modes) that was constituted in the center of the string of recitation of the melody. Scrolling through the white keys of the modern piano you can take a tour of the ancient medieval modes: Ionian (from C to C), Dorian (from D to D), Phrygian (from E to E), Lydian (from F to F) , Mixolidian (from G to G), Aeolian (from A to A), Locrian (from B to B) The diatonic system that characterizes the western musical language is a system formed by seven different notes distributed in five tone and two halftone intervals. In the modal system, each mode has its own interval personality (a particular distribution of the intervals of tones and semitones that make it unique). The one-step skeleton is really nothing more than the x-ray of the inner universe of the tonic (lowest note). Any musical note is a sound wave made up of various simple waves. The lowest single wave (the one with the lowest frequency) is the strongest or most dynamic (the one with the loudest volume), and is the one that gives the wave or note its name. In musical acoustics, the group of simple waves that accompany this lower

wave are called harmonics. In addition to being a key element in determining the timbre of a sound, it will be the peculiar distribution of the harmonics of each wave that determines the spine of intervals that will give each mode a particular sound color, depending on where the two semitones are located.

Ionian	T-T-st-T-T-T-st
Dorian	T-st-T-T-T-st-T
Phrygian	st-T-T-T-st-T-T
Lidian	T-T-T-st-T-T-st
Mixolidian	T-T-st-T-T-st-T
Aeolian	T-st-T-T-st-T-T
Locrian	st-T-T-st-T-T-T

The medieval modal system consisted of seven distinct modes, each with its own interval personality. Although they all shared the same seven musical notes, what made them unique was the arrangement of the halftone intervals: their peculiar interval syntax, the true backbone of the mode, which was nothing but the x-ray of the harmonic inner world of its tonic or note more low (C in the Ionian mode, D in the Dorian, E in the Phrygian, F in the Lydian, G in the Mixolydian, A in the Aeolian, B in the Locrian) Because every musical note is already in itself a chord harmonic, a compound wave whose sound is the result of listening to all of its simple sine waves at the same time.

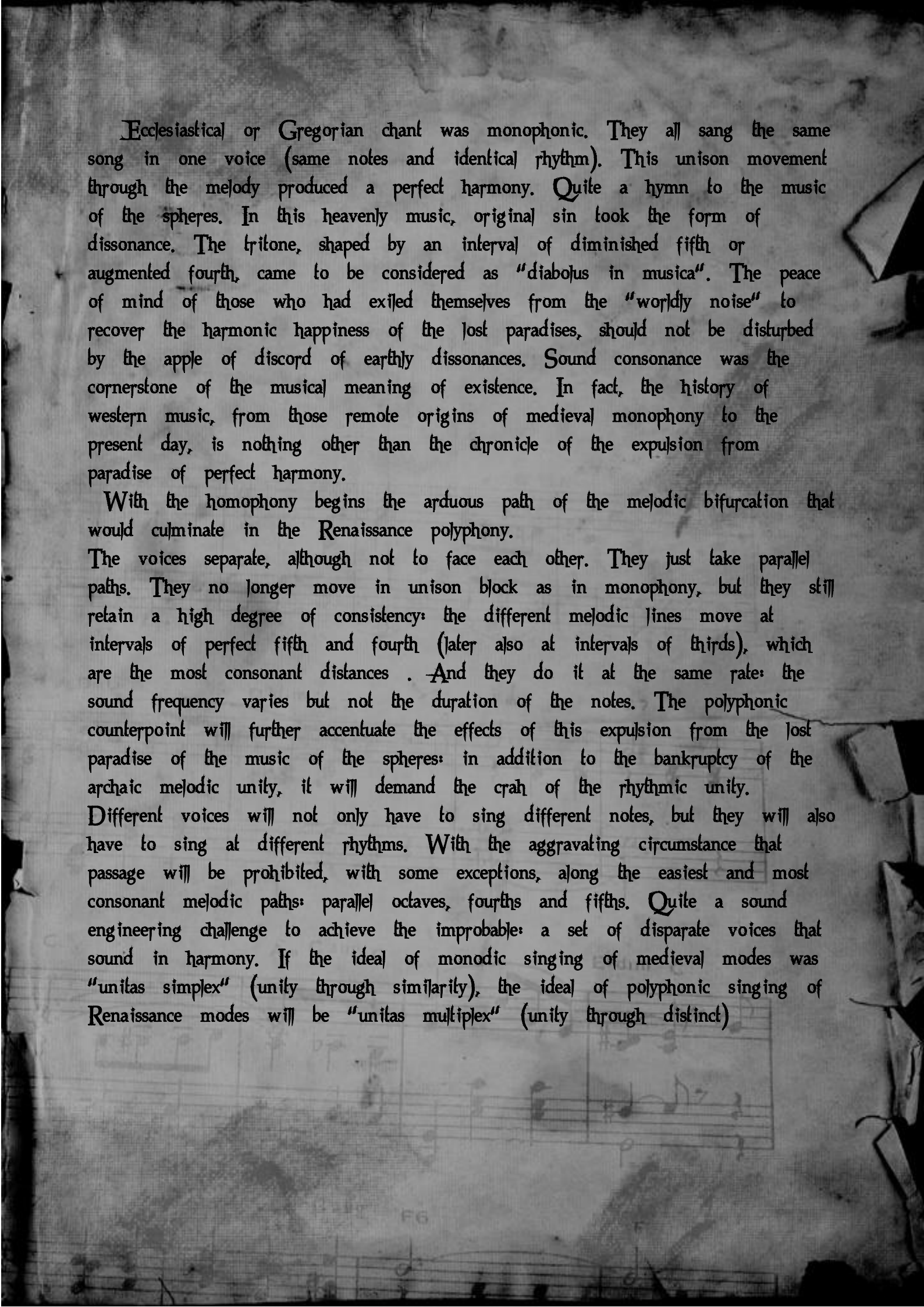
If the origins of medieval modes go back to the musical reflections of classical Greece, to the synagogue singing of the Jewish tradition and to the Byzantine liturgy, the texture of its particular sound universe must be sought in its own conception of the ultimate meaning of the world and of life: the song of the lost paradise of the music of the spheres. The initial preponderance of the human voice in the early stages of the development of medieval modes was due to two causes of force majeure, derived from the context in which they originated: their subordination to the liturgy of sacred texts and the prohibition of the use of instruments during religious services.

Ecclesiastical or Gregorian chant was monophonic. They all sang the same song in one voice (same notes and identical rhythm). This unison movement through the melody produced a perfect harmony. Quite a hymn to the music of the spheres. In this heavenly music, original sin took the form of dissonance. The tritone, shaped by an interval of diminished fifth or augmented fourth, came to be considered as "diabolus in musica". The peace of mind of those who had exiled themselves from the "worldly noise" to recover the harmonic happiness of the lost paradises, should not be disturbed by the apple of discord of earthly dissonances. Sound consonance was the cornerstone of the musical meaning of existence. In fact, the history of western music, from those remote origins of medieval monophony to the present day, is nothing other than the chronicle of the expulsion from paradise of perfect harmony.

With the homophony begins the arduous path of the melodic bifurcation that would culminate in the Renaissance polyphony.

The voices separate, although not to face each other. They just take parallel paths. They no longer move in unison block as in monophony, but they still retain a high degree of consistency: the different melodic lines move at intervals of perfect fifth and fourth (later also at intervals of thirds), which are the most consonant distances . And they do it at the same rate: the sound frequency varies but not the duration of the notes. The polyphonic counterpoint will further accentuate the effects of this expulsion from the lost paradise of the music of the spheres: in addition to the bankruptcy of the archaic melodic unity, it will demand the crah of the rhythmic unity.

Different voices will not only have to sing different notes, but they will also have to sing at different rhythms. With the aggravating circumstance that passage will be prohibited, with some exceptions, along the easiest and most consonant melodic paths: parallel octaves, fourths and fifths. Quite a sound engineering challenge to achieve the improbable: a set of disparate voices that sound in harmony. If the ideal of monodic singing of medieval modes was "unitas simplex" (unity through similarity), the ideal of polyphonic singing of Renaissance modes will be "unitas multiplex" (unity through distinct)



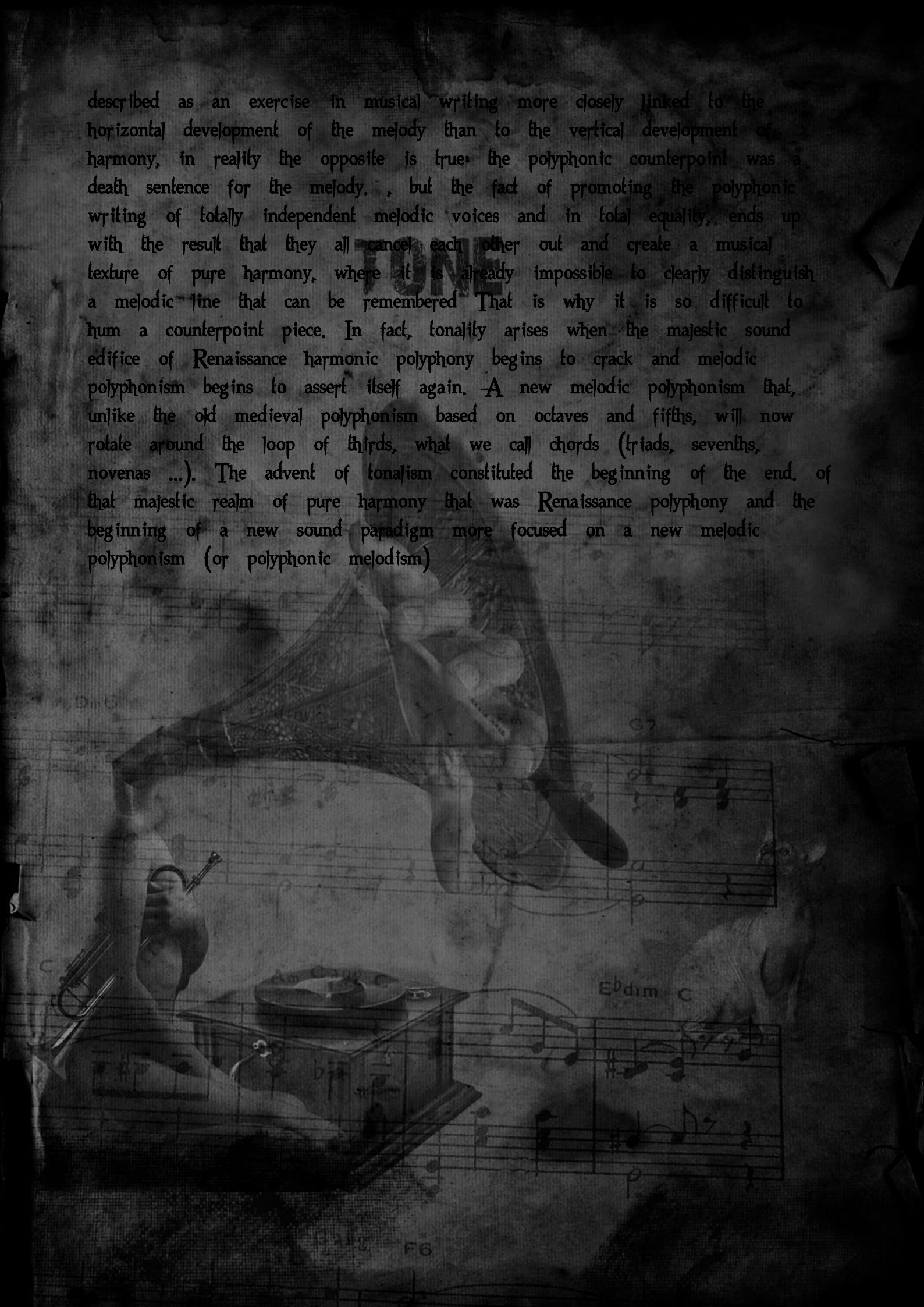
The contrapuntal texture of Renaissance polyphony demands a sound architecture as complex and monumental as that of a Gothic cathedral. It is somewhat paradoxical that, in a musical genre of which the contrapuntal polyphony treatises emphasize the melodic freedom of the different voices as the main characteristic, it is so saturated with prohibitions and forbidden paths. Contrapuntal freedom is more like probation than free will. The independence of the different polyphonic voices is achieved only by paying a high price: the mutual vigilance of all voices among themselves. As there is no hierarchical relationship but one of equality between the voices, none should stand out among the others. The counterpoint is usually classified between musical genres centered on the axis of horizontal or melodic displacement, as opposed to harmony, which would favor the vertical axis of chords or simultaneous sounds. But this is somewhat misleading. The fact that there are several different melodic lines does not diminish the need for the behavior of the group of notes that sound simultaneously to present a harmonic behavior. Unitas multiplex: in polyphonic texture, melodic diversity is as important as harmonic unity. It is an ordered choreography of musical voices (focused on the sound registers of bass, tenor, alto and soprano) that move through the staff together but doing different things (from the point of view of frequency and rhythm), where the melodic diversity of the parts is as important as the harmonic unity of the whole. What will vary in the different styles and contrapuntal periods will be the conception of what is considered in each case a harmonic set of disparate voices, some dissonances admitting that other more severe styles or consonants would rule out. In general, contrapuntal polyphony had greater tolerance to dissonance than medieval polyphony. Converted the ecclesiastical monophonic melody into a cantus firmus with which other voices interacted, the organum, polyphonic pivot of the Ars Antiqua, originally only allowed intervals of perfect harmony (eighth, fourth and fifth) but from the eleventh century, with the organum flowery or melismatic, it will begin to accept intervals of imperfect consonances (third and sixth) and the discantus contrary movements. The different species of the strict counterpoint set the rhythm of the confrontation of the voice or voices in counterpoint (with respect to the cantus firmus that used to have the duration of a round) according to the duration of the musical figures of its measures (round, white, black) Even the fourtkind

broke the regularity of the beat of the compass through the syncopation (thus creating a certain dissonance, tension or rhythmic irregularity). A musical discourse made only of perfect consonances and rhythmic regularities ends up falling into monotony. It is the tensions and dissonances that provide movement, variety and dynamism. That is why the musical language has been progressively opening up, from its consonant roots in unison and octave of the strict monophonic song, at more dissonant intervals. Intervals that, within a modal conception of sounds, it was preferable to prepare and resolve, that is, to approach them gradually and escape from them as quickly as possible. Thus, while the Ars Antiqua of polyphony privileged the intervals that offered perfect harmony, Ars Nova and Renaissance contrapuntalism will veto precisely those ancient polyphonic paths (eighth and fifth parallel) and will privilege imperfect consonants (third and sixth)

Being strict in definition, the term monophony should be reserved for a sound texture consisting of a single solo voice without accompaniment of any kind. Voice in the broad sense that includes any instrument and not the restricted sound emitted by the vocal cords. There are polyphonic instruments that, like the keyboard, are capable of harmonically accompanying themselves: in this case the monophonic use of the instrument would imply using it as a mere melodic instrument. Because monophony is the musical realm of melody. In its most essential state, pure horizontal movement on the staff. What is usually called monophony, referring to the origin of the western modal system in the old plain chant, is actually already a primitive form of polyphony. It is a polyphony of octaves. The modal system began as a hybrid between melody and harmony: a melodic polyphony, a harmonic melodism: a chorus of voices that sings the same notes at the same rhythm but with the musical bull of being able to do it in different octaves. What we generally call monophony is actually octave polyphony, a polyphonic melody. This incipient musical polyphonism of plain singing will progressively be expanded with the polyphony of fifths of the organum and finally with the advent of l'Ars Nova (and its taboo on the old polyphonism of octaves and fifths) and the establishment of the new polyphonism of third i sixths (with a very restrictive harmonic use of fifths and octaves) we will reach that golden age of harmonic polyphonism that was the Renaissance counterpoint. Thus the modal system, which began with melodic polyphonism, ended up becoming the

paradigm of harmonic polyphonism. Curiously, although counterpoint is often

described as an exercise in musical writing more closely linked to the horizontal development of the melody than to the vertical development of harmony, in reality the opposite is true: the polyphonic counterpoint was a death sentence for the melody. , but the fact of promoting the polyphonic writing of totally independent melodic voices and in total equality, ends up with the result that they all cancel each other out and create a musical texture of pure harmony, where it is already impossible to clearly distinguish a melodic line that can be remembered That is why it is so difficult to hum a counterpoint piece. In fact, tonality arises when the majestic sound edifice of Renaissance harmonic polyphony begins to crack and melodic polyphonism begins to assert itself again. A new melodic polyphonism that, unlike the old medieval polyphonism based on octaves and fifths, will now rotate around the loop of thirds, what we call chords (triads, sevenths, novenas ...). The advent of tonalism constituted the beginning of the end. of that majestic realm of pure harmony that was Renaissance polyphony and the beginning of a new sound paradigm more focused on a new melodic polyphonism (or polyphonic melodism)



The Baroque implies a turning point in the history of the musical language of the West. It represents the beginning of a new and unique musical system that will become a true sign of its own identity: the tonal system. An original system of musical composition that for three centuries will become the foundation of what is known as the musical period of common practice (17th, 18th and 19th centuries: Baroque, Classicism and Romanticism)

If we had to synthesize in a sensational headline the beginning of the chain of traumatic events that for the history of musical polyphony was going to suppose the Baroque period, it would undoubtedly be this: basso continuo killed the counterpoint star. Because the turning point at the beginning of the long process of metamorphosis that was to transform the old contrapuntal polyphony into the new tonal polyphony was an idea as seductive as it was delusional: trying to make the squaring of the circle a reality. Or speaking with more property: the square of the triangle.

The tables of the musical law of the point against point with which the polyphonic plot of the Renaissance displacement of the voices by the pentagram was woven were going to unleash a strange phenomenon that probably was not contemplated in its founding statutes: the crystallization of the point against point in chords . The haute couture of the contrapuntal interlacing of the harmonic weave gave way to the ready-to-wear of the chordistic interlacing of the harmonic weave. This singular fact began to lay the foundations of what would be one of the fundamental pillars on which tonal polyphony is based: the loop of thirds (creating the harmonic landscape of a musical piece by superimposing intervals of third) And it began in the most elemental: a polyphony of triads. The problem arose when attempts were made

to fit this novel reinterpretation of point against point with triad chords with the need to maintain the venerable choral tradition of four-voice writing.

It is this mystery of the holy quaternity (a polyphony with four voices, but only three true ones) that would mark the passage of the ancient conounterpuntal polyphony (for which the cloning of the voices would be an act against nature and an attack against the musical heritage of mankind) of the new tonal polyphony (great lover of the new harmonic play of third loops and replicating voices) One of the most striking results of this new harmonic play was that the two interior voices (tenor and alto) lost prominence in favor of extreme voices (bass and soprano)

The shorthand of the figured bass indicated the filling of the chord that accompanied the jumps of the lowest voice, the true center of gravity of the new baroque polyphony. If in the underground of the tonal pentagram the voice of the bass began to shine with its own light, in its skyline the role was undoubtedly for the soprano voice, which began to receive all kinds of melodic attention. Starting with the so-called strange notes to the triad (passing notes, embroideries, supports, delays, anticipations) and ending with the decoration notes and other melodic flourishes that only increased the prominence of the superior voice that stood out for its dynamism and melodic liveliness on a harmonious background landscape, of slower and more corset movements in displacements between precast triad chords.

On the other hand, it could be said that tonality is the daughter of modality, and that like all descendants it oscillates between the will to perpetuate and the will to rebel against the inheritance of its parents. In the day to day of musical practice, a phenomenon had emerged that was difficult to ignore: not all modes were equally appreciated. Some were overwhelmingly used, and others had fallen into oblivion or indifference. Among the most popular, without a doubt, were the Ionian Mode and its relative minor, the

Aeolian Mode. They had ended up becoming the true stars of the modal system. The new musical system of tonality did nothing more than recognize its indisputable role. And he did it in a drastic way: turning all the other modes into replicants of the Ionian and Aeolian modes. To achieve this, it was necessary to introduce five new musical notes, the non-diatonic semitones (the black notes of the piano) that only represented alterations (sharps and flats) of the natural notes that allowed to replicate the interval structure of the Ionian and Aeolian modes in the bosom in any other way. It could be said that tonality is a neo-modality where only the Ionian and Aeolian modes have maintained their interval personality, transforming all the other modes into mere replicants of the former. The modal system of seven different modes, with its own diverse personalities (Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian and Locrian modes) thus became the 24-tone tonal system (major and minor bifurcations of the 12 notes of the octave) which were nothing more than replicas of the interval skeleton of the Ionian mode and its relative minor. The Ionian mode was called the key of C (major and minor), the Dorian mode became the key of D (major and minor Dorian replicant of the Ionian and Aeolian modes), the Phrygian mode became the key of E (replicant Phrygian), the Lydian mode became the F key (Lydian replicant), the Mixolydian mode became the G key (Mixolidian replicant), the Aeolian mode was renamed A key and the Locrian mode became the B key.

But tonality is not only the replicating daughter of the modality, it is also the natural daughter of the devil. What was it that made the Ionian Mode and its relative minor, the Aeolian Mode so attractive, so irresistibly seductive? The alternation of major and minor modes was so significant that it retained its relevance in the new tonal system. In fact, what in tonal language is called mode is precisely that bifurcation: the major mode and the minor mode. And the knot of this modal duality is in the third note of the scale: if it is located at an interval of four semitones (greater) with respect to the tonic or at a distance of three semitones (less)

But the true key to the fascination with the Ionian Mode, the most popular and appreciated of the ancient medieval modes and the undisputed scalar center of the new tonal system (in the form of C Major), must reside in the peculiar configuration of its interval skeleton:

C (T) D (T) E (st) F (T) G (T) A (T) B (st) C

that is to say, the interval formula

T - T - st - T - T - T - st

that served as a backbone to transform the twelve major possible shades of the new tonal system into replicants of the natural major scale. To achieve the twelve minor tones, the replicating interval model was the old wind mode, the natural minor scale.

T - st - T - T - st -T - T

With time and practice, a dissatisfaction became evident regarding this minor interval scheme. It did not fully meet the harmonious expectations of the new aesthetic of sonic tonal taste. To the extent that it was considered necessary to develop a new minor interval skeleton (which was only the natural minor scale but with a slight modification): the harmonic minor scale

T - st - T - T - st - T+st - st

The modification consisted of increasing the seventh degree of the scale by one semitone to achieve an interval of Seventh Major with respect to the tonic (eleven semitones) .This slight rearrangement of the minor interval skeleton solved the harmonic problem, but generated a new melodic problem. The melodic line formed by an increased third followed by a minor third generated an exotic sound that was reminiscent of the Eastern and Arab scales. To solve it, a new interval scheme was created (the melodic minor

scale) which added to the alteration of the seventh degree the modification of the sixth degree in a higher semitone

T - st - T - T - T - T - st

The result was the creation of a "minor" intervalic skeleton (the melodic minor scale) which was actually a mixed interval skeleton formed by a first tetrachord typical of the minor scales (third minor) and a second tetrachord more typical of the major scales (major sixth and seventh) More than a minor scale, the melodic was a hybrid, androgynous, hermaphrodite scale, at the same time minor and major. A "monstrosity" that was only the result of the need to obtain a major seventh interval to harmonize the minor scale with the new musical aesthetics of the key. If the tonal system had a secret, practically irresistible charm, the key must reside in that seventh major degree typical of the ancient Ionian Mode. Because not only had this Ionic interval spine been the ideal model to build all the new major keys, but it had also caused a profound metamorphosis in the interval scheme of the natural minor key (based on the Aeolian Mode) so that its scale presented a second half of a much more Ionic than wind nature, with an indisputable Seventh Major.

What new sense of musical harmony was expressing tonal aesthetics? How was it different from the old harmonic taste typical of modal systems? The axis on which the tonal harmony pivots is the chord. A minimum of three different voices or notes sounding at the same time. A polyphony of voices that form a harmonic ensemble. A harmonic ensemble, but one that was somewhat different from that generated by the modal counterpoint. Tonal polyphony had its own sense of harmony, which by inbred deformation would become the quintessential harmony, as if modal polyphony did not have its own sense of harmony, which although different was just as valid as that generated by the new tonal system. Chordistic is to the tonal system what the counterpoint to the modal system is: a method to harmonize different voices or soundfrequencies. Because in both cases, what is achieved is to

create a set of compound sound waves (a counterpoint, a chord) from simpler musical notes or sound waves (which in turn are already a harmonic set of still waves simpler or sinusoidal) If a musical note is a harmony made up of different voices or frequencies called sine waves, a triad or counterpoint would be a harmony made up of different voices or frequencies called musical notes.

The basic form of a chord is called a triad, and it is a harmonic set of three different voices or notes intertwined at third intervals (the first or root, the third and the fifth note). The most elementary way to elaborate the harmonic landscape of a key (its harmonic playing field) will be to configure the various possible triads based on each of its diatonic notes. In the case of the natural major scale they would be: C-E-G, D-F-A, E-G-B, F-A-C, G-B-D, A-C-E and B-D-F. Which would correspond to the tonic triad (grade I of the scale), supertonic triad (grade II), mediant triad (grade III), subdominant triad (grade IV), dominant triad (grade V), triad of superdominant (grade VI) and triad of leading-tone (grade VII) Tonally harmonizing a scale basically consists of elaborating a harmonic weave by intertwining third intervals. With the possibility of breaking the harmonic monotony of this Trinitarian mechanics, occasionally introducing somewhat special triad chords: suspended chords (which allow varieties of triads with second or fourth and fifth) and inverted chords (which introduce harmonies with intervals of third and sixth and fourth and sixth)

The mystery of this most holy harmonic trinity (three different voices but one true chord) is the magic formula for tonal harmony. To which should be added a fourth upper voice, which would be in charge of elaborating the main melody, with respect to which the triad chord would function as a harmonic accompaniment, or harmonic background landscape on which the melody would move, generally in a register more acute. And it is precisely this trend of harmony built on chords to privilege the musical texture of the

accompanied melody, which would differentiate the tonal system from the contrapuntal polyphony. The contrapuntal texture of four voices of equal relevance that were monitored each other, has given way to a texture in which the three lower voices are strung together more strongly, in the form of pre-established chords (than in their most basic configurations, triad and tetrad chords) and become the harmonic accompaniment of a fourth voice, generally higher pitched, which can move much more freely through the pentagram when drawing its melodic line. Hence, it is common to speak, in the tonal system, of harmonizing a melody. The unsupervised freedom that one of the voices in the tonal system manages to obtain, is realized at the cost of chaining the other three voices in chord blocks that are subordinate to it. The harmonic texture of four voices on probation (in the modal system of contrapuntal polyphony) has been transformed (in the new musical order of tonal polyphony) into the harmonic texture of a voice moving freely among a soundscape of voices in chord, made in his image and likeness.

The tonality differs from the contrapuntal modality not only in its harmonic voice texture (four voices on probation vs. chord melody), but also in its syntax. The syntax of tonal harmony is based on a peculiar progression and cadence of the chords. The magic formula of the progression of the chords of tonal harmony could not be simpler: tonic - dominant - tonic (I - V - I) But it has turned out to be the master stone on which the entire immense building of the musical key. Tonic chord, dominant chord and tonic chord, a simple harmonic progression that has allowed the elaboration of complex and fascinating musical works. What is your secret?

A scale is still a melody: a journey through the notes of a key. But his itinerary is special and relevant: a progressive arrangement of the musical notes starting from the lowest to the highest. And if we add the first one, twice the distance, we obtain the octave interval, the key pattern of the tonal system: seven different notes, twelve semitone intervals, beginning and ending with the note that bears the same name: C-D-F-G-A-B-C. The fact that the last note of an octave is at the same time the first note of the next,

gives the octave pattern a looping nature. The key organizes the audible sound spectrum into a looped octave string. But an octave is not only a spiral staircase in the form of a loop, it is also, in some way, the expression of the sound DNA of its tonic (its lowest note) It represents the interval order of its peculiar inner world of harmonics. And in this inner world of sine waves from a musical note, there are some especially relevant relationships. The sine wave that is most similar (except unison and octave) to the fundamental one (the lowest and which gives the note its name) will be located at a distance of 2/3, which when deployed in the octave skeleton of its octave will occupy the fifth step of the scale. And then the fourth one will be placed, from time to time. That is why the fifth and fourth degrees of a scale are considered as tonal degrees, that is, notes that reinforce the loudness of the tonal center of the tonic, because they are the most consonant after unison and octave. While the other degrees of the scale, because they provide certain different sonic nuances and enrich the tonality, they are considered modal degrees. The special relationship established between the tonic of a scale and its fifth, it comes from the particular inner harmony of its sine waves. As well as its union with the third, major and minor, to form triad chords (1-3-5) The musical laws of the key are not completely cultural and arbitrary, somehow reflect physical realities of the inner world of musical notes, each of which is itself a harmonic set of sine waves plus simple.

If, on the one hand, the fifth degree (G in the scale of C major) maintains close ties of consonance with respect to the tonic (C), being almost like brothers, on the other hand it reveals itself as its great enemy: it is the center of the dominant area, antagonistic region of the tonic area. From the harmonic point of view, a tone scale is a sound space that comprises three major regions or areas, which maintain complicated relationships

between them: the tonic area (formed by degrees I, III and VI: C, E, A) , the dominant area (formed by degrees V and VII: G, B) and the subdominant area (formed by degrees II and IV: D, F) The relationships that maintain the first and fifth degrees within the tonal system they could only be described as ambivalent, love and hate. The consonant attraction that they feel as twin intervals is not inferior to the harmonic breathing that they experience as antagonistic chords. Because if there is a significant tonal conflict, a chord war, it is undoubtedly the one between the tonic area and the dominant one. Their harmonic personalities could not be more disparate: everything that expresses relaxation in the tonic chord, expresses tension in the dominant chord. And it is paradoxical, because the fifth grade is part of the tonic chord (1-3-5), but when it builds its own chord and becomes the fundamental note it is when it reveals its hidden face. Especially in the tetrad or seventh chord: 1-3-5-7, which on the natural major scale would be sol-si-re-fa. It is then when the Pandora's box opens: the Dominant Seventh chord (V7) is the great antagonist of the Tonic chord. And, deep down, that conflict does not arise from the fifth grade itself, which does not cease to have a tonal sound, but from the strange companies with which it associates to form its harmonic seventh chord: the dreaded chord diminished fifth triad (1-b3-b5), which includes a tritone (B-F), an interval spanning a distance of three tones, and which from the remote origins of the medieval mode system was regarded as the sound of it demon (diabolus in musica) for his special dissonance.

The key element of the tonal octave is often considered to be the tonic (1st degree), defining it as a gravitational center around which all the other notes revolve, just as the planets revolve around the sun. The tonal monarchy would have been constituted to the greatest glory of the undisturbed reign of the tonic. After all, the octave interval skeleton is still a reflection of its harmonic inner world. But while seven distinct personalities coexisted in the modal system, the tonal system has been built around only one of them: the Ionian mode interval personality.

Personality that all the other shades ended up adopting (totally the major ones, partially the minor ones), transforming themselves into Ionian replicants. This Ionian personality is one of the keys to the tonality, a faithful reflection of the inner world of its lowest or tonic note (C). But just as important as the tonic, it turned out to be the fifth, with which he had a complicated relationship of love and hate, of attraction and repulsion. In a way, the octave tonal actually presents two gravitational centers, the tonic and the dominant, of the conflict from which a good part of its musical manifestations arise. And even so, if we were to keep a defining characteristic of the interval personality on the natural major scale (the old Ionian mode) it would not be, even if it sounds sacrilegious, its keynote. Not even his fifth. What gives the Ionian mode an absolutely personal and unique touch is its major seventh, which in combination with its fourth joust is capable of generating a diminished fifth tritonal interval. Of the ancient medieval modes, only two had a major seventh, the Ionian and the Lydian, but only the first one was capable of generating the diminished fifth tritone, because the Lydian mode did not have a perfect fourth but augmented. Here precisely resided the great charm of the Ionian mode interval personality: its bipolar character. His third major gave him a happy, balanced and solemn nature, his seventh major revealed a dark and sinister core in his personality. It was Dr. Jekyll and Mr. Hyde in medieval ways. At the same time angel and devil, heavenly music and hellish dissonance. And it is on this conflictive inner world of the Ionian personality on which the new tonal system was built. What began as a yearning to compose a music of the spheres through the ancient medieval modes of monophonic singing, marked by the nostalgia for lost paradises, ended up transforming into the need to elaborate a music of passions and internal conflicts to through the new Ionian language of the shades. And that was possible thanks to the rehabilitation of the most demonized and stigmatized interval of the ancient modal system: the

tritone. If the key is the natural daughter of the devil, it is precisely because it is based on the seventh major of the Ionian mode, its most "sensitive" note and capable of generating the most dissonant harmony, with a tritone included. The Dominant Seventh chord is perhaps the harmonic pattern that best reflects this bipolar personality that characterizes the tonal system (and that definitely distinguishes it from both the modal and atonal personality, much more monopolar): a diminished triad (tensor center) that arises from a fifth tonal degree (consonant center) as root: a bipolar chord capable of expressing both tritonal stresses and consonances tonic.

The perfect fifth and fourth intervals and the major and minor third intervals are the most consonant, while the seventh, second, and diminished and increased intervals are the most dissonant intervals. From the harmonic point of view, the sensible triad, with its two minor thirds (1-b3-b5), is the most dissonant chord: a diminished triad, which forms a tritone interval between its tonic and its diminished fifth. The special dissonant characteristics of the seventh degree of the Ionian scale (called "leading-tone"), a major seventh located eleven semitones of the tonic (that is, one semitone of the octave), and which in turn is the tonic of the Locrian Mode (B), was revealed to be especially significant and relevant within the new tonal system. If in the old mode system, the intervals of tritone (diminished fifth or augmented fourth) and major seventh (leading) were little used, even demonized and stigmatized by their especially dissonant nature (the first altered or chromatic note used was precisely the Bb to avoid the tritone), in the new tone system they became an indisputable role. So much so that it could be said that they became the distinctive feature of the new tonal aesthetic.

And so we come to what might be considered the fundamental nucleus of the discrepancy that separates the old modal taste from the new tonal taste: the place of dissonant loudness. The greater or lesser relevance that is given to the conflict and the sonorous tensions. What did not go beyond being,

within a modal conception of sound existence, a simple musical error to avoid, based on an obvious aesthetic bad taste, became a source of conflicts and musical paradoxes to explore for the new tonal sensitivity. It was this subjective appreciation of the musical significance given to the tensioning geometry that a given interval scale was capable of generating that made the Ionian Mode the essential tonal mode, and the seventh degree of its scale (and its ability to generate dissonant harmonies and internal tensions), in the great tonal tensioner that, paradoxically, accentuated and enhanced the relaxing pleasure of the tonic. The reign of the consonant center of the tonic in the tonal system owes much of its power to its own shadow: the tensor center of the dominant. This deep inner contradiction will be the characteristic note of the new set of tones elevated to a musical paradigm.

(Short intermission.

In music theory there are certain misunderstandings that have been repeated by word of mouth, probably for generations and that should be clarified, because they do not make much sense.

The first is that there is no such thing as resting notes or unbalanced notes. All the existing notes in our musical paradigm are precisely sound waves chosen for their internal order of harmonics, autonomy and stability. It is not true, for example, that B note, being located half tone from the note C, is an unstable note that wants to go to C. The note B is a sound wave as stable and balanced as any other in the octave. The note F it does not want to go anywhere, nor does the note Fa want to go to E, or vice versa. It does not matter if they are located at a semitone interval, because that is irrelevant to determine their sound stability, from the physical-acoustic point of view.

But perhaps the biggest misunderstanding is to consider that any chord built on the fifth degree of a major key always exerts a dominant function. The misunderstanding stems from the fact that, by calling the fifth degree dominant, we can falsely believe that everything in which this fifth degree is

involved exercises a harmonic function of dominant. And that is not like that. For example, a diatonic triad built on the fifth degree of a major key is a major triad. And a major triad is always a consonant interval (it is built on whatever degree it is, because that is irrelevant) and therefore it will hardly be able to exercise any dominant function, which by definition is a form of harmonic tension. A triad over the fifth degree is as consonant and generates as little tension as a triad over the first degree. Going from one to the other is like going from a major triad to another major triad: it does not resolve any tension because there was no previously generated tension. It is one thing for the movement generated by the passage from a triad on the fifth degree to a triad on the first degree to be a sonically interesting movement and to be repeated over and over again. It is quite another to try to justify and erroneously explain the resolution of a tension that has never existed, because it goes from one major triad to another. The only triad with a truly dominant function is a diminished or augmented triad. In the major scales, the triad that is generated on the seventh degree (not the fifth) of the tonality (b-d-f) because it includes the diminished fifth tritone. The fifth degree does begin to act as a dominant when a diatonic chord (in the major key) of Seventh is built on it, because that chord does generate tension, through the tritone that includes: Dominant Seventh chord.

And last but not least, to point out (and this will surely be somewhat controversial, if it does not enter fully into musical profanity), that tonal harmony is overrated. Not only does it pretend to be the only and authentic form of harmony, occupying the absolute throne of the vertical axis of sonorities and relegating modal harmony to a mere melodism that runs on the horizontal axis of time, but it does not even consider it as a form from harmony to modal polyphony or counterpoint. And it is probably the opposite: if there is a golden age of musical harmony, a period where the

undisputed queen of musical discourse was harmony, it was undoubtedly Renaissance polyphony. The end of the reign of harmony as the absolutist monarch of musical discourse began precisely with the musical transformation of the modal into tonal system. It meant the beginning of a new musical paradigm that would end up relegating the role of harmony to a background soundscape on which one of the voices of the old equidistant counterpoint stood out in the foreground, becoming the queen of the new sound texture that was primary in the tonal system: the harmonized melody. But this contrasts with the strenuous proliferation of treatises on harmony and the scant theoretical attention paid to melody, the true star of the new tonal system. It is the fall of harmony and the rise of what we could call melorhythmia (a voice that rhythmically stands out for its special dynamism against a background of harmonic voices) that will characterize the new tonal system. Almost no one is able to recognize a known piece of music by listening only to its harmony, while almost everyone will do so by listening to its melorhythmic pattern. It is this that gives it its uniqueness and not its harmonic patterns. That is why any piece of polyphony or modal counterpoint is intangible, it does not have a clear and singular melodic line. Contradicting everything that is usually said, in reality they are pure harmony) The play of tones is revealed as well as the great musical play of tensions and sonorous strains. Because the singularity of the tonal language lies precisely in the fact that it gives equal prominence to the matrix generating sonorous dissonances and to the matrix generating consonances. Unlike what happened in the old modal system, which favored consonant sonorities (since, although it admitted a certain degree of dissonances, it resolved them quickly), or what will happen in later postonal systems, where the leading role of dissonances will prevail over the tunes. And this is expressed, on a harmonic level, in the fact that the main engine of tonal creativity is the eternal conflict between the dominant and the tonic area. Because, although it could be understood that the stellar progression within this harmonic system (the perfect final cadence V-I) is nothing but

the representation of the triumph of the tonic consonance against the dominant dissonance in the form of a harmonic happy ending (the tension generated by the dominant seventh chord resolved in the final rest that provides the tonic chord with which the work closes), it is undeniable that this happy ending is only achieved after causing internal tensions in the sound mass, and that it could not have been reached it without the collaboration of the great tritonal tensor (the "diabolic" diminished fifth Iochian tetrachord), since precisely this conflict between irreconcilable antagonists, which in turn are needed and complement each other, is the main harmonic leitmotiv of the entire itinerary of the tonal story.

Humanity loves happy endings. He invented the religions to transform death into the happy ending of a heavenly existence reached only after having overcome not a few earthly dissonances. A happy end fruit of strong previous tensions can be seen in the joy expressed by a scientist when finding the mathematical solution of a physical hypothesis, the creator who is finally able to express artistically a deep inner conflict, the reader or spectator who in the end understands the outcome of a complex intrigue or assists in the happy end of a complicated love story in the form of a wedding or final reconciliation, or the triumph of good over evil in any action or adventure story, after innumerable conflicts and extreme situations. Or simply when we finally solve a crossword puzzle or any other problem, theoretical or real, that has caused us severe headaches. The mechanism that underlies all of them is always the same: a deep relaxation or final consonance resulting from the resolution of an intense conflict or previous dissonance. Precisely the same set of tensions and relaxations that characterizes the tonal system.

But there is a set of tensions and strains that has a very special relevance for humanity (in fact, for almost all forms of life), both due to the intensity of the emotions and fascinations it causes, and the fact that without their existence we would not exist either: the happy end of sexual desire. If we call desire the dominant area that generates strong sexual tensions, its tone can be none other than orgasm: the final resolution of all

states of previous tensions and arousals. The musical tritone has its equivalent in the libidinal tritone: an interval of unresolved sexual tensions. The "diabolus" made flesh in search of a happy end to his tonal desire: the perfect cadence of erotic harmony. Because at bottom, the fundamental harmonic progression of the tonal language does not stop tracing the physiological progression of tensions and relaxations of sexual harmony, leading to a sonic orgasm. A musical game of attractions and harmonic dissonances, not far from falling into the temptation that threatens every model based on an intense tense excitement: premature ejaculation. Being the I-V-I progression the key storyline of tonal harmony, it is also its most synthetic and earliest form. Starting from a state of rest, quickly reach maximum dominant tension and immediately resolve to the tonal happy ending. A harmonic itinerary as fascinating as it is ephemeral. In the classical period of tonality, governed by values of formal equilibrium and contained emotions, the need to quickly resolve the tensions created by dissonant chords by balancing consonant resolutions, became a leitmotiv of his harmonic discourse. But this urgency of the early resolution of the dissonant tension would be progressively postponed and entering a world harmonic of darker and wandering desires, thus dilating the sonic excitement to provoke climax more consonants intense.

There have been multiple and varied strategies invented by tonal harmony to delay this irresistible attraction between complementary antagonists over time to avoid falling into premature harmonic ejaculation. The first has been to insert subdominant chords into the harmonic progression, capable of initiating a preliminary game of semi-tensions and semi-relaxations that enrich the game of sound excitations and at the same time postpone the resolution of tonal desire. Other no less important strategies have been the inversion of the fundamental state of the chords; the expansion of chains of harmonic progressions; the introduction of tritonal substitutes (replacing a dominant seventh chord with one located at an interval of three descending pitches); incomplete chords and compound chords with ninth, eleventh, or thirteen; and the creation of secondary dominants by moving imaginatively through

the circle of fifths in order to expand the game of tensions and relaxations of dominant, subdominant and tonic beyond the main scale.

One of the most characteristic recursors of tonal harmony is modulation (although it would be more appropriate to call it "tonulation"). We could define the modulation mechanism as a kind of poetic license that allows us to transgress, albeit sporadically and briefly, the limits of tonal monotheism (a single consonant center). The choice of a certain key base for the elaboration of a musical discourse has its undeniable advantages (it provides an indisputable interior order and coherence) but also obvious limitations; fall into the triviality of the familiar and predictable. In order not to exhaust the capacity for surprise and novelty, the possibility of modulating allows the musical discourse to be enriched by moving, generally not permanently, to other keys in order to introduce notes and non-diatonic chords. But also with the aim of enriching and expanding the harmonious play of tensions and strains on the main scale. Modular means entering into foreign shades, creating harmonic structures that momentarily break the rigidity of strict monotonalism. And at the same time they allow to create a preliminary game of tension and chromatic relaxation more complex, to create a tensioning geometry capable of increasing the intensity of the tonal happy end. But modular can also mean something more profound and radical: not only changing the tonal scale, but abandoning, even momentarily, the new language of tones to recover the old language of modes. Return to the scale of D his Dorian personality (a minor mode, but with a major sixth), to E his Phrygian personality (a minor mode -third, sixth and seventh minor- but with a minor scond), to F his Lydian personality (a major mode third, sixth and seventh major - but with augmented fourth), to G his Mixolidian personality (a major mode, but with a minor seventh) and B his Locrian personality (a minor mode, with a minor second like the Phrygian mode, but also with a diminished fifth). In reality, the old modes never completely disappeared. The new tonal language continued to use them, in a limited and momentary way, to enrich their musical discourse and to use them as dilators

and measurers of the strong tensions and strains that it was capable of generate.

Probably this complex game of harmonic tensions and strains (his ability to draw intense tensioning geometries), is the great secret of the fascination of tonal language. It is not strange that its origin is located precisely in the historical period of the Baroque, whose aesthetic culture is based on excess and bipolar emotions, and that reaches its zenith maximum, after a classicist interval, during Romanticism and its taste for pathos and emotional excess. The Ionian Mode's span structure revealed itself as the ideal model for expressing extreme inner conflicts. The tritone, a diabolic and antimusical element for modal aesthetics, became the master key of the great sensitive tensor (B-D-F), to which a major third was added in the bass (G), actually a degree tonal that lowered its dissonance a bit and merged it with the tonic chord (of which it is also part: C-E-G) to create the great Dominante Seventh chord (V7: G-B-D-F), one of the key axes of the harmony of the new tonal system (along with its eternal complementary antagonist IMaj7: C-E-G-B), based on the old Ionian Mode, which now lost its original name and was renamed the C major scale.

But not only harmony lives the tonality. Due to its tendency to produce sound textures in the form of an accompanied melody, the function of harmony within the tonal system should occupy a rather secondary place, as a mere harmonic accompaniment of voices from the main voice, which is in charge of generating both the melody as the fundamental rhythm of the work. It is easy to recognize a piece of music by listening only to its melody, or even its rhythm, but extremely difficult if only its harmonic structure is heard. In reality, harmony works as a background soundscape on which both a melody and a rhythm that stand out in the foreground are developed. And yet, this contrasts with the evident fact that the vast majority of treatises, manuals and theoretical reflections on tonal language, precisely revolve around its harmony.

CHORD

Perhaps because of its specificity, and the need to establish its differences with respect to modal harmony. The tonal system is a complex three-dimensional sound space formed by the intersection of three basic elements: the melodic texture, the rhythmic texture and the harmonic texture. To which the timbral texture could also be added. If it is not accompanied by a joint movement of the other dimensions, the peculiar geometry of harmonic tensions and strains that is capable of generating the interval skeleton of the ancient Ionian Mode is diluted into nothing. Its impact when modeling the sound mass is blurred. It needs that both the melody and the rhythm generate their own geometries of tensions and distensions in tune with the harmonic geometry, so that all the sound mass that is heard reaches to express the peculiar sonic climax that characterizes the Ionian bipolar personality.

The old modal language, so apt to elaborate a music of the spheres (capable of expressing the beauty of paradisiacal emotions), gave way to the new tonal language, especially suitable for creating a music of whirlwinds (capable of expressing the sublime of the extreme passions)

If there is a sound pattern that has been elevated to the mythical category of paradigmatic turn that represents both the death of an entire musical system (the tonal system) and the prophecy of the birth, from its corpse, of a new sound regime (actually multiple postonal systems), this is undoubtedly the so-called "Tristan Chord" The first chord (F-B-D#-G#) that appears in the second bar (after a short melodic introduction: A-F-E) from the musical drama Tristan und Isolde by Richard Wagner, would possess the peculiar characteristic of being both an end and a beginning. From his death and transfiguration contemporary sonic sensitivity would have been born.

The reality of the chord is incontestable. It is a 15-semitone tetrad chord (four notes) with ninth extension and whose intervals, from the bass, would be aaugmented fourth, augmented sixth and augmented ninth. The predominance of augmented intervals (which includes an augmented fourth tritone, the diabolus in musica) gives it a tense and dissonant loudness. But what has really triggered the interpretive imagination has not been the materiality of his presence but the fiction of his genealogy. Is it an atonal chord or can it be traced as a modification of some more standard tonal chord of which would be an acceptable alteration? The genealogical histories proposed have been

multiple and diverse: from considering it an altered chord of augmented sixth to French, establishing sol # as a backing of the actual note of the chord (A), to considering it a semi-diminished chord on grade II of the key of The natural minor with some modifications. An effort as ingenious as inconclusive. Not only due to its inevitably speculative nature, but above all to the fact that, in reality, all tonal paths lead to Rome. Any chord, strange and unusual as it may be, can be considered a transformation of some other more frequent chord in tonal practice. Because almost from the beginning, the tonal system has had a mechanism capable of rendering almost any exception acceptable: modulation. Modulation is a poetic license that the tonal system has given itself in order to break its own rules. Modulation allows you to cross the limits of the chosen key and move to other scales and tonal centers, as well as transgress the diatonic limits and make a chromatic tour of all the possible notes and chords of the octave. Even, in a display of chameleonic plasticity, suspend all the tonal laws in force and embark on an exotic modal journey through the scales. As long as it is understood as a conscious act of artistic freedom and does not become law. Does the tonal system contain the germ of its own self-destruction? Perhaps this is the troubling question posed (beyond its possible tonal genealogy) by the riddle of the Tristan Chord. And by extension, all the complex sound texture wagnerian.

The fact that a chord is dissonant does not necessarily imply that it is atonal. Furthermore, dissonance is at the center of the axis of tonal life. The history of western music, from its remote origins in Pythagorean reflections and its subsequent reconversion in the system of medieval modes (based on a strict consonant discipline), is the chronicle of the progressive

inclusion of dissonance as a musical matrix. First, the acceptance of imperfect consonances (third and sixth intervals) as fully-fledged elements of the musical system. And finally, the inclusion in the official musical language of the dissonant diatonic intervals: second minor, seventh. In fact, if one thing precipitated the transformation of the old modal system into the new tonal system, it was precisely the musical transcendence that the sensible seventh of the Ionian Mode began to have, which together with its fourth joust was capable of generating a diminished interval with tritone . Major seventh of the Ionian Mode, which in turn would be the tonic of a hypothetical Locrian Mode, an impossible sound scale and taboo in the modal system due to its special dissonance. From the multiple personalities that the modal system possessed, there was a transition to a tonal system with a major and minor double personality (based on the Ionian and Aeolian modes), which provided a diurnal and solar nuance (the major mode) and a nocturnal nuance, sad, mysterious and enigmatic (minor mode). Depending on your third interval, the mode is greater (four semitones) or less (three semitones). But, in addition to its minor third, the natural minor mode had a minor sixth and seventh, contrasting with the major sixth and seventh of the natural major mode. And the latter began to be a problem. Because the minor mode was unable to generate the tension geometry necessary to perform the characteristic harmonic gesture (V7-IMaj7) that began to be the hallmark of the hue. For which it was essential to have the dissonant diminished fifth tritone, to which a minor third was added in the bass to obtain the dominant seventh (G-B-D-F) in the most natural way. The solution was to alter the minor

seventh to make it a major, which also led to the modification of the sixth. Thus the minor mode of the new tonal system ended up becoming a hybrid mode, with a first minor scale tetrachord (minor third) and a second major scale tetrachord (sixth and seventh major of the melodic minor scale). Which shows the central importance of harmonic dissonance in the tonal system. For this reason, the tonal system could hardly feel threatened by the invasion of a harmonic sound such as that generated by the Tristan Chord (F-B-D#-G#), which could well be interpreted as a semi-diminished chord (F-G#-B-D#), minor third + minor third + major third (characteristic interval scheme of the minor seventh chord of the VII degree of the natural major scale or the II degree of the natural minor scale), to which a small modification has been made (move the third up an octave to make it the upper voice) -A diminished triad + major third chord, which is nothing but the specular reflection of the dominant seventh chord (major third + diminished triad), the central chord of the tonal system. It is paradoxical that it is proposed as a sound paradigm of the last breath of the tonal system and the first sigh of the new musical airs that will replace it, precisely a harmonic sound that is nothing more than a small variant of the musical breath that generated it: the great tensioner tritonal.

Gesamtkunstwerk (the total work of art) and Unendlichte Melodie (the infinite melody) are the two main leitmotifs of Wagner's aesthetic thought. Totality, infinity and eternity are the basic chords of a desire without limits. The Wagnerian aesthetic would fit within that metaphysics of desire so characteristic of the romantic weltanschauung. The operatic genre brought

together in itself all the other artistic genres (poetry, storytelling, music, singing and theater: it was at the same time verbal, visual and sound) but without having yet managed to integrate them into a real unit. It was necessary to transform a genre that was rather a sound pretext for vocal brilliance into an authentic musical drama (in the image and likeness of the great public ceremonies of the ancient Attic tragedy), where music and song, arias and recitatives, myths and wishes , they will merge perfectly into a total sound continuum.

Although many may consider them excessive and even endless, fortunately Wagnerian sound tragedies are neither total nor infinite. Next to the nearly fifteen billion years that our universe lasts, what are the barely fifteen hours of tetralogy that the Wagnerian universes survive before entering apocalypse and self-destructing? Although infinite melody is a central ideal of Wagnerian musical ideology, its sonic incarnation is somewhat contradictory. His metamorphic ideal of a sound loop without beginning or end, rather than in his own work, seems to materialize much better in sound textures such as that of the modal harmony of contrapuntal polyphony, that of the uninterrupted play of semi-tensions and semi-relaxations of Debussy's music or the endless dodecaphonic series. Because they are sound textures that in reality do not lead to any specific place and for that reason they could last forever. Quite the opposite of Wagnerian harmonic geometry, which from the first moment is clear where it is going: towards the final sound climax. The orchestral tension introduced by the Tristan Chord, after four hours of multiple

modulations and constant changes in key, where the lovers' unfulfilled desire is reflected in a labyrinthine harmony of broken cadences, unfinished chord progressions, unfulfilled lyrical promises and expectations. disappointed harmonicas, it ends up finally resolving into a great distension sound ecstasy with a tonic function: the liebestod. Without the intense and extensive tensioning geometry that inaugurates the harmonious lament of the Tristan Chord, it would be impossible to reach the musical climax of Isolda's definitive swan song. Because Wagnerian sopranos die like swans, singing. Or better, they sing like swans, dying.

Definitely, Tristan und Isolde is not only a musical drama about love desire, but also about tonal desire.

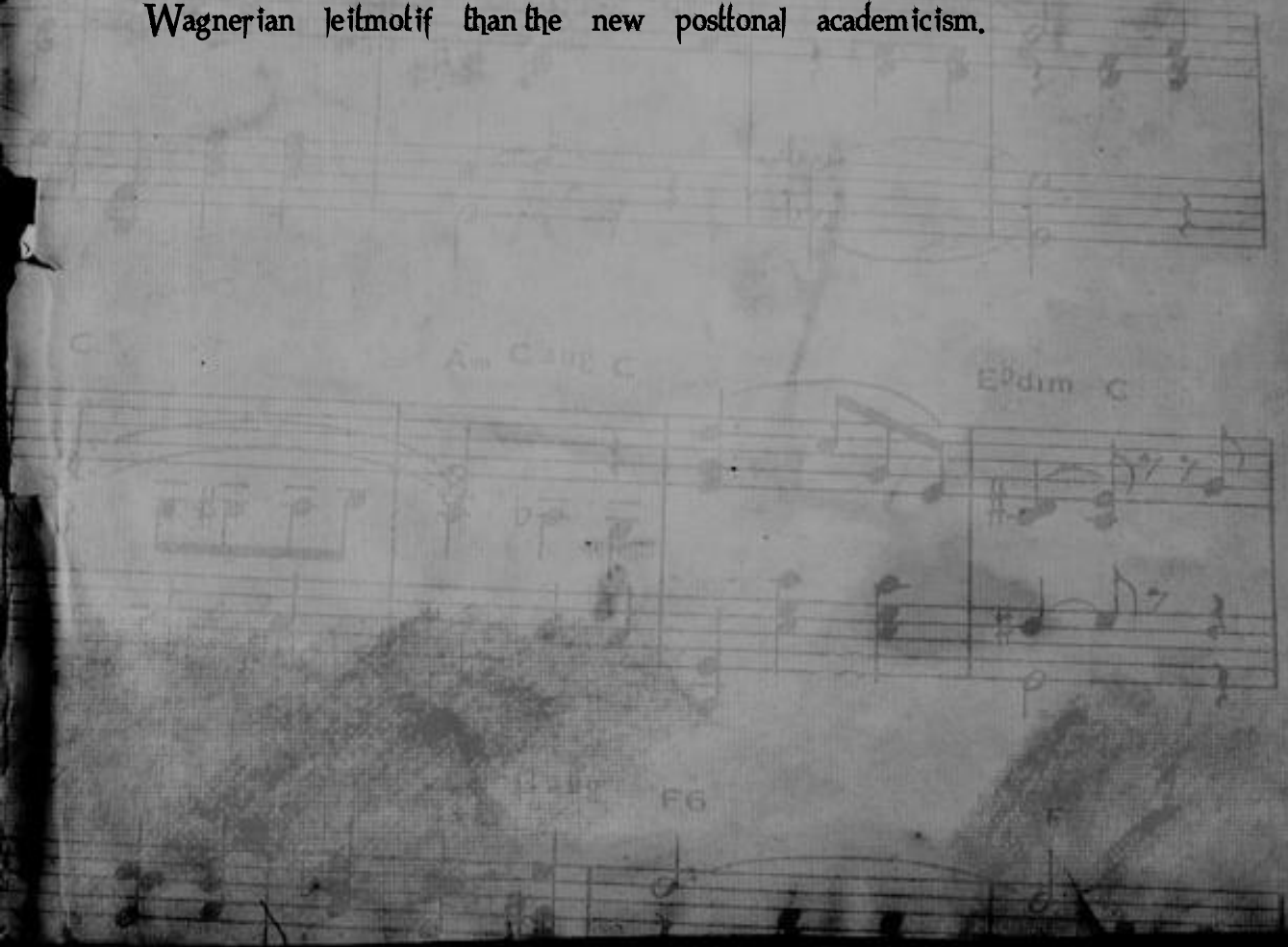
What amount of chromatic dispersions, modal heresies, harmonic tensions in its texture is capable of supporting the tonal geometry before finally breaking down and giving way to new musical geometries? Both the chromatic variations and the modal exchanges or the tonal fugues (the famous circle of fifths is still a kind of wormhole through which to escape the force of gravity of the single tonal center and flee to other scales) are compositional resources fully accepted within the tonal system. But doesn't Wagner take them, in their megalomania and harmonic excess, to an extreme limit, to a point of no return from which the whole musical building of the key begins to crack? Lost in a labyrinthine sonorous ocean of wandering chromaticisms and tonal shipwrecks, have we not already surpassed the limits of diatonism and the tonal center as the backbone of musical language? In reality, strict diatonism and the single tonal center have never been non-

negotiable principles or dogmas of faith for the tonal system. He has always claimed artistic freedom and poetic license to be able to transgress his own limits without self-destruction. Neither chromatism, nor modulation, nor exchanges of tonal pairs have been taboo acts for tonal desire. As long as they did not become commandments of a new sacred tablet of musical law. Because the hard core of his sound personality was not the absolutist reign of the tonic, as is often believed, but the open dialogue with his own shadow. It was precisely the particular sound geometry resulting from a musical dialogue between the tonic consonance and the dominant dissonance, in a game of tensions and distensions between equals, between the complementary opposites of yin and yang of sound vibrations, between the consonance of harmonics. and his dissonant shadow, which really characterized the tonal system. The peculiarity of Wagnerian harmony is to take this game of tunes and dissonances to an extreme limit never before reached. Tension and dilate to the maximum the resolution of the generated tensions (through an endless set of modulations that disperse the tonal center, errant harmonies, deceptive and half cadences that are ambiguous and scarcely conclusive), so that they reach cosmic proportions. No wonder Wagnerian harmony has been compared to the erotic of sexual orgasm. Because basically the physiological mechanism is the same: to expand the tensing excitement of desire to the limit until reaching a sublime final climax. And this is achieved by Wagner through an incessant game of chromaticism and modal exchanges capable of creating a

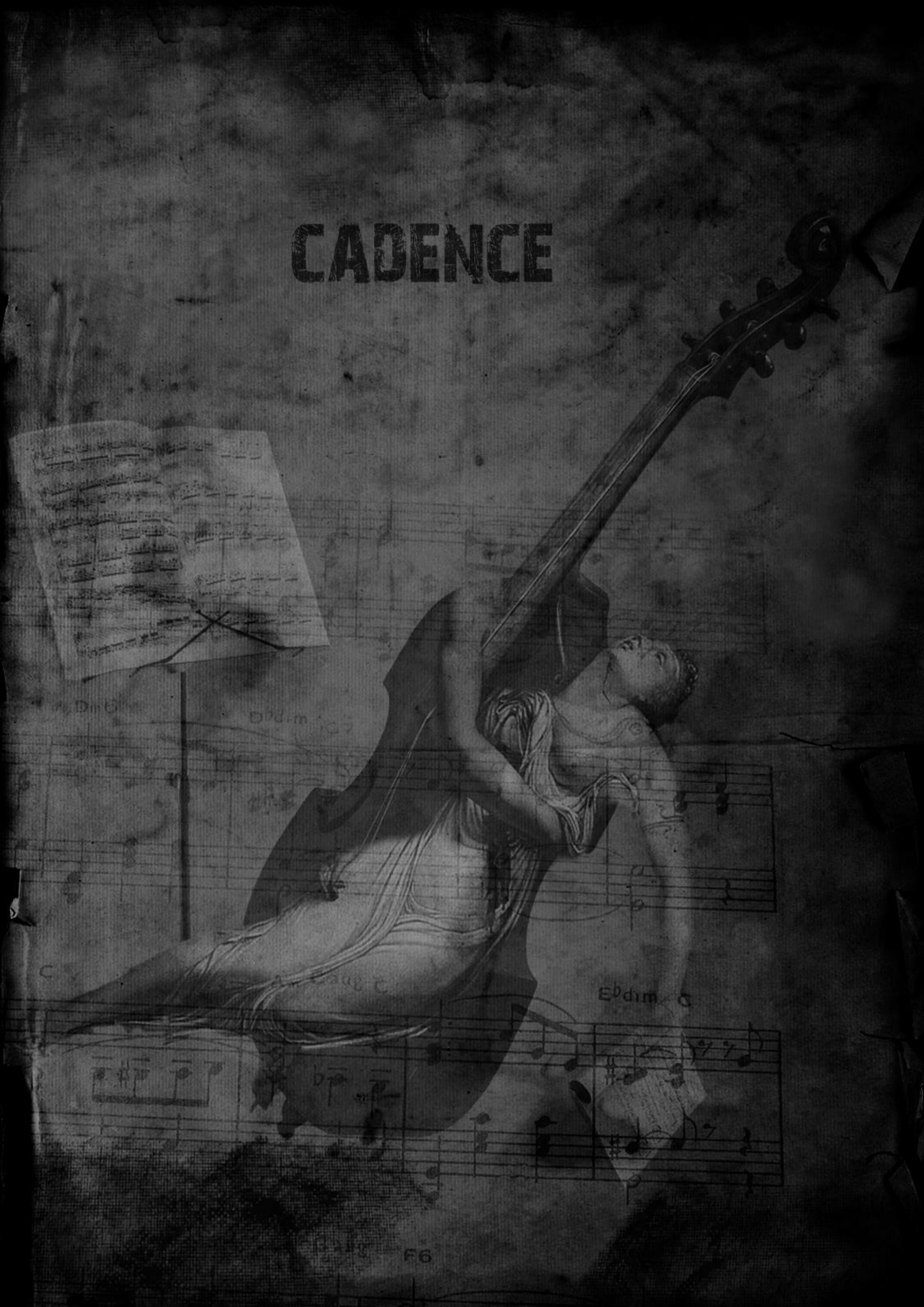
sound geometry that dilates and defrauds the great temptation of any system based on generating strong excitements: premature ejaculation (the urge to quickly resolve the strong generated voltages). It is the art of lingering on the wait, of simmering in your own inner tensions. Thus, although the leitmotifs of the Wagnerian aesthetic ideal may be the longing for totality, eternity and infinity of metaphysical desire, the physical reality of his music denies and contradicts them, becoming a celebration of the ephemeral, of what has a beginning and an end. Because in the absolute time of eternity, totality and infinity, there is nothing left but silence.

Or the trivial repetition of the paradisiacal: a happiness without lights or shadows, a perfect harmony with oneself, devoid of inner tensions or impossible desires. The Schopenhauerian ataraxia of eternal return may be the theoretical guide to his musical metaphysics, but his harmonic practice is much more like the Heraclitian fluidity of the unique and unrepeatable. Without the peculiar idiosyncrasy of tonal desire, Wagner's work would definitely have been impossible. Because what characterizes the tonal system is not so much the diatonic pattern (the so-called tonal center, which would organize the entire musical discourse around the note that occupies the tonic position of a scale or tonality) as the tensor-distensor pattern. The use of the diatonic pattern has been very common and effective in generating tonal effects, but it is not the only one nor is it essential. If Wagner demonstrated one thing, it is the existence of a tonal chromaticism: the tonality went beyond

diatonism and the use of scales. A chromatic shift through the octave could be carried out without having to go out or dynamite the tonal system (in fact that had always been done with the use, more or less limited, of resources such as tonal loan, augmented sixths, secondary dominants or modulation: expanding the initial diatonism of a composition towards a chromatic use of the octave) The fact that Wagner takes this chromatic impulse of tonal diatonism to the extreme does not necessarily imply that he dynamites its foundations. The musical inheritors of Wagner's tonal chromaticism will actually be neither Schoenberg nor the serial or atonal chromaticists (the chromatic shift by the octave that postonal musicians do will be of a very different nature) but the modern soundtrack composers. The tonal chromaticism of the filmscore is much more in tune with the Wagnerian leitmotif than the new posttonal academicism.



CADENCE



With its chromatic ambiguity and modular elasticity, had Wagner deformed tonal geometry to an extreme limit that was impossible to redirect? At the beginning of the 20th century, some composers considered that, after three intensive centuries of common practice, the tonal system had been completely exhausted. The sound itineraries of the old tone game, which were once novel and surprising, had become trivial and repetitive. It had been transformed into a claustrophobic sound space, which hindered rather than facilitated musical creativity. It was time to finally crack it and start exploring new sound geometries. A first phase of posttonal anarchy followed the demolition of the musical building of the key. Freed from the corset of tonal grammar, the composers gave themselves up to the atonal freedom to experiment without limits with sound intervals and musical syntax. Although the "freedom" of atonalism could not be complete. It was a reactive response, a phobic reaction to a musical practice that it was essential to avoid at all costs: the common practice of the key that for three centuries had been the driving center of Western musical language. Atonal freedom was a guarded

freedom, which had made tonal desire taboo. A freedom that required a state of permanent vigilance so as not to fall into the temptation of that dark tonal object of desire. Any form of atonal anarchy, of irrational sonorous chaos, of sonorous insignificance, was preferable to being seduced again by the siren songs of tonal harmony.

Dodecaphonism was the first attempt (or the most successful) to put a little order in all this posttonal chaos that led to sound irrelevance. It would not be so much a matter of replacing the old tonal system with an atonal anarchy, but of designing an alternative musical system, with its own language and its own grammatical rules. The establishment of a new compositional method that would establish the ground of a certain common practice to avoid the inconveniences of extreme subjectivism. Taking as its axis the chromatic scale, not the diatonic, dodecaphonism could be considered the equivalent of the Declaration of the Rights of the Citizen of the new sound regime: all semitones are equal before the musical law. The musical revolution will consist of the substitution of the old Monarchy of Tones for the new Republic of Semitones. Previous decapitation of the ancient feudal monarch (the tonic) and the destruction of his iron throne (the tonal center) While in the old aristocratic system of tones, the halftones (except diatonics) did not even have their own name (they were considered mere tone alterations, these yes with lineage and own lineage), in the new twelve-tone democracy will come to be considered as full citizens. The musical subject of the new chromatic republic will not be the tone intervals of the diatonic hierarchy, but the semitone intervals of a more

democratic and egalitarian octave in its internal organization. And this will translate into the elaboration of a new musical constitution based on an alternative conception of intervalic relations: the twelve-tone series. The twelve-tone series would come to replace one of the main beams of the dismissed tonal language (actually also of the modal language, and of practically most existing musical systems in the world): the harmonic series.

White noise is an undifferentiated sound mass that contains all the frequencies of the auditory spectrum with the same intensity. At the opposite extreme would be the simple sound, which is composed of a single frequency that remains stable throughout its duration. While the latter is characterized by being orderly, predictable and periodic, noise is characterized by randomness, disorder and unpredictability. To tell the truth, these are two ideal sound models, more typical of a sound laboratory than of reality. Most real sounds are neither completely random nor completely deterministic. They have complex vibrations that can decant them to one side or the other, without reaching the extreme perfection of white noise or single-frequency sound. But simple sound, although it is not usually presented autonomously, can be found as part of more complex sound waves. Sounds considered musical, for example, are sound waves made up of various simple waves. Simple waves are characterized in that the air pressure oscillates in them following a sinusoid function in time. The set of sine waves of a musical sound or note is called harmonics. It is an ordered set of harmonics that are multiples of a root sine wave, which is the lowest frequency simple wave (the lowest), which is also the one with the highest amplitude (the one that is heard

loudest) The harmonic series is the set of simple waves that are multiples of the lowest sine wave, which is the greatest common divisor of all of them. The simultaneous vibration of this entire harmonic series has enough synchronicity, stability and periodicity to establish a defined and clearly perceptible frequency or pitch, determined by its lowest single wave, which is what will give the musical note its name. And it is precisely this ability to synchronize harmonics to create a coordinated vibratory periodicity that repeats itself every so often, and therefore is easily noticeable, which gives it its nature of musical sound and differentiates it from noise, which does not have synchronous periodicity. enough that the set of all its sine waves maintain a frequency or pitch determined.

What does this peculiar "inner harmony" consist of the partials of those compound sound waves that are sounds traditionally considered musical? To put it clearly and without euphemisms: its harmonics maintain intimate relationships of an logarithmic nature. The intervals between their respective frequencies do not express arithmetic values, but numerical ratios (quotients) Because for our perceptual senses to capture an arithmetic variation, according to the Weber-Fechner law, a geometric increase in the stimulus that causes it is needed. Frequency and amplitude differences are perceived by our auditory system logarithmically, not arithmetically. Musical intervals express the quotient (the numerical ratio) that is established between two frequencies (two notes, two sine waves) not their arithmetic difference. So the interval relations between the harmonics of a musical sound (or between the notes of a

musical scale) are represented by fractions (2/1, 3/2, 4/3 ...): the fundamental thing is not the arithmetic difference between two notes or two harmonics, but its quotient. A musical interval expresses a numerical ratio, a quotient, not an arithmetic distance.

The harmonic series of musical sounds (the peculiar idiosyncrasy of the harmonic mixture of its "internal vibrations") is the physical foundation of most musical systems. Apart from a certain own and non-transferable cultural component, the different musical languages have generally been developed based on previous conditioning factors derived from the physical nature of sound and our auditory reception systems. The abstract language of music has its roots in the subsoil of a material, physical base: the acoustics of sound. An acoustic subtract that lays the material foundations and the sound laws of one of the essential components of most of the musical languages invented by humanity: the consonance. When an amalgam so perfect that they almost merge into one unit occurs between the sound vibrations of two or more sounds, they are said to be in harmony. Its sound waves are not so close as to interfere (the dissonant shaking that occurs in the cochlea when a wave invades its neighbor's "intimate space": the shaking of the cochlea is much more bitter and indigestible than that of strawberry or chocolate), but if enough to coordinate: their frequencies are closely measurable. They are consonant sounds because the vibrations of their waves coincide periodically every few cycles, which makes the pattern of repetition of the coincidences simple enough for our perceptual system to be able to follow them. The consonance between simple sounds is due to the recognition of a

periodicity in the resulting vibration; the dissonance is due to a lack of periodicity (randomness) or to a complex and time-consuming periodicity that make it difficult to perceive the coincidences between the sounds.

The harmonic series is a succession of simple sounds (sine waves) whose frequencies are integer and successive multiples of a base frequency (root or first harmonic), which is what determines the musical note. Among the first harmonics are the consonances that structure our entire musical system: the octave (2/1), between the first and second harmonic, the fifth (3/2) between the second and third harmonic, the fourth (between the third and fourth harmonic (4/3), the third major (5/4) between the fourth and fifth harmonic, the minor third (6/5) between the fifth and sixth harmonic. In addition, the intervals between the fourth, fifth and Sixth constitute a perfect major chord (triad of tonic on the natural major scale) Basically, the simplest of the notes of a musical scale is itself a chord, in the sense that it is the result of various sounds more elementals that sound at the same time. What we call a musical chord is actually a chord chord. The raw material (the musical note) with which the complex sound texture of a work is elaborated, far from being a prime and simple element, it is already in itself a true chorus of inner voices that cohabit in harmony.

And not only the first subject with which music is made is somewhat peculiar. So is the playing field where it manifests itself, a sound perimeter that seems to express a universal constant that occurs in all known musical cultures: the octave. It could be stated with the same roundness that all

octaves are identical. And that, however, no two octaves are the same. Rounding off by freehand, Octave 0 would cover from 15 to 30 Hz, Octave 1 from 30 to 60, Octave 2 from 60 to 120, Octave 3 from 125 to 250, Octave 4 from 250 to 500, Octave 5 from 500 to 1000, Octave 6 from 1000 to 2000, Octave 7 from 2000 to 4000, Octave 8 from 4000 to 8000 and Octave 9 from 8000 to 16000 Hz, with which we would have practically reached the upper end of the audible sound spectrum. We could say that, from the big bang of the genesis of the lowest audible sound, the musical playing field is an expanding octave universe. In controlled geometric expansion, where each octave is double the previous one. Musical spacetime is a geometry of elastic octaves that are both identical and uneven. From the arithmetic point of view of expression they are clearly different, but from the logarithmic point of view of perception they are identical. The lower octaves are like mini-flats where the notes have to squeeze in the few square hertz of the house, with which the minimum displacement already supposes invading the intimate space of another; while the octaves of higher frequencies are like huge estates where the same notes live thousands of hertz away, so it is necessary to travel long distances to pass from one to the other. We could say that, in front of the logarithmic mirror of the inner ear (or cochlea), an octave of the size S (0, 1) and one eighth of size XXXXL (8, 9) look like two drops of water. Because in order to capture an arithmetic variation at the highest frequencies (going from one sound wave to another), a proportional geometric

increase in the stimulus that causes it is necessary. It is the mystery of the most holy musical trinity: ten different octaves, but a single octave true. And this peculiar sound phenomenon of the double identity of sound waves (or, in other words, the astonishing finding that each one has a twin or several almost univitellines) is physically explained by the fact that, if we abstract from the disparity of their frequencies, each sound wave shares its harmonic dna with another located twice or half distance. And this seems to be a universal constant in the global village of musical stair builders, who across the globe have agreed to design a playing field for musical practice of the approximate dimensions of the perimeter of an octave. What differentiates them are the size and interior distribution of the different steps that make up the perimeter of the eighth. In the specific case of the Pythagorean tuning of the steps of the scale it was found that there was a small irregularity in its design that could cause the odd musical setback. It was as if a ten-dollar bill was not exactly the same value as ten dollar coins. The box of hertz had to be squared because it was found that there was a small gap of small change that was called the Pythagorean comma. It was considered that it made your musical life a little more bearable to achieve that when making a great jump of seven eighths you hit your bones at the exact same point as after doing twelve small fifth jumps without getting dizzy. The resulting solution was the eighth photoshopped we used, also known as a tempered scale, where a simple walk through fifths does not immerse you in a labyrinthine spiral without an

emergency exit, but in a perfect circular movement that brings you back to the starting point.

The discovery that Pythagoras made for European music, and that seems to have its counterpart in almost all musical cultures on the planet, which have reached similar conclusions, is that the sound waves that make up the audible sound spectrum are not solitary animals, but creatures social. So much so that they even have their own "social networks". Each periodic wave has its circle of friends and enmities, likes and dislikes, followers and blocks, retweets and haters, waves with which it shares much of its inner world and its tastes, and others with which it only knows arguing and fighting. They are not isolated monads or shipwrecked adrift in an indifferent sonorous ocean, but acoustic vibrations that have strong family or friendship relationships with others to which they feel attached by a special bond of a mathematical nature. It is precisely Google's algorithm of virtual networks of sound waves that began to decoder Pythagoras. At least consciously, since the intuitive discovery of its existence should go back to the night of time, when the first hominid began to link sounds that were seductive and significant for his community.

The tonal geometry had given clear signs of possessing great internal elasticity and flexibility. To the point of having integrated directive forces that could seem incompatible with its musical principles and that could even drag it into its own self-destruction. Both the chromaticism (with its transgression of the diatonic pattern and, by extension, of the entire interior world of consonant

loves and dissonant hatreds of the eighth temperate) and modulation (understood not as a simple exchange of tones, but as a change of musical paradigm, even if it was provisional and temporary: a modal shift and not a tonal shift through the eighth) were not foreign resources to the common practice of tonality. Wagner had shown that intensive and extensive use of them could be made without breaking the tonal geometry. Instead, Debussy and Schoenberg showed that they possessed a black hole in their nucleus capable of dynamiting the foundations of the tonal system. It was Debussy, not Wagner, who truly made the dream of an infinite melody come true. And for this he only had to make the musical resource of modulation chronic, with which the tonal geometry was transformed into modal. Because it is the modal geometry, not the tonal one, the most apt to create infinite melodies, a chain of events without beginning or end, without conclusive cadences or final resolutions. A harmonic progression without strong dissonant tensions or large consonant strains: an infinite metamorphosis of semi-tensions and semiconsonances, where the subtlety of variations clearly prevails over the dramatization of antagonisms.

The history of western music is the chronicle of the progressive integration of the least consonant intervals in the musical language. The Pythagorean ideal of music as a harmony of the celestial spheres, taken up by medieval monophonic singing, was the central matrix of modal geometry. Originally, only the most consonant intervals were considered musical: unison, octave. With the first polyphonic rudiments the fifth and fourth intervals (organum) were accepted, the closest non-identical harmonics, which with the

use of the most elaborate contrapuntal technique would be extended to third, sixth and some dissonant intervals (which were quickly to be solved in consonance). The transition from modal to tonal geometry is marked by the musical importance of the modality's taboo interval: the diminished fifth tritone. If the consonance-generating matrix is the modal center par excellence, the distinctive feature of tonal geometry will be the establishment of a double core of sound attraction, equally important both: the tonal center of consonance (around the harmony of the tonic) and the tonal center of the dissonance (around the harmony of the dominant one: the minor seventh with major triad and the harmonic tritone it generates) The peculiarity of tonal geometry is to add to the great modal distensor (matrix that generates consonants) the great sensitive tensor (matrix generating dissonances), which in tonal language will be called respectively tonic area and dominant area. It is this bipolarity of the tonal central axis, this antagonistic and complementary duality of equivalent forces that attract and repel each other, which will give the tonal geometry an incomparable elasticity, capable of supporting, as if it were a giant star, the game of centrifugal and centripetal forces of millions of solar masses. As long as the two opposing forces are comparable enough to remain in complementary equilibrium. No, it is not an excess of consonances or dissonances that could definitively tear the sound texture of the tonal geometry, but the elimination of either of its two driving axes, transforming it into either a modal geometry (without a large tensor center) or well in an atonal geometry (without a large center consonant)

The equal temperament of the octave (base of the tonal system) is a pattern of intervals of twelve equidistant semitones distributed on diatonic scales of seven notes that draws two fundamental circles for the tonal system (the circle of fifths and the circle of thirds). A consecutive shift by fifths generates the twelve possible sounds of the eighth, before returning to the starting point and closing the circle. Furthermore, the fifth joust interval constitutes a circular vanishing point through which to escape from the main key and modulate to other different keys. The importance of the circle of thirds is not less: the displacement by intervals of thirds is the basis of tonal harmony. Its chords are built by adding thirds: 1-3-5-7-9 (2) - 11 (4) -13 (6) -15 (1) to form a circle that runs through the seven diatonic notes of the scale until one is closed an octave up. A root circle formed by chords in the root position, but which easily transforms into a spiral of multiple figures when the chords are presented in the different and varied possible forms (inversions, dispositions, voicings ...) thus expanding the repertoire of the intervals that are generated between the same set of notes combined in multiple ways and exponentially increasing the possible links in the chord progression chain. This great capacity for metamorphosis of the tonal chord gives its harmony enormous flexibility. Although the fact that, basically, they are only harmonic structures derived from the circle of thirds ended up tempting to experiment with interval circles different from the third to build chords. Scriabin's Mystical Chord is a

clear example: C-F#-B-E-A-D. Composed of overlapping fourths, it is a dissonant chord due to the predominance of altered intervals (dimisished and augmented)

If the virtuous circle (of fifths and thirds) was the characteristic geometric figure of tonal harmony (in fact, the virtuous loop: an octave is nothing more than a looped scale, where the paradox is given that the last element of an octave is at the same time the first element of the next; thus the tonal system would be built on three concentric loops: the melodic loop of octaves, the harmonic loop of thirds and the chromatic loop of fifths), for those who might consider that it had become a vicious circle, having exhausted all his resources, there was an urgent need to find a way out of the recursive and circular loop in which music had become trapped after three centuries of tonal practice. The preference for intervals such as minor seconds, increased octaves, altered fifths and fourths, and in general any chord with chromatic hypertension, conferred to atonalism the harmonic characteristics of a strange attractor, as far from modal spheres as from circles or tonal loops.

The harmonic series was the acoustic root of the modal system. The material, physical basis on which he had elaborated his interval abstractions. His sense of musical harmony derived from the consonant relationships that maintain the first harmonics of sounds with sufficient synchrony and periodicity between their simple waves to establish a main frequency. The vast majority of existing music systems are modal systems, and consciously or unconsciously they are based on variants of this principle of consonance

between the main harmonics of sounds considered musical. The tonal system had inherited this insistent attraction for consonant intervals from the modal system, and had combined it with a progressive interest in more dissonant intervals (which had led it to "legalize" the tritone and other non-consonant intervals as musically acceptable sounds). After a first "classical" phase of consolidation of the new tonal system, where the play of tensions and strains between consonant and dissonant sounds will keep a measured balance not far from modal taste (although with the characteristics of tonality), the Later "romantic" phase will be the one that shows the full potential of tonal geometry to generate more extreme tensions and strains.

The first to break the spell of that archaic seduction that humanity seemed to feel towards the siren songs of consonance will be atonalism. And it will do so by replacing the serious harmonica with the twelve-string series. Although Schoenberg strove that his musical proposal was understood as much more than a simple reaction against the tonal system (or that Webern interpreted it not as a change of musical paradigm but as a continuity in the exploration of the most distant and dissonant harmonics of the inner world of a sound wave), the truth is that both dodecaphonism and all the other atonal proposals were organized around a basic and unquestionable musical drive: the taboo of consonance. The ideal sound model of atonal desire was the coitus interruptus: an accumulation of unresolved dissonances, excitations, and sonic tensions that never led to full harmony. A wandering, uprooted, labyrinthine sound desire (fruit of an infinite musical game of unsolvable

tensions that at most could enjoy a certain relaxation when graduating their intensities), that did not love happy endings. If the modality had its "diabolus in musica" (the tritone), the tonality will also have its own: the perfect triad (third major / minor, perfect fifth). The consonance plays an important role not only in the tonal system, but also in any modal system. That is why atonalism, with its apocalyptic demolition of the consonance-generating matrix, implied a total break not so much with tonalism as with the very foundations of the musical language practiced by humanity up to now. Language that was based on the physics of the harmonics of sounds of a periodic and synchronous nature. The raw material with which the new atonal language will work will no longer be the harmonic series of sounds considered "musical", but a new reinvented series that, arising from the octave of twelve semitones of the tonal system, detached itself from the material or acoustic base from which it had been born, and only admitted dissonant chords and intervals. The acoustic foundation of the new twelve-tone series will be based on the nature of sounds made up of non-periodic and synchronous sine waves that interfere and beat each other. Or in a rational metaphysics of sound, generated from abstract algorithms of a purely mathematical nature.

The sound (and the sensations it causes in the listener) of a musical work, basically, will be irrelevant. The only significant thing will be the logical structure that underlies and has generated it. The system, the structure, the formalism, the pattern above any emotion, sensation or sonorous passion (which will be described as romantic and banished to aesthetic hell). In some

way, atonalism will recover the medieval tradition that placed music among the disciplines of number and that made it taught by mathematicians in most universities, since music was part of the quadrivium (which included disciplines related to mathematical knowledge), following the tradition of classical antiquity. A structural formalism of postonal music systems that sometimes takes on the appearance of its own negation: pure randomness as an organizing element of the musical system.

Music is like a limbic logarithm, a passionate formalism, a logic of excess. At the same time, an abstract language of sensible signs and a poetic language of overflowing emotions. Hence the paradox that has marked his entire life history: being a mathematician of the expressive intensities that overflow all logic. A form of rationalism capable of unleashing the most extreme hormonal passions and flooding the brain with deeply excited neurotransmitters: an oxymoron.

Starting from the monotheism of the consonance (geometry of the modal spheres), after passing through a polytheistic phase of dissonant consonances (geometry of the bipolar turbulence of the tonality), we have ended up in the monotheism of the dissonance (geometry of the strange attractors of tonality) But is tonality really dead? Bearing in mind the fact that the vast majority of Western music today continues to be based on tonal patterns and that atonality is even very minority among fans of music called "classical" (and therefore is no more than experimental laboratory music, relegated to very restricted circles of composers and musical experts), at best it is a dead

that is still too much alive. And perhaps not due to ignorance, bad taste or lack of musical knowledge of the public, but because of their own intrinsic characteristics, postonal proposals will hardly ever leave the ghetto of the initiated. The ultimatum that the different artistic avant-gardes (including musical post-linearism) launched in their time to the general aesthetic taste, over time has been revealed as a mere declaration of intent and has been left on wet paper, restricting its revolutionary epic to a sacred cult for insiders and experts. Although it has become the official discourse of "cult" art, it has not been more than a mere revolution in the classroom, more academic than real, an aesthetic religion for the chosen and enlightened, full of unquestionable dogmas and taboos. Official and academic art that still creates its own revolutionary fantasies: an aesthetic utopia with feet of clay. Because when what initially appears as a liberating discure that bets on creative freedom, ends up becoming a canon of untouchable truths and exclusive rules, it loses all its potential as a creative stimulus and becomes pure aesthetic ideology. Finally stripped of all their epic, pretentious and bombastic rhetoric, the avant-gardes reveal themselves for what they really are: one more artistic language (with its strengths and weaknesses, its advantages and disadvantages, its licenses and its taboos) and not THE DEFINITIVE langage of Art. Fortunately or unfortunately, the peculiar musical dialogue that characterized the tonal period (the dialogue between the perfect fifth - the consonant chord - and the diminished fifth - the tritonal chord) continues to express the most intimate musical fantasies of much of humanity.

The result of transforming the old game of tones into a renewed game of halftones, proposed by posttonalism, was the elaboration of a new tensor geometry that drew a wandering musical desire (which was recognized as heir to the nomadic Wagnerian harmony that had profoundly destabilized the sense of the tonal center) with eternally suspended consonance: a coitus interruptus ad aeternam. A semi-cadence that rests eternally in the tension of the dominant without ever finding its key: an endless game of unresolved inner sound tensions. Atonal worship is based on the fetish of dissonance: atonal harmony is built not from the chord but from the disagreement.

A step further was taken when it was proposed that the shortest distance between two tones was not necessarily semitone. Microtonalism fragments the tone not into halves but into quarters or even smaller frequency ranges. If dodecaphonism contested the tonal diatonic pattern, microtonalism did the same with the dodecaphonic color pattern. It only remained to reduce to rubble the eighth to declare the old building of the traditional musical system definitively in ruin.

One of the most curious novelties of sound modernity is the invention of the rhythmic pacemaker. In its original form it was a revolutionary percussion kit that received the name of drummer and was essential to help mark the heartbeat of the new rock music genre. In short, it was a multi-rhythmic and polyrhythmic instrument that included percussive elements from different sources: European kicks and snares, African toms, oriental hit hats, crash plates. But the undisputed reign that this peculiar percussion kit exercised for decades began to be questioned when the electrified music of

which it was holy and sign suffered the invasion of the new electronic music, which had its own pacemaker model incorporated: the drum machine. There is no electronic music that does not have its beating heart transplanted in a drum machine. Its great capacity to generate rhythmic patterns makes it an essential tool for rhythmic design. It is the photoshop of the rhythm. The special relevance acquired by rhythmic design is not the only characteristic note of contemporary sound. As much or more is the importance given to the timbral design. In the up-to-date and up-to-date arsenal of modern bungling or sound tricks, in addition to a drum machine, a good bell box cannot be missing. The timbre photoshop is known as a synthesizer. If matter has its superparticle collider, why shouldn't sound waves have theirs? Leaving us technicalities and getting to the point, the sophisticated technological strategy behind a matter collider could be summarized as: clubbing particles to pieces and then picking up the debris. It is the most effective way to try to understand the strange inner world of the raw material of reality. Will it be necessary to subject sound waves to such scientific torture so that they confess something interesting about their no less fascinating and mysterious inner world? The first timbral design strategy chose the path of the Fourier transform. If a simple periodic wave, like a musical note, is a harmonic chorus of inner voices, it would be possible to reverse the process and go from the simple to the complex: create a periodic wave ex nihilo from the sum of its simple waves. But creating a chorus of harmonic

vibrations from nothing, as the additive synthesis of sound intended, proved impractical: it took a lot of osilators (wave generators) and having the technical skill of a sound engineer to keep it from ending in a pandemonium of noise instead of a choral of harmonics. What if less were more? Wouldn't subtracting be more practical than adding? Instead of acting as the potter who adds raw material to create a complex object, do it as the sculptor who takes a huge stone block and remove what is left over. Thus was born the subtractive synthesis of sound. Not going from the simple to the complex, but from the already complex to the more complex. The basic kit of the bell box would no longer be formed by the simplest waves such as sine waves, but by those that already have an interesting internal world of harmonics, such as square waves or sawtooth waves. Other effective techniques for manipulating the inner world of sound waves would then emerge, such as modular synthesis, fm, or wavetables. And in the end, perhaps the most interesting synthesizers are the hybrids that take the best of each method and allow to redesign sounds from different strategies: colliding different simple waves to obtain a unique frequency cocktail from the simple (additive synthesis), filtering selectively some harmonics of the wave (low pass, high pass ... of the subtractive syntheses), generating subsonic frequencies with the LFOs that modify other main waves (modular synthesis). Or putting skin to the naked sound with the envelopes of amplitude, to transform a monotonous auditory frequency into an intriguing sound story, with its beginning (attack), its development (sustain) and its inevitable outcome (release).

The harmonic editor (the synthesizer), like the rhythm editor (the drum machine), the photo editor (photoshop) or the video editor, are both a technical instrument and a creative space. Because the timbral game of recreating the inner voices of sound waves can also be an art of the imagination: the art of photoshoping harmonics.

The ability of digital audio programs to generate and manipulate sound and its frequencies to previously unsuspected limits made it possible to transform the musician's composition studio into a true synthesis sounds laboratory, and his musical journey into a risky exploration of frequencies and wavelengths. Beyond the fact that culturally or not music was considered the result of such an unusual sound expedition. The genre called "noise" takes to the extreme the demolition of the spinal column on which the entire musical edifice that humanity had patiently built over the millennia stood: the difference between sound and noise. Noise uses noise as the raw material for its sound practice. If the quantization of the audible sound spectrum was essential for its conversion into musical space and the establishment of musical art as a combinatorial game of intervals starting from a few sound waves (musical sounds or notes), noise noise pushes the process to the limit inverse dequantization of the musical system to be able to use as raw material any of the innumerable sound waves of the audible spectrum. And not only those that present certain logical relations of multiples and quotients with which to form sensible octaves of intervals with compatible

sound personalities. From the art of combining musical sounds to the art of exploring sound frequencies.

Despite the obvious sound differences between the works generated by musical philosophies as disparate as the Pythagorean of the modal spheres, the algebraic metaphysics of the atonal series, the random surrealism of the random series or the sound pantheism of continuum noise, perhaps a Least common multiple unites them: a timeless conception of musical time. They generate musical works that, evidently, at some point end, but more because of exhaustion (running out of words in the case of medieval singing and Renaissance polyphony, cutting the combinatorial chain of sonorities more or less arbitrarily or without progression in the case of atonal series and continuum noise) than by an internal sense of the conclusion. Perfectly his musical speech could be delayed forever. On the other hand, if one thing characterizes tonal discourse is its obsession with writing its own epitaph. Because, as in every story, the horizon of its end is already inscribed in its origin. In the Genesis of the tonal conception of musical time, in the beginning was the end.

Music is quite a paradoxical phenomenon. It combines the logical rigor of its intestinal intervals with the emotional expressiveness of its epidermal sounds. It is both an abstract object (a rational pattern) and a physical emotion (a sound wave). Classical and medieval antiquity recognized it as knowing the number (it was part of the quadrivium), but already from the Renaissance and its humanistic ideal it began to be perceived also as knowing the logos

(understood as language, discourse). Not so much a purely mathematical combinatorics of sounds as a sound grammar (syntax) and speech (narrative). The doctrine of the affections of Baroque Era (which had a greater influence on the discursive and expressive rhetoric of musical language than on its underlying logical structure), taken up and amplified by the romantic taste for emotional extremes, will be articulated around this irrational and nocturnal aspect of your personality. And it is that music is a phenomenon of a bipolar, paradoxical nature: it has both the soul of a mathematician and an artist. That is why, according to times, aesthetics or personal tastes, it could be conceived as an algorithmic of sounds as well as a sound grammar of emotions.

Modal desire is the musical desire not to stray too far from the paradise of consonance. Pythagorean music of the spheres for millennia would be the idealized model of this placental desire for a consonant unity. The move from the modal system to the tonal system, somehow, officially signed the act of expulsion from paradise of perfect harmony. The progressive incursion, which had been taking place in musical practice, through the hell of dissonances, ended with the promotion of the reviled "diabolus in musica" to the category of musical protagonist, expressed in the importance that would end up acquiring the harmonic tension of the Dominant Seventh. The tonal story is the chronicle of the expulsion from the consonant paradise, but also that of hope in a future return to the promised land of the perfect chord: the happy end of the authentic cadence with which all tonal work should end. A musical work is a chain of sounds that is

projected in time. The links in this time chain of sound waves that make up the musical discourse can range from simple melodic notes to complex harmonic sounds. A cadence is a sound link that acquires a certain border or border hue that partially or totally interrupts the continuity of the sound chain. It transforms a pure arithmetic combinatorics of more or less intertwined sounds into an authentic sound story. It is precisely thanks to this game of cadences that the chains of sound waves acquire the morphology of an elaborate syntax of discrete motifs, melodic phrases, identifiable themes, harmonic chord progressions. Until they inexorably drag the musical discourse towards its own self-destruction. After a complex game of tensions and strains, chains and semi-cadences, the musical discourse finally reaches its maximum degree of entropy, of sound stability: the perfect cadence of the return to consonant paradise. After which only eternal silence is possible. Because in entropic happiness there are no longer stories that tell.

Paradoxically, the metaphysical project of reducing the real to a timeless geometry has been the great dream of the scientific mind, from its origins in Newtonian mechanics and the omniscient fantasies of Laplace's demon, passing through Einstein's space-time geometry (for whom the time was only an illusion), until Hawking and the current obsession to find a Theory of Everything (superstrings, quantum gravity) understood as a magic formula that, from a conception of knowledge as rational metaphysics of an omniscient mathematician (or a tattooist of indelible patterns on the skin of the

universe), would be the ultimate cause and explanation of everything that exists. The general and universal law regarding which any future event, as singular as it may seem, is nothing more than mere casuistry already foreseen in the initial code, in the body of abstract laws that governs the destiny and evolution of everything real. Time, far from being conceived as a creative flow of irreversible events and genesis of novelty, is relegated to the insignificance of an eternal return of the identical, a mere anecdotal embodiment of what was already written in the tables of universal law. Curiously, the two great mathematical models of modern physics, relativity and quantum, remain oblivious to the thermodynamic arrow of time. His equations (which express a geometrized, elastic, reversible time, constantly forked and oblivious to the distinction between past and future) are completely insensitive to our cosmic tragedy of existing in an irreversible time (of embryogenesis and decomposition, of bing bang and heat death). Heat death not so much by a residual heat stroke when the universal thermodynamic equilibrium is reached (always delayed by a dark energy that stimulates a speed of cosmic expansion in constant acceleration), as for the rigor mortis of a probable freezing cosmic.

When complexity, the source of both constancy and cosmic creativity, is only perceived as an annoying complication to be reduced to an ideal and simple system of logical patterns, the image we make of the universe is trapped in nature. of a talentless automaton. As predictable as sterile. As smart as simpleton.

Cadences are not an exclusive syntactic resource of the tonal system. The medieval and Renaissance modality already used them. Especially to mark musically the pauses of the punctuation marks of the sung text. Medieval music had emerged closely linked to singing and the liturgical reading of sacred texts: In the beginning was the Word . Only when it became completely independent of the voices and words, during the tonal classicism, the cadences became relevant due to their intrinsic function within the sound discourse, freedom from the need to have to adapt to the syntactic rhythm of an external verbal discourse.

Atonal desire is the chronicle of the fall into the hell of dissonances without the possibility of returning to the paradise of consonance. Because the atonal system is allergic to happy endings. He doesn't even believe in endings. Not even in the beginning. Only in the pure becoming, in the wandering of a nomadic sonorous desire in perpetual exile. With no origin or end, the atonal series is as marked by a longing for infinity as the modal sphere. An eternal return without beginning or end: an eternal and infinite loop. It is not strange that one of the obsessions of postonal systems was to avoid any form of progression or cadence in his musical discourse. Within the posttonal conception of musical desire, the sound flow never really ends, it only stops. Then the work is born.

The characteristic note of tonal language is not so much the fact of establishing the tonic as the center of gravity of your musical discourse, but rather of developing it in the form of a narrative (tonal functions): tonal

language structures your sound discourse in the form of a musical narrative. The story is a set of plot forces that drag an origin towards its own end. The story is the proper way of being of the ephemeral. Just because it exists, the ephemeral means: the itinerary of the displacement between a beginning and an end expresses a sense in time, an order in chaos, a crack in the perfection of unity, a lament in the indifference of the eternal, a cry in the entropy of silence. Only that which agrees to get dirty with time becomes a story. At bottom, every story is a biography of death. Because only things that are born to die have a history. And this is precisely what distinguishes the tonal system from all the others (pre or postnonal): its conception of musical time as an experience of limits (of the finite, of the unrepeatable, of what has a limit in time).). The decline of endings is also a decline of the ephemeral. Its peculiar bipolar geometry capable of generating both great tensions and great consonances has been key to being able to express that tragic feeling of existence. A feeling that, if it is a lament for the fleetingness of life, also expresses a secret seduction for what has been born to die. A terrifying as well as fascinating fact.

Entropy is the thermometer that measures the degree of stability of a system. When it reaches its maximum, the system enters an absolute rest from which it will never be able to wake up:
its energy has lost all regenerative capacity, transformed into pure residual energy without the ability to metamorphosis. Its maximum disorder is,

paradoxically, its state of maximum order: nothing can destabilize it. Thermodynamics is the cosmic science of time (the great absent in the wet dreams of the vast majority of mathematical physicists of all generations, reduced to pure phenomenological illusion and mere comparsa in the reversible and timeless equations of the fundamental laws of the universe). And its second principle reveals a truth that we never wanted to know: the universe is dying, everything that exists is mortally wounded. One day, cosmic time will inevitably reach its perfect chord, its final cadence. The music of the universal spheres will return to silence. Entropy is the final cadence of any system made of time. And multiple and varied are the ways in which it is expressed: biological death, cosmic death, harmonic death. The musical games of tension and rest are nothing more than variants of this cosmic game of entropy and time. In the perfect cadence of time, the system reaches its maximum degree of stability and rest, which is also its last epitaph, its swan song. The arrow of time is a story that drags everything that exists towards the irreversibility of the silence of its posthumous rest.

An entropic story of the ultimatums that composers like Wagner or Mahler knew how to bring to the climax of the sound, transforming the final cadences into a true ecstasy of farewells.

The cadence of that tragic greatness of what was born to die.

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GAME OF TONES II

(NEVIENS □ NIEKUR)


Ebdim C
LOGOS

Is there smart sound life beyond musical ideologies? And in general, is there smart life beyond ideologies? Or to be more specific, is there smart life in ideologies?

The word ideology is made up of two words of Greek origin: eidos, which ended up giving rise to the concept of idea, and lógos, which could be translated as reason, thought, language, law, order. So we could define the term ideology as a rational system of organizing ideas. Although currently the term has been circumscribed preferably to the field of political ideologies, the birth of philosophy in ancient Greece could be considered as the origin of the first ideological system. The philosophical logos had inscribed in its DNA that will to logically organize thought based on the discovery of universal laws, unlike the religious Mythos that emphasized the principle of authority of the truths revealed by an infallible source of knowledge: gods. The gods could be irrational, the corpus of religious truths could lack internal coherence: none of this was relevant. Religious truth did not come from the logic of his reasoning, but from the unquestioned authority from which it

emanated. They were a divine word, a dogma of faith. On the other hand, in the philosophical corpus its internal coherence was everything. Philosophical truth was only reached through precise logical reasoning. Even in the case of philosophical schools that do not renounce the concept of "god", in reality the god of the philosophers is very different from the god of the believers: he is an intellectualized god, a logical and rational god: a philosopher god.

It may seem absurd that applying the philosophical method of the rational organization of ideas we can reach completely opposite conclusions. For Heraclitus in the universe everything was movement, for Parmenides nothing moves. Even among these new rational seekers of knowledge, a group of them (the skeptics led by Pyrrho) had come to the logical conclusion that we really can't know anything: the only philosophical truth is that there are no truths. And it is that whatever the conclusions reached using philosophical reasoning, all of them are considered equally valid, even if they are contradictory with each other. Platonic philosophy is not considered more or less true than Aristotelian, Sophistic, Skeptical or Hegelian.

Science would probably not exist if philosophy had not existed. Science is a bastard daughter of philosophy. Scientists consider themselves somehow heirs of the philosophers and their rational methods of knowledge. Especially from one group of them: the practical philosophers. Thinkers who would not be so interested in building impressive logical buildings of reasoning, as in observing and trying to understand the workings of nature: natural philosophers rather than purely rational philosophers. In time these practical philosophers would come to realize that the epitemological gap separating them from the rest had widened so much that they could no longer call themselves philosophers. Modern science was born. And this gap that made it possible has to do with a certain initial feeling of dissatisfaction that ended up leading to the awareness of an inevitable separation. The practical philosopher found insufficient the theoretical philosopher's confidence in attaining knowledge and truth through mere logical reasoning. It is not enough for the

scientist that a theory be logical and rational, it also has to be "real" That is why he has learned a different way of relating to knowledge: dialoguing with reality. A logical (philosophical) truth is useless if it is not successful in its confrontation with the real world. It is what is called the experimental method, the touchstone of scientific knowledge. It acts as a kind of natural selection of ideas. Only scientific ideas survive that overcome this confrontation with the real world through the experimental method. For this reason, unlike the philosophical ones, scientific ideas can hardly coexist with each other if they are incompatible: the theory of phlogiston or the ether are not nearly as true as the theory of gravity or relativity. They once were, but this relentless Ockham's razor of the evolution of scientific ideas by natural selection has finally exterminated them.

We could say that, in some way, the gap that gave rise to the birth of scientific thought was the need of some philosophers to escape from the ideological golden cage in which they lived: the mere logical organization of ideas was not everything. In reality, it is nothing if you do not learn to dialogue with reality. Just a speculation of the mind, however plausible it may seem. And although scientific thought is based on a continuous struggle to distance itself from ideological thought through its peculiar method of extracting truths, it does not always succeed. Nor is it an effective vaccine for the scientists themselves, who outside their specialty can perfectly abandon themselves to the most secret pleasures of cherishing the most irrational and delusional ideas, without the hassle of being subject to the rigor of skepticism and critical thinking. One of the founding fathers of modern science, Newton himself, devoted more treatises to his passion for alchemy than to scientists themselves. He never abandoned the magical thinking of believing in omnipotent beings and saviors, in the form of some heterodox variant of the god of the Christians. This cognitive dissonance of the father of scientific thought is usually justified by attributing it to the cultural pressures of his time, dominated by the omnipresence of religious

discourse to configure the collective symbolic imaginary. If the scientist was the philosopher who had succeeded in escaping from the chains of philosophical ideology, he had not yet escaped from that older, pervasive, and intimate form of ideology that is groupthink. In any case, those first generations of scientists laid the foundations for modern scientific thought which, once freed from the institutional pressures of the magical thinking of religions, could begin to dialogue with reality without the mediation of the gods. And from that dialogue a conclusion emerged that supports his peculiar vision of the world. In the words of Galileo Galilei: reality (nature) is a book written in mathematical language.

Is that mathematical language that reveals the ultimate essence and functioning of reality finally a way of thinking without ideology? By learning to speak the language of mathematics, scientists had been able to rid themselves of the ballast that distorted the perception of philosophical thought: verbal language is too ambiguous, contradictory, amphibological, paradoxical, and inaccurate to be the ideal means of communication with the human being. to dialogue with reality. Mathematical language was revealed as a much more practical, accurate and effective instrument. And yet mathematical thought was not exempt from suffering its own identity crises. In its beginnings and for much of its history, scientific thought and mathematical thought had gone hand in hand. The first scientists were also good mathematicians. For them, mathematical learning was essential to carry out their calculations. And a good part of the new mathematical discoveries for centuries had their origin in the need to develop theorems to understand some aspects of reality. Mathematical truths revealed truths about the real world. In its remote origins, mathematics would have been born for purely practical reasons: counting things, measuring territories, calculating proportions, accounting for exchanges... But in the last century mathematical thought suffered an intense identity crisis from which it would emerge transformed. Somehow it would no longer be what it had been. It came about when mathematicians began to develop theorems for the simple

pleasure of the logical exercise and not from a demand arising from the need to solve some scientific problem. For the first time he became aware of his own singularity and the paths of scientific development and those of mathematical development began to fork, although this did not in any way imply that they entered into conflict. It was simply the result of realizing that scientific truth and mathematical truth were different things. A mathematical theorem could be true even if it was irrelevant to explain any field of study in science: mathematical truth could be true and unreal at the same time. Unreal in the sense that there was no aspect of reality that required its existence. Regardless of whether reality behaved in some of its aspects following the logic of the reasoning of a mathematical theorem, it revealed an unquestionable truth. It was no longer a truth about the world (nature) but about the mind: about the rationalizing power of the human mind. Somehow mathematics became aware of its ideological nature, but not in the sense of the old logic of philosophical ideas. Because his goal was not to explain or understand nature but to develop the logical and rational capacity of the mind. It was a rational system of logically organizing mathematical ideas, which were basically ideal objects, true in themselves and not because they referred to some aspect of the functioning of reality. A mathematical theorem, as opposed to a scientific one, it does not need to dialogue with reality to be true. It can be true and unreal at the same time. Something that is in no way acceptable to a logical and rational thought (a logic of ideas or ideology) that does seek to explain and understand reality. It cannot afford to be just a logical game of the mind.

Surely placing the development of one of the first ideological systems of humanity at the birth of ancient Greek philosophy is shocking. And perhaps rightly so, and it is only a mere projection of my own ideology (logical system of ideas) that prevents me from understanding the real foundation of philosophical truths. Be that as it may, the only sure thing is that no one thinks precisely of philosophical questions when they hear or utter the word ideology.

What kind of mental representation does the concept of ideology arouse in us today? Basically a rational system of logically organizing political ideas: a political logic of ideas. And yet the etymology of the word places us back in the context of the distant origins of modern reason: Politics derives from the Greek word polis (city). Philosophers had not limited themselves to dealing with universal issues such as the ultimate essence of things, but had also been concerned with reflecting on what could be the ideal organization of a community on rational bases. The philosopher was a new, full-fledged inhabitant of the Greek polis, and he also had his own vision of how to organize a community, which differed from that of the warrior, peasant, or merchant. Perhaps one of the most famous of these cities of the philosophers is the one exposed by Plato in his Republic. And to tell the truth, she is not without obvious autocratic tics. Mammals are social animals by nature. Humans are no exception. In this sense we are social animals, but for Aristotle we are also political animals (zoon politikon), that is, with the capacity to organize societies on rational bases and not merely instinctive as it happens with the rest of the social animals. It is the logic of the ideas that underlies all political ideology: a rational organization of the community that benefits the greatest number of inhabitants of the polis. It is in the methods and goals to achieve it that some political ideologies differ from others.

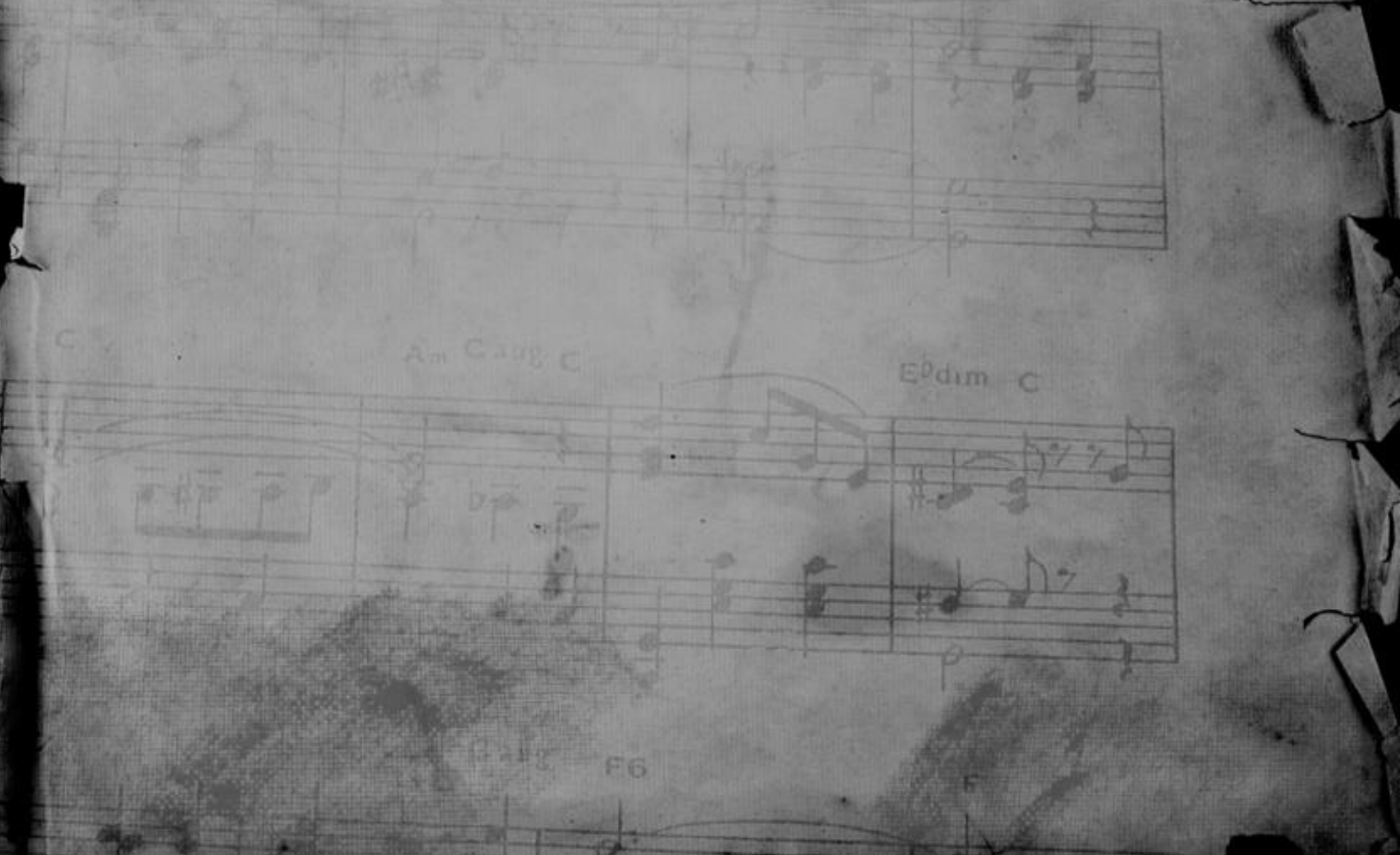
We are certainly social animals, even political. But this is not the whole story. We are not ants or bees. Each one of us knows and wants to be a unique and singular individual. And perhaps this contradiction is what makes us human: the need to reconcile what we might call our gregarious nature with our individualistic nature. At one end of the spectrum would be the marginal or lonely: the individual unable to give up any part of his ego in order to live in society. A peculiar variant would be the social narcissist: the individual who without giving up anything gets all the benefits of community life. It would be the autocrat or tyrant, the individual who, with his charismatic leadership or with his power to instill

terror, gets the entire community to organize around their own interests. The political dictator and the leader of a sect would be the most charismatic examples. At the other extreme would be the gregarious subject: the individual without personality who is only governed by community rules and laws. Undoubtedly, most people fall somewhere in the middle between their need to claim their uniqueness and their need to belong to some group. This difficult balance between gregariousness and individualism is what characterizes the human animal: it is both a social animal and an asocial animal. Although it is clear that there are animal species that are not particularly social, without a doubt the strategy of forming groups of individuals has been vital for the survival of many species in nature. The group is much more effective than the isolated individual when it comes to protecting themselves from attacks as well as to procure food or reproduce. Not infrequently, the expulsion of a member of the pack exponentially increases his risk of death, unless he quickly finds another group to integrate into. We are not social animals by chance: it is part of a successful evolutionary survival strategy that our species has inherited. We have neither invented it nor will it disappear with our extinction.

But group life not only offers benefits, it also demands tributes. And the most important is to help maintain group cohesion. The group needs a strong glue to hold it together and prevent it from disintegrating into a multitude of isolated individuals. It demands some form of fidelity from its members. Loyalty to the set of ideas, symbols, celebrations, beliefs and common traditions that unite it. That is why each community throughout human history has developed its own code of signs (language), its own rituals, its own symbols, its own gods, its own music and its own worldview. It would be all that we encompass with the term culture, which is nothing more than a kind of group ideology. Ideology not in the sense of a logical and rational organization of ideas. The culture or ideology of a community can be deeply irrational or contradictory, it doesn't matter. Because its fundamental mission is not to discover

objective truths but to keep the group united through fidelity to common ideas. The important thing is not that they are true but that they are accepted and shared. If there is any underlying logic in this peculiar group ideology, it is that of uniting the group.

Political ideology is a form of group ideology, with its own mechanism of fidelity and internal cohesion of its members. But to the extent that political groups are usually part of a larger community (in the modern case embodied in the form of a nation-state), it would be convenient to differentiate between political ideology and community ideology. And although it is true that some political ideologies are decidedly internationalist and try to overcome the administrative limits of the state community, it is no less true that they continue to maintain their fidelity to certain symbols, beliefs and traditions of their national community of reference. While political ideology tends to confront subgroups within the same community, the communitarian ideology tries to heal that inner wound by keeping alive the memory of their belonging to a larger group with which they share culture and common interests. That what the communitarian ideology has united, the conflict between apparently antagonistic and irreconcilable political ideologies does not separate.




KHRONOS

Music is still a cultural phenomenon. A manifestation of the culture of a community. And what we encompass within the term culture is nothing more than a form of group ideology: a series of beliefs, ideas, traditions, symbols that hold a group together. But communities do not remain completely unchanged over time. They have undergone multiple variations throughout history. Time ends up disorganizing and reorganizing human groups. The History of Humanity continues to be a chronicle of the different changes that the different social organizations that have existed have undergone. Because the different human groups do not remain eternally unchanged, no matter how much effort they put into maintaining their internal cohesion. And not only because of the destructive forces derived from wars, the conflicts and invasions that they may have suffered and that force them to be constantly disintegrating and recomposing themselves. Rather, the very passage of time ends up relaxing the ties that hold communities together. Over time, every form of order ends up disintegrating into some form of entropic disorder. Communal ideologies are not immune to the relentless passage of time. And that is clearly manifested in the diversity of cultural periods that have been happening throughout human history. If culture is that cohesive force that tries to keep a community together through the acceptance of shared symbols, it is no less true that their forms and contents have changed over the generations.

Community ideologies do not exist in the void of some form of immutable eternity, but reflect and experience in the composition of what we could call their idiologems those variations derived from the flow of time. In music this has not been an exception. Thus we have seen, sticking to Western music, successively parading different historical periods (medieval, Renaissance, baroque, romantic, modern music) and even different musical systems (modal, contrapuntal, tonal, post-tonal) derived from the incessant evolution of time. Music does not exist in the void of an immutable eternity either, and its history clearly reflects the influence of the temporal variations suffered by that mechanism that generates group ideology of which it is a part and with which it has collaborated closely to keep the communities cohesive. each historical period. When we speak, for example, of medieval music, we are referring to the music produced by a specific community (the European continent, formed in turn by multiple kingdoms that maintain sufficient ties of exchange to form a more or less unitary cultural community and cohesive) and in a specific historical period. In other words, we are talking about works produced by musicians who share a certain musical ideology (a logic of musical ideas, specific methods for generating musical works) marked by a lowest common denominator that reflects both a location in space (a region of the planet whose members maintain sufficient exchange relationships to influence each other and establish a certain shared cultural unity) as a location in time (a specific time in the evolution of human history) Each musical work, voluntarily or involuntarily, carries imprinted in its DNA the genes of a certain musical ideology that places it both in both in time and in space because it forms part of what we could call a chameleon-like collective imaginary, that is, a community ideology that undergoes transformations over time.

If there is a prototypical example of a chameleon community ideology, it is the phenomenon of fashion. More specifically, fashion in clothing. Fashion, deep down, is nothing more than a peculiar way of measuring time. But at the same time it expresses that

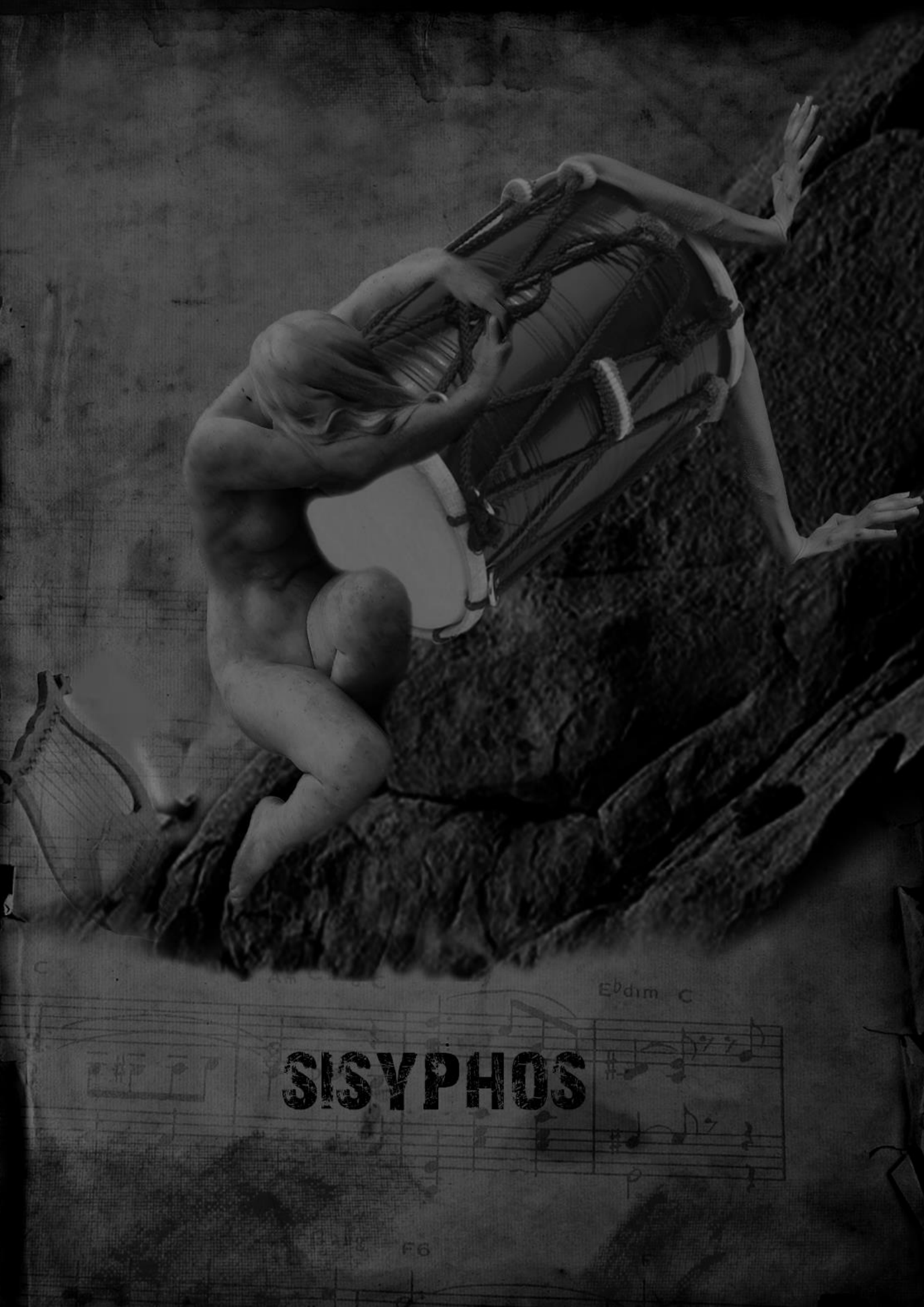
never resolved conflict in the intimate relationships between the individual and the community, the jo and the us. At first, the rules of the game of fashion may seem contradictory to us, since they incite us at the same time to a passion for novelty, with the change of shapes and styles that each season proposes, and to enthusiasm for normality, with its demand to be obeyed if one does not want to be left out of the game. Being gregarious and original at the same time is the double bond that fashion establishes with its faithful. Without joyfully assuming this paradox, one cannot be initiated into its secret mysteries.

The most significant feature of the fashion phenomenon lies in its passion for chronology. To live in the form of the present of time or not, this is the essential question that it poses. Fashion does not designate an ontological essence or an immutable property: fashion expresses the cyclical and incessant change of taste, of the taste of living in the present. But the spirit of fashion time is always precarious and fleeting, constantly threatened to become past. Although fashion can be considered as an anthropological phenomenon that has always existed, to a greater or lesser extent, the fact that it has become especially relevant in modern societies is very significant. And it is that fashion has become a kind of agrarian religion of industrial societies: the cyclical ritual of death and rebirth of the signs of the present. It is no coincidence that the seasons of fashion trace the calendar of the seasons (spring, summer, autumn, winter), since like the ancient vegetable god, the signs of fashion are bearers of the promise of an eternal return of time. Multiple fashions can coexist at a given moment, although they may express antagonistic tastes, the only important thing is that they adhere to the essential principle that characterizes the phenomenon of fashion: mark a present in time with respect to which any other taste is anachronistic The paradox is that all fashions, with the passage of time, become anachronistic: they prove incapable of eternalizing the present. Fashion is always the present, but an ephemeral present that will inevitably become the past. Hence the signs of fashion are

marked by a tragic fate: they live fast and die young, leaving an exquisite corpse. Fashion is one of the manifestations of the transience of time and death, but also of its overcoming in the form of the promise of the cyclical return of an eternal present.

Each epoch has had its peculiar system of signs to mark its peculiar form of the present of time. Renaissance, Gothic, Baroque, Rococo, Romanticism, Neoclassicism, Avant-garde... are denominations that are used to indicate the existence of cultural traits characteristic of a certain period of humanity. Surely they have wanted to be eternal, but they have ended up having the same fate as the signs of fashion: death. That is, his expulsion from the paradise of the eternal present and his conversion into an anachronistic past. In this sense, cultural phenomena are also fashions: ways of living in the present. Although they tend to cover much longer periods of time that can include several generations, while in strictly fashion phenomena the same generation experiences multiple periods of fashion. And it is that the signs of fashion turn into dust, into nothing, when they are replaced by a new fashion that makes them anachronistic. While cultural signs, although undoubtedly marked by fashion, somehow manage to survive in the memory of humanity, because there is something in them that continues to make them relevant and significant, even if they are no longer in fashion. Although the musical ideology that supported the idea of living in the present during the period we call baroque may already seem anachronistic to us, nevertheless we continue to listen with great interest and pleasure to Bach, for example. And not by a mere gesture of archaeological recovery of the past. We do not listen to Bach because he is an effective representative of the musical ideology of his time (although he may be or his works will necessarily present many characteristics of that period) but precisely because his music also bears traits that transcend the musical ideology of that period. your time. And it is that the cultural signs present a peculiar characteristic that differentiates them from the signs of fashion: inevitably marked by the fashion of the musical ideology of

their time, they are at the same time an expression of something deeper and universal that transcends it. In the same way, if any of the works generated following the rules of what we could consider the musical ideology of our historical present (atonalism or post-tonalism) continues to be heard and celebrated after its inevitable death and its replacement by any other ideology fashionable music, it will not be for abiding by its compositional laws (an issue only relevant for musical historians and archaeologists) but precisely for overcoming them. Not thanks to the musical ideology of his time, but in spite of it. Although it should be noted that the current situation is somewhat peculiar and unprecedented. While in official and academic media it is considered that there has already been a change of cycle (always referring to the field of so-called Western music) and the post-tonal ideology has replaced the tonal ideology as the generator of musical works that express our historical present, the Most contemporaries do not seem to have taken notice. Not only is the majority of the public that continues to listen to mainly tonal music (even among the public of so-called classical music), which has supposedly already become anachronistic and outmoded, but most of the works that are currently composed (not certainly in the field of academic music of conservatory composers and their audiences, who are still a very minor part of the current sound spectrum, but in the much more majority field of pop, rock and filmscore) continue to be governed by the sound and compositional laws of tonalism, even if it is some variant different from the tonalism of other centuries. So it is difficult to establish which is the musical ideology that dates, with the reliability of carbon-14, our historical present: an atonalism that would make most contemporary composers and listeners anachronistic (which is quite paradoxical), or a tonalism that has been officially expelled from the academic scene of experts and conservatory composers, whose influence and relevance in the world music scene is quite marginal.


SISYPHOS

The history of music is not just a more or less ordered collection of authors, periods and works from the past that are worth continuing to listen to. It is also the chronicle of the life and death of musical ideologies. The word "chronicle" derives from the Latin "chronica" which in turn derives from the Greek "kronika" which refers to "khronos" (time). It is a speech that establishes a chronology, an order of succession of events in time. Khronos and Logos: time and knowledge. Chronology is a discourse or knowledge about the laws of Time. Political ideologies would be precisely this: a story or knowledge about the historical laws of Time. What characterizes and distinguishes them is precisely their peculiar conception of Time. For millennia a cyclical conception of Time prevailed, which is the primary characteristic of most religious ideologies. The agrarian conception of temporality derives from the cyclical periodicity of harvests. The plant god, like the crops, dies every winter and is reborn every spring. The agrarian gods were created in the image and likeness of plant life. Modern pagan fashion rituals or solstice festivities (the most important, without a

doubt, is the annual renewal of Time during the winter Christmas solstice) are clear symptoms of the persistence of this cyclical conception of Time, which represents it as a loop or loop. One of the first ideologies to distance itself from this cyclical perception of time was Christianity. Unlike the plant god, who only lives in the time of the Myth, the god of the Christians is also incarnated in the time of History, in the form of a mortal son. As a father he continues to live in the time of the Myth, but as a son he experiences the troubles of chronological time, although finally through his resurrection he will return to mythological time. The New Testament is the chronicle of an event located at a specific moment in human history, not in Eternity where the gods usually live. Although its ultimate goal is paradoxically to rescue all of humanity from the uncertain vicissitudes of chronological time and return it to that mythical and paradisiacal time from which it was once expelled. Curiously for himself, as punishment for an unforgivable fault: the disobedience of tasting the fruit of the tree of knowledge. Being expelled from eternal time and having to live badly in chronological time was the only penalty that must have seemed consistent with the monstrosity of the crime committed. It is this foundational gesture that, for Christian ideology, precipitates the birth of History. The creation of historical time was a necessary evil. In general, for religious ideologies, fascinated by the existence of a time without time (a timeless eternity), Time is always a fatality: better that it had not existed. The passage of Time brings nothing but disorder and calamity: it is a form of disintegration and degeneration of the eternal timelessness that characterized a mythical lost Golden Age. The so-called "conservative" ideologies participate in this conception of Time as a calamity. Hence his obsession with keeping things as they are, because they consider that all change is always for the worse. At the opposite extreme, progressive ideologies are precisely characterized by sharing a radically antagonistic conception of Time: chronological existence only improves with time. History is the chronicle of the progression and improvement of human existence. At its culminating moment of

progress, it will give way, as Marx himself thought, to an ideal society (without classes, without exploitation, without ususra, without selfishness, without conflicts or any other form of "sin" that each ideology considers the ultimate origin of all the existing evil), already impossible to improve. The mythical Golden Age (the utopia of an ideal society without conflicts or antagonisms, perfectly organic and harmonious) is not located in the past but in the future: it was not given in the beginning, but thanks to Time it will be created in the future. While conservative ideologies live on nostalgia for the past, progressive ideologies live on hope for the future.

The importance of his conception of Time as the backbone of his discourse is not only fundamental for religious and political ideologies, but also, for example, for artistic ideologies (including music). They tend to be born as progressive ideologies, as alternatives of present and future to a dominant aesthetic ideology that has already become corseted and too conservative: they are carriers of a change that is always interpreted as improvement. New airs that correspond to new times. But over time, once they have defeated and replaced the old aesthetic ideology, they end up becoming conservative and against any change that threatens to overthrow them and replace them with others. A paradigmatic example can be found in the modern artistic avant-gardes, emerged as a desire for aesthetic freedom and renewal in the face of suffocating academicism, but which over time have become the new official and academic discourse of the modern dominant aesthetic ideology. It seems a logical fatality of aesthetic ideologies to be born as change and end as eternity. To end up believing his own fantasies of having discovered the definitive language of art, regarding which all the previous ones were nothing but failed attempts. Pictorial abstraction or musical atonalism are other names currently given to that old aesthetic utopia of believing to have achieved the creation of the ideal and perfect aesthetic system, impossible to overcome. And that other no less utopian fantasy of believing that they are

the only ones valid to represent and express the present of our time.

And yet, music maintains a more intimate and fundamental relationship with Time that goes beyond musical ideologies and their historical cultural fashions. Unlike what happens in religious and political ideologies, the musical fact itself is not limited to expressing a certain conception of Time through the musical ideologies it generates, but rather it is Time itself. If there is music beyond musical ideologies, it is because music itself is already Time. It is not just a succession of musical ideologies, cultural fashions or chronological aesthetic periods. Music itself is a form of existence of Time. Without a doubt, it is part of the chronological or historical time through the different musical ideologies that have been happening throughout human history. But it is also fundamental Time, to call it in some way: chronic Time.

The essential raw material of music is sound. Despite the pretensions of a work like 4'33'' by John Cage, without sound there is no music. Just silence. It is true that silence is an important part of the musical phenomenon, it even has its own pentagram signs. But if it does not dialogue with the sound, that musical silence ceases to be such and becomes simply plain silence. There is no music without sound, but is there any other characteristic without which the musical fact would be impossible? It is possible to make music without harmony. A monophonic instrument can perfectly make a musical melody without the need for any accompaniment. Nor is the melody indispensable. A percussion instrument generates musical patterns devoid of both melody and harmony. Those musical patterns it generates are rhythmic patterns. For its part, there can be no melodic patterns or harmonic patterns devoid of rhythm. Every musical note has a certain duration that varies according to the figure used. Music without melody and harmony is perfectly feasible, but not harmony and melody without rhythm. What's more, music without rhythm is impossible. In the essential core of the bowels of the musical phenomenon, regardless of

the musical ideology of which it forms part at each moment of its history, there are two universal things that transcend cultural fashions because in reality They are not chronological aspects that vary over time, but chronic aspects that remain and without which it would not exist. One is the sound, the other the rhythm. And rhythm is nothing more than one of the forms in which Time manifests itself: Rhythm is the musical form of Time. When Time acquires rhythmic patterns it becomes musical time. That is why they exist in a different time than do things that only exist in chronological time and in cultural fashions. Its nature is not chronological but chronic. That fusion of sound and time forms the basic sound nucleosynthesis of all musical events.

Music is rhythmic sound. Regardless of whether this is generated by the will of some consciousness or by simple chance of cosmic evolution. Perhaps Pythagoras was not so far off the mark when he spoke of the music of the celestial spheres. Perhaps the universe is constantly generating musical patterns with its gravitational waves, supernova explosions and colliding galaxies, though perhaps not with the harmonic beauty you would have liked. Or not to be excessively megalomaniac: with the sound patterns of earthly nature. Olivier Messien did not transform the song of the birds into music, he simply learned from them the musical patterns they generated and applied it to some of his works. Because it wasn't humans who invented music. The sound of rhythmic time existed long before the human species appeared on the cosmic scene, and it will survive its inevitable extinction. Although there is no one left to listen to it.


RHYTMOS

How is time transformed into rhythm? Obviously we are not referring to any type of time, but rather to that which is associated with some form of sonority. Is there really a sound time without rhythm? That kind of time is precisely what an instrument like the metronome generates. A completely uniform and regular temporal series of sound units. We would produce the same effect by giving regular blows and with the same intensity, in such a way that none of them would be distinguished from the others. That metronome time, whether we produce it mechanically or naturally, is not musical time. But it is enough that we regularly accentuate one of them (for example, executing the beat with more intensity) to create a rhythmic pattern, and in this way transform it into musical time. No need to use any musical instrument, neither to generate any melody nor to elaborate any harmonic accompaniment. Simply by clapping our hands we can already create a rhythmic pattern, thus transforming sound time into musical time. We have just created the rhythmic pattern of the bar. Probably the most basic form (not in the sense of poor but of nuclear) of organization of

sound time made music: a rhythmic pattern of accented and unaccented units that is repeated in a loop. The simplest and most elementary way to transform the metronome tempo into musical time: the rhythmic loop. The rhythmic pattern of the bar expresses a cyclical conception of musical time, an eternal return of the same thing in an endless cycle without beginning or end: a tricked-out musical time. Simply by clapping our hands we can already create a rhythmic pattern, thus transforming sound time into musical time. We have just created the rhythmic pattern of the bar. Probably the most basic form (not in the sense of poor but of nuclear) of organization of sound time made music: a rhythmic pattern of accented and unaccented units that is repeated in a loop. The simplest and most elementary way to transform the metronome tempo into musical time: the rhythmic loop. The rhythmic pattern of the bar expresses a cyclical conception of musical time, an eternal return of the same thing in an endless cycle without beginning or end: a tricked-out musical time.

Generally, a distinction is made between rhythm (produced by the alternation in the duration of the notes) and metrical accent (alternating between strong and weak beats within the compass) In such a way that the time signature would not be strictly a rhythmic pattern but rather a metric one. However, in practice, nobody says that someone does not keep the meter of the beat, but the rhythm of the beat. It is only necessary to try to create in the physical world (the world of sound waves, which ultimately is the natural habitat of music) a measure (for example with the palms of the hands) and we quickly see that it necessarily has a rhythm associated with it. And it is that the feeling that the compass is closely related to the rhythm is very evident and powerful, although we want to give it a different name. Although it could also be argued that we have not actually created a measure but a rhythm that totally coincides with the beats of a measure. And although considering the time signature as a metric unit has a long theoretical tradition (inherited from the literary tradition, more

specifically from the poetic one), some authors have not hesitated to point out that it is an imprecise term and that the borders between metric and rhythm of In fact, they are not as clear as they seem on a theoretical level. Thus, they have preferred to name the time signature as "rhythmic figure" or "measured rhythm" to highlight the fact that, whatever it is, it is closely related to rhythm. The fact that we speak of alternating strong beats and weak beats, accented and unaccented beats, and at the same time considering that this is no longer creating a rhythmic pattern of accents and beats, it is paradoxical to say the least. Since the beat is already a form of musical organization of Time, this theoretical distinction between rhythm and meter will not be taken into account here, and the time signature will be considered as a full-fledged member of musical rhythm.

The raw material of music are sound waves (a combination of frequencies and wavelengths) that generate time sequences with rhythmic patterns, the most basic of which would be the rhythmic ostinato of the beat. In other words, sound tempo transformed into musical time: the rhythmic (beat) pulse. Rhythm is a form of temporality that is not exclusively musical, it is not reduced to the realm of sonorities. Thus we speak of the rhythm of life or the rhythm of the seasons. The etymological origin of the word rhythm is, of course, in a Greek word: rhytmós (a time sequence that presents a clear pattern of regular and recurring elements that are repeated) It is tricky time (whether sound or silent) All things that are made of time can have rhythm, a subcategory of which is rhythmic sound time. The seasons are astronomical time (derived from the rotation of the earth on its axis and the orbital movement around the sun) that generates regular weather patterns that repeat each year. The very concept of year is already a rhythmic temporal pattern. As well as its temporary subdivision in days, weeks and months. The calendar would be a kind of compass that transforms astronomical time into rhythmic time. Or at least in vital or human rhythmic time. Because the same astronomical movement already generates its

own rhythmic times, patterns of movement that are repeated. And when these produce sound waves that propagate through space they can generate their own "music of the celestial spheres" Not because, as Pythagoras thought, create some kind of cosmic harmony but because they are capable of generating sound temporal sequences with rhythmic patterns. But his hypothesis that the musical phenomenon was something that transcended the human fact was entirely correct.

The time signature represents the birth of musical time. The uniform monotony of the metronome tempo transformed into rhythmic time. The beat is generally defined as a pattern made up of a strong beat followed by several weaker beats. What characterizes the bar is a regular repetition of dynamic irregularities. Without this irregularity of combining strong and weak beats (compared to the regular uniformity of the metronome pulses that do not present any dynamic irregularity in their intensities) there would be no bar. But without the regularity of the pattern's looping repetition either. The rhythmic pattern needs both irregularity and repetition: if it is a pattern, it is because it has a defined structure that is repeated in a loop, if it is rhythmic it is because it presents some variation (irregularity) between its components (otherwise we would only have metronome tempo and not musical time) We could characterize the bar as a kind of rhythmic tempodynamics: metronome tempo transformed into musical time through some variation in the dynamics of the intensity (strong-weak) of its times or pulses. A musical pacemaker for controlled arrhythmias.

Traditionally, it has been considered that the first beat is the strong beat of the rhythmic pattern of the bar, the one that has to present a dynamic intensity that distinguishes it from the rest. That is why it is the first, that is, the one that occupies a special place in a sequence, because it is the one that inaugurates it. But it is enough with the simple exercise of continuously repeating a rhythmic pattern (for example a 4/4 beat) to realize that this idea presents some kind of cognitive dissonance. What starts out as a rhythmic pattern of TA-ta-ta-ta (strong-weak-weak-weak) quickly

becomes, in our ears and perception, a rhythmic pattern of ta-ta-ta-TA (weak-weak-weak-strong) Because the strong beat, the marked beat, does not really express the beginning of a rhythmic sequence but its conclusion: in our perception it is the time that marks the end of a rhythmic cell. It is not an inaugural or initiatic time, but a cadential time. Cadence is a musical concept that is generally applied and circumscribed to the field of harmony. It is a mechanism that serves to transform a chord sequence into a chord progression. In other words, a combination of elements, which by itself could stretch to infinity, in a progression limited by a beginning and an end: a finite temporality that begins and ends. It is not surprising that the so-called functional harmony (the study of chord sequences) focuses not on all the elements that make up a chord sequence, but almost exclusively on the last elements of the harmonic chain, which are precisely those that make a combination of chords in a chord progression. The Dominant Seventh harmonic tensor and its variations (secondary dominants, augmented sixths, tritone substitutes) that precipitate a happy consonant ending. Although there are different types of cadence, the most effective and convincing one to transform a harmonic sequence into a harmonic progression is the perfect authentic cadence, the one in which the last chords of the harmonic sequence are dominant-tonic chords in the root state. That is why when the new post-tonal musical ideology tries to distance itself from its predecessor, which had made chord progression one of the hallmarks of its musical discourse, it will veto cadential happy endings (compositional tips for a musical trend already considered anachronistic) and will enthusiastically sponsor the creation of harmonic sequences without progression.

So, although generally reserved for the harmonic realm, the cadential mechanism is equally or even more important for the generation of rhythmic time. Because it is impossible to elaborate a rhythmic sequence without the use of cadential time. In a rhythmic pattern, what is the time that expresses cadential functions? One that expresses the end of a sequence. Our ear, our mind, our sense of

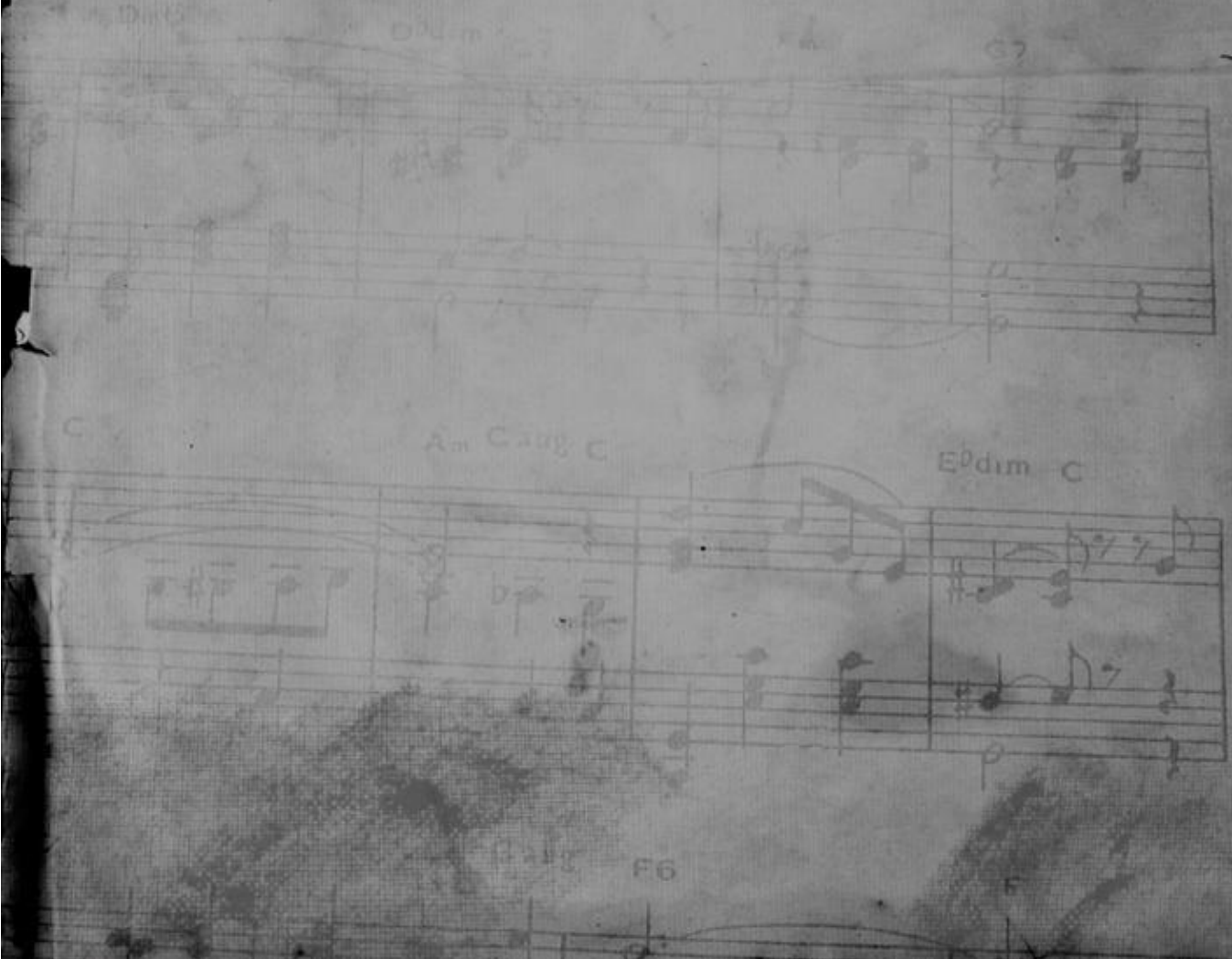
rhythm tend to grant that privilege to marked time, to different time capable of establishing a border between a before and an after: it works like a wall that stops the advance of the rhythmic sequence and turns it into a complete rhythmic pattern. If we hit, for example with our hands, following a 4/4 time signature, it will be the hit we hit with the most intensity that will become cadential time, forming a rhythmic cell of the ta-ta-ta-TA type. If precisely because it is executed with greater intensity (volume, dynamics) we call it a strong beat, we find that the strong beat of a measure is not the first but the last of its rhythmic sequence, because it is the one that exercises the conclusive barrier function that stops the rhythmic flow. This clashes head-on with the general tendency to call the first beat of the bar a strong beat. If there is any characteristic that defines the first beat of a bar, it is not being a strong beat, but rather being an initiatory beat: the beat that starts the rhythmic pattern. A sequence that ends with the marked time: the cadential time. Hence, the true strong or marked time of any rhythmic pattern is not the first but the last of the series, which becomes the final or cadential time.

But not only by bars live the musical rhythm. It is only a background of convoluted patterns that has to learn to live with another important source that generates musical rhythm: the melody. Or better that mix of rhythm and melody that we could call melorrhythmia. Since there is no melody, that is to say combinations of wave frequency variations (what we call notes) without rhythm, that is to say without combinations of duration variations of those same notes. There are no timeless or 0 time notes; each musical note not only expresses a sound frequency, but also inevitably a duration in time. The bar loop is like an empty template into which to fit a succession of melorhythmic patterns. Its use is common but not essential. Musical speeches that dispense with it can perfectly be elaborated. And if it is used, it is to give it a certain relevance, because it is considered that the rhythmic ostinato of the cells of the compass can serve as a guide with which the

various melorhythmic patterns of the work act. Sometimes it fits, sometimes it doesn't. Thus generating what we could call a kind of rhythmic counterpoint (point against point of two rhythmic patterns). If we only elaborated melorhythmic patterns that fit perfectly into the loops of the bar, we would have works with little rhythmic counterpoint, since both rhythmic lines would overlap and the result would be too simple and predictable. On the other hand, if they never fit, the presence of the bar guide would be completely irrelevant. The dynamism of rhythmic counterpoint is achieved, for example, by sporadically using resources such as slurs between two-bar notes, hiccups or anything else that minimizes the border of the barline. That is to say, desynchronizing a few bars. If this became chronic, that rhythmic counterpoint would disappear. Curiously, the usual practice derived from considering the first beat of the bar as a strong beat actually ends up achieving results contrary to those proposed. Instead of strengthening the barline, it dilutes it. The very common practice of placing the longest notes or the densest harmonies on that first beat, what they do is stop the melorhythmic flow and terminate the rhythmic pattern that was being created. That first beat of the bar actually becomes the last beat of the melorhymic cell that had started one or several bars earlier. In this way it loses its characteristic of being an initiatory time within the rhythmic pattern of the bar and becomes a cadence time of the melorhythmic pattern. With which, the new melorhythmic pattern will begin on the second beat of the bar, which will now acquire the value of the initial beat. For the melorhythmic pattern to reinforce the bar line, its cadence beat would have to match the cadence beat of the measure. And that would be achieved by placing the long notes or the chords that are going to stop and end the melorhythmic cell not on the first beat but on the last beat of a bar. Thus, the first beat of the next bar would coincide with the initial beat of a new melorhythmic pattern, and the barline would maintain its function of separating a before and after. It is not that this is better or more correct than what is usually done, both are equally valid. It is simply about being aware of what is really

being done. Because sometimes theory and practice do not coincide. And we really do the opposite of what we think we're doing. In this case we believe we are reinforcing the bar line by making the first beat a strong beat, when in practice we are minimizing it by converting that first initial beat into a cadential beat.

The tempo works like a musical accelerator that marks a cruising speed. A note that travels at 60 bpm does not have the same duration as another that travels at 180 bpm, both being marked by the same musical figure. Sets the speed at which the entire sound ensemble is shifted in time. A sound ensemble resulting from the dialogue of various rhythmic patterns with each other (the rhythmic pattern of the compás, the various melorhythmic patterns, together with the rhythmic patterns generated by the movement of the harmony and the rhythmic patterns created by the percussion instruments) that generate a texture that we could call Rhythmic Polyphony.




CANTUS

And the word became cantus. And she dwelt among the music.

In the genesis of medieval religious music there is a transcendental phenomenon: the transmutation of the sacred text into chant. At first the music was fundamentally singing. Monophonic singing: a unison (or octave) unit of voices in the universal. A hymn to the perfect unity of the musical spheres of the firmament. Monophonic is solo singing, but also accompanied singing (even by a choral crowd) as long as the voices are kept at a decent intervallic distance. The sacred marriage of unison with the octave is the only lawful link between sound frequencies that the medieval Catholic Church will initially recognize: what the octave has united, let the song not separate it. The divine word is unique and universal, which is why it must be sung in unison or to the octave.

The sacred unity of this original plain chant, however, will not follow such a strict disciplinary rule as that contemplated, for example, in psalmodic chant, where a perfect marriage between the word and the chant (represented by its most important units basic and elementary: the verbal syllable and the musical note) is exclusively allowed. The psalmodic marriage is a strictly monogamous union between the word and the song: a syllable can only have one note. The Gregorian marriage, on the other hand, will be characterized by establishing a small musical license, a vocal bull, which will allow pneumatic and melismatic unions: a single syllable can marry several

notes at the same time. In the plain chant, melismatic polygamy will not be considered an illicit union or against nature: a single syllable will be able to maintain intimate relations with several notes at the same time without living in sin. The fragmentation of the perfect synchrony between the word and the song, derived from the melismatic asynchrony, will not be considered a heresy that deserves eternal fire.

Melismatic polygamy inaugurates monophonic counterpoint (if this is not an oxymoron): not so much note against note (punctus contra punctum) but syllable against note. In plainchant there is a complex game between psalmodic synchrony and melismatic asynchrony, unity and fragmentation, the unique and the diverse, the one and the multiple, fusion and dispersion, monotony and variety. We could consider the neuma and melisma as the first form of rhythmic counterpoint: a bifurcation of rhythmic patterns, where the syllabic temporal pattern and the musical temporal pattern differ. It is the transition from psalmodic monorhythm to Gregorian polyrhythm. Unlike musical instruments, voices not only sing notes, they also sing syllables. It is precisely this fact that has allowed the medieval cantus to be born as a rhythmic counterpoint.

The rhythmic asynchrony introduced by the melismatic technique of syllabic dispersion, with the advent of polyphony, will be reinforced with the birth of new forms of choral fragmentation. In the organum, the interval of fifths will see its status as a divine interval recognized: the octave will no longer be the only recognized sacred space. If the pneuma and melisma inaugurates the polyrhythm of sacred time, the organum inaugurates the polyphony of sacred space. An interval is the distance, the territory, the geography, the space, the interregnum between two notes. If these notes sound at the same time, they make up a two-dimensional musical space. If a third note is added, it becomes the three-dimensional space of harmony: the musical polyphony of three-dimensional space. With harmony, the musical space in 3D is born. The organum represents for musical space what the melisma represents for musical time: the

fragmentation of an unalterable monolithic unity and the beginning of the game between the same and the other, identity and diversity, unity and dispersion. The polyphonic fragmentation of the spatial unit will reach its splendor with the contrapuntal technique of harmonic dispersion, a complex game of fragmented musical spaces that will progressively incorporate octave, fifth, fourth, third, sixth, second and seventh intervals. An asynchrony of the sound space that, however, will not end in pandemonium, chaos or noise, because it will be a perfectly synchronized asynchrony. asynchrony.

But polyphony is not going to add to the monophonic asynchrony of the melisma only the new harmonic asynchrony of the intervals, but also a new form of musical dispersion that is probably the one that will most affect the relationships between the word and the song, the text sacred and the human voice: syllabic asynchrony. While the melismatic as well as the harmonic asynchrony left intact the semantic unity of the sacred text, the syllabic asynchrony will implacably blow it up. The contrapuntal technique began as a polyphonic scattering of a monophonic cantus firmus. After a brief introduction of a cantus firmus sung in the Gregorian style, it was subjected to a profound polyphonic fragmentation consisting of a complex interplay of disparate voices. But at the same time it was not infrequent to submit it at the same time to a no less complex game of syllabic asynchronies, which was achieved in the most elementary way by delaying the input of the different voices. They sang the same cantus firmus, but starting at different times or bars. And that slight temporary delay caused some voices to sing different syllables at the same time. So the sequence could consist of a monophonic text that was subjected to a contrapuntal syllabic dispersion that generated a synchronized semantic tension that was resolved in a cadential time where it returned to syllabic monophony in which all the voices sang the same syllable, dissolving the preceding semantic scattering into some form of syllabic fullness: the syllabic asynchrony generated by the contrapuntal fragmentation technique of the monophonic cantus was resolved in a final cadential synchrony. It is

the movement of systole and diastole of the heart of polyphonic harmony.

It is not surprising that at a certain moment (coinciding with the new spirit of the Counter-Reformation), the ecclesiastical authorities considered that the syllabic asynchrony of the sacred text had gone too far. Although to tell the truth, the ecclesiastical authorities had been suspicious of polyphony from the outset, since it increased the possibility of inconsonant intervalic encounters, various asynchronies and bad harmonic companies. They were a bit like the tritone, a diabolus in musica. The relations between the word and the song, with the fullness of the counterpoint, had ended in divorce: they were living in sin. And that was totally intolerable. The Catholic religion, as a good Abrahamic belief, was a religion of the Book, based on the Holy Scriptures, not on the Holy Songs. If the word and the song had entered into an irresolvable conflict, the orthographic laws had to prevail over the musical laws. That is why the Catholic Counter-Reformation promoted a return to a certain monophonic intelligibility of the divine word and to a greater syllabic synchrony.

Contrapuntal asynchrony did not die with the Renaissance. It continued to be cultivated in the Baroque. He was even able to reach his zenith with the works of Bach and Handel. But it would no longer be the hallmark of an era. It was, at best, his swan song. Because it had to compete with a new musical system that would mark a new era: the birth of the tonal system. Somehow it supposes the return to a new monophonism: the harmonized melody, the homophony of chords. In fact, contrapuntal polyphony is also a form of melodic harmonization, but of a very different nature. The modal system began in the form of monophonic melody, in its Gregorian origins. Medieval polyphony consisted of harmonizing monophonic melodies, called cantus firmus, which were subjected to a harmonic dissolution process that would reach its peak with Renaissance counterpoint, where the melodic raw material of the cantus firmus was transformed into pure harmony.

Modal polyphony is an alchemical process of dissolution of the melodic raw material that ends up being transmuted into harmonic gold. The new tonal polyphony The new tonal polyphony (to be precise, it is no longer choral polyphony, several rhythmically and syllabically disparate voices, but choral homophony: several syllabically and rhythmically concerted voices in looping harmonies of thirds, forming chords; but I will use it more here in the literal sense of the word -poly phonos, various sounds-, to characterize a sound texture made up of various sound sources, whether they are various voices, various instruments or a voice with instrumental accompaniment, regardless of whether they maintain each other a strictly polyphonic, homophonic, homorhythmic or accompanied melody relationship) will do the opposite, since instead of dissolving that melodic raw material, it will support and reinforce it, giving rise to the texture of homophony: the harmonized, looped melody of thirds or chord, the new Melodic Polyphony of tonalism, which will contrast with the old modal Harmonic Polyphony. Whereas contrapuntal harmony was a centrifugal force of melodic fragmentation, the new tonal harmony will be a centripetal force of melodic concentration. The irresolvable conflict between melody and harmony that ended up exploding in the modal system through counterpoint would be resolved in the tonal armistice, where harmony and melody agree to collaborate and reinforce each other, finally signing the peace of the tonal chord: a harmony that will no longer be not a melodic death drive, but an erotic drive of fusion and mutual integration.

It is in the Baroque where all these events will begin to take place that will give way to a new musical era. And it is also at this time that the metric measure of the bar finally acquires its modern status as a rhythmic loop, as an exact measure of accentuation of pulses. In the modal system or the bar did not exist or it was irregular and very flexible. The metric rhythm was not based so much on the rhythmic ostinato of the bar, as on the grammatical accents of the pneumatic notation (virga, clivis, podatus) on the monophony or on the unstable and changing temporal

relationships that maintained, on the one hand, the brevis and the semibrevis (the tempus) and on the other the semibrevis and the minima (the prolatio) in polyphony. It will be precisely the definitive establishment of the metrical loop of the time measure of the compass, together with the appearance of the obsessive and obstinate drive of the basso continuo, which will configure the particular nature of the baroque rhythm.

Historically "basso continuo" was the name given to this first incarnation of the new tonal harmony. It had two fundamental qualities that, although they appeared together, expressed different things: it was a continuum and it was encrypted. It was a continuum because his presence was insistent and constant, and it was encrypted because only the deepest voice was written. The rest was braided in the form of a chord, from which the arrangement in which it had to be executed was encrypted (in a fundamental state, in some inverted form or with some peculiar alteration). That is, the cipher offered information on whether the note that occupied the bass of the chord was actually the root, third, fifth, or even seventh of the chord. And from there draw the harmonic background landscape, the chordal background, which formed the basic pillar that was to support the sound building of the new tonal system (which was nothing more than a reorganization of the old modal system from the Ionian mode and its relative Aeolian minor, reconverted into major and minor scales) braided in the form of triad chords with more or less extensions. And also establish a rhythmic continuum through a metric mechanics based on the bar: the basso continuo was also a drum machine, ruled by the rhythmic ostinato of the bar. It was not only continuous, it was also insistent: it was doubly constant. It established a continuum that was both harmonic and rhythmic.

The constitution and importance of the basso continuo during the Baroque period expresses in some way the triumph of the texture of the accompanied melody (the voice with instrumental accompaniment). Modern (medieval) religious music had begun as pure chant with the genre of Gregorian monophony. His main

concern was to arrange the relationships between speech and song (the syllable and the note). The total synchrony of syllabic song (one syllable, one note) had given way to a more complex and dynamic relationship with pneumatic asynchrony (one syllable). , several notes) that intensified with the use of melisma, in such a way that one of the first forms of polyphony was the melismatic organum, where the organalis voice acquired even more importance than the principalis voice (which was the only one in monophonic singing). , and that would end up becoming a cantus firmus, mere raw material for the polyphonic development of singing. With polyphony, a new source of vocal conflicts will emerge in the relationships between speech and song, which will no longer be reduced to the asynchronies introduced by pneumatic and melismatic singing. The conflict will now affect the very heart of speech, of the word: the syllable. The imitative counterpoint fosters a syllabic asynchrony (a conflict between the syllables themselves) that threatens to make verbal discourse intelligible and that will provoke a reaction from the ecclesiastical authorities against this extreme polyphonism that disintegrates the clarity of the message of the divine word. Not for strictly religious reasons, but rather for expressive and narrative reasons, the Baroque saw the blossoming and consolidation of a form of relationship between the word and the song that would be in the antipodes of that which occurred in the Renaissance counterpoint: the recitative. The recitative falls somewhere in the middle between speaking and singing. And not only does it not generate any conflict with the semantic clarity of the text, but it reinforces and gives prominence to the verbal story, making the song somewhat secondary during its execution. Somehow, the recitative interrupts the musicality of the song to give prominence to the word, to the verbal narration. This alternation in the texture of the vocal stratum between singing (whether choral or solo) and recitative, will be one of the characteristics of the baroque. Over time, this relationship will dissolve: the constant interruption of the cantus by the recitative will be seen more as a nuisance that will have to be eliminated in order to create a seamless choral continuum. The

recitative will survive above all in a new vocal genre: the opera. This is why Wagner will not call his works operas but musical dramas: because of his desire to create a vocal continuum without annoying recitative interruptions. A sonorous wholeness where choir and orchestra are integrated in a more fluid and complex way, in the manner of ancient Greek tragedies.

Because the recitative is inseparable from the instrumental continuo. It is no coincidence that the basso continuo and the recitative are the main characteristics of baroque music. When the cantus ceases to give way to the recitation, the continuo acquires all the instrumental prominence. Because the recitive represents the triumph of a sound texture that is the opposite of the Renaissance texture of counterpoint: the accompanied melody, the voice with an instrumental accompaniment. Religious music had always had a certain tendency to lead a solitary life: not infrequently it was presented a cappella, without any instrumental accompaniment. Contrasting with the type of life that profane music used to lead, much more given to frequenting the instrumental company. The creation of the basso continuo was born from the need experienced by the new baroque sensibility to save religious music from its a cappella solitude. It is the "you'll never walk alone" of the cantus: you will never sing alone again. There will always be an incessant instrumental continuum that accompanies the singing. That is why the continuo can appear encrypted, because its main function is to be a mere harmonic accompaniment to the cantus, in the form of chords, so that you never feel alone again. And that is clearly seen in the recitatives: a dominant voice with a background harmonic landscape (a mechanical support that originates from the harmonic depths of the bass octave).

But the function of baroque instrumental music is not limited to being a mere harmonic accompaniment of the voice. Just as the baroque voice is a double-layered sound layer (alternating singing and recitative), the baroque instrumental layer also presents a double layer: in addition to this instrumental group (cembalo, viola da gamba,

bassoon, harp, theorbo) that forms the continuo, another differentiated instrumental group appears, which will not be encrypted and which will not be limited to being a mere harmonic accompaniment of the voice. It will be from this "discontinuous" instrumental group that the modern orchestra will be born. An instrumental sound layer that is not limited to accompanying but dialogues face to face with the voice, creating its own melorhythmic patterns, which will be as important as those generated by the vocal sound layer. Thus, when the basso continuo disappears from the musical texture, the relationships between the Choir and the Orchestra will become much deeper and more complex than those of the simple accompanied melody, with a secondary role for the instrumentation: a dialogue between equals. What's more, the instrumental layer will end up surpassing the vocal as a musical protagonist, generating many more purely instrumental works than vocals and thus reversing the trend that had prevailed for centuries. Even giving rise to a new musical genre: the choral symphony, mainly instrumental works in which a vocal "accompaniment" is included, originally in the last movement. Path opened by Beethoven in his Ninth Symphony and continued by other composers, such as Mahler in his Second Symphony. A surprising new form of accompanied melody, with the roles reversed.

Finally, the baroque continuo would end up dissolved in the orchestral continuum, in the same way that the vocal recitative would do in the choral continuum.


SYGNUS

The pentagram is the cartographic map of the musical phenomenon. On the plane of its X axis, all the aspects that have to do with time are developed. Both rhythm and melody are temporal figures. But it also has its territory, its own space, which is built on its Y axis. It is what we call harmony. It is true that it also forms time sequences through its chord progressions, but its most outstanding feature is its ability to generate complex waves made up of several simpler waves (musical notes). By vertically accumulating three or more notes, chords are built. The concept of chord is a fundamental element in the harmonic jargon of that peculiar musical ideology called tonalism. Certainly he has not invented the chord (understood as a pattern on the Y axis of musical intervals) but the concept of chord. Interval patterns identical to what will later be called chords were already widely used in works generated following the compositional laws of that other musical ideology that has been called modalism or system of modes. In reality, tonalism does not make a tabula rasa to build a new musical system from scratch. Rather, it is built from a rearrangement of the system of modes. It will choose the intervallic skeleton of the scale of one of them, the Ionian mode, and will replicate it in all the other modes, thus managing to elaborate all the tonal major scales. It will do the same with its relative minor, the Aeolian mode, and you will get all the minor scales. For example, the Dmaj scale is nothing more than the old Doric mode converted into an Ionian replicant (with its necessary alterations). It is not a particularly complicated process: you

just have to use the clone musical buffer and the old modal system is reconverted into the new tonal system. But what was so special about the intervallic skeleton of the Ionian mode that it became the ideal scale for the new musical ideology of tonalism? Undoubtedly, the tritonal interval formed by its IV and VII degrees, which will become a key piece of tonal harmony to generate its great Dominant Seventh harmonic tensor. So much so, that it will alter the second tetrachord of the minor scales (in harmonic and melodic minor form) to preserve it. That is, he will use the clone musical buffer again and will transform the second tetrachord of the minor scales into a replicant of the one of the major scales.

Tonal ideology does not invent the chord, but it does invent the concept of chord. The tonal chord is not only characterized by being built by accumulating third intervals (in its fundamental state), but also by its special elastic nature. The same chord can be expressed by various interval skeletons. You can invert the chord, even rearrange its notes in any way, which is still the same chord. Although there is no third interval left. Because its identity is not established by the interval but by the set of its notes. For the tonal ideology, the order of the factors (notes) does not alter the product (chord). A principle of identity that would surely be somewhat strange for modal ideology. But that from the harmonic treatises of Jean-Philippe Rameau will be fully established. The liquid chord will be one of the pillars of the new science of harmony. But it is only enough to listen to the various states in which the same chord is presented (fundamental, inversions or any other) to realize that precisely what is said does not sound the same. Even that, despite being the same notes, it may be that acoustically it is more what separates them than what unites them. And it is that to accept the tonal principle of the identity of the chord it is necessary to ignore the sound perception. The abstraction of its identity must prevail over the diversity of its sonorities. Its ideal essence must prevail over its empirical existence. The tonal concept of chord has abstract, rationalist, non-empirical and non-acoustic

foundations. It is its rational essence that makes it identical, although it generates very different acoustic realities. This tension between the abstract and the concrete is always present in the musical phenomenon, since it combines abstract signs and concrete sonorities, staves and sound waves.

If tonal ideology loves one thing, it is precisely harmony. So much so that it will spawn an exponential increase in harmony treaties. At the same time that he will appropriate the concept of harmony to apply it almost exclusively to his peculiar form of polyphony, while he will relegate other forms of polyphony, for example contrapuntal, to a mere game of melodies that develop on the horizontal axis X, and keeping for itself the almost exclusive domain of the vertical axis and of the harmonic sonorities in the mapping of the staff. This is still paradoxical, since in tonal practice what is observed is exactly the opposite: a loss of the leading role of harmony compared to previous times. Because if there is a ero age of harmony, it would be better to place it more in the contrapuntal period than in the tonal one. Although it would seem that in the contrapuntal texture the horizontal axis X of the melorhythmic development would predominate, given that one of its main musical laws consists of combining different voices that generate different melodies with equal relevance, in reality what these different melodies do is cancel each other out and create a sound texture where harmonic effects predominate. That is why it is difficult to hum a contrapuntal piece: its sound mass does not generate easily recognizable and memorable melorhythmic patterns. So we could characterize the passage from the modal system (which began by creating monophonic textures above all where melorhythmic patterns predominate- and ended up generating contrapuntal polyphonic textures) to the tonal system as the passage from harmonic polyphony to melodic polyphony. Because in this last musical system, harmony loses the prominence that it had before, becoming a kind of background sound landscape on which some of the voices stand out in the foreground, thus acquiring a leading role and now it will

be able to generate patterns melorhythmics that stand out in the sound mass and thus are more easily recognizable and memorable. And this is corroborated by the appearance of certain peculiar phenomena in the tonal discourse, such as the transformation of the deepest voice into a basso continuo that encode an accompanying chord, the loss of relevance of the intermediate voices or the cloning of some of the voices in the new harmonic texture based on triad chords. For this reason, the theoretical importance that harmony acquires for tonal ideology is curious, when in practice it acquires a role, certainly not irrelevant, but somewhat secondary. What will distinguish a musical work in practice will not be its harmonic structure, but the melorhythmic patterns that generates. That is what makes each of them unique and different. That is why, for example, in the pop-rock genre, with very few basic chords, a multitude of singular works can be generated that are clearly differentiated from each other, because what gives it its own identity is not the background harmonic landscape, but rather the singularity of the patterns. melorhythmics that it is capable of generating. And yet, in tonal ideology, focused above all on harmonic study, melorhythmy will be the poor sister, the great forgotten one. It is true that we speak of the musical phrase and other subdivisions of a melody, but the importance given to it and the time devoted to it is almost marginal. It is as if we were teaching how to paint a painting by spending most of the time and effort learning the technique of creating the background landscape and forgetting : the figures that are in the foreground and that are what give it its unique and singular character. Because using almost the same background landscape you can create a multitude of clearly different paintings. Provided that they are not purely landscape works, in which case that landscape ceases to be a background located in the background to become the main protagonist of the scene. the figures that are in the foreground and that are what give it its unique and singular character. Because using almost the same background landscape you can create a multitude of clearly different paintings. Provided that they are not purely landscape works, in which case that landscape

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Generally, musical entities tend to lead a double life. They exist both in the ideal world of signs and in the physical world of signals. This would only apply, obviously, to those who belong to musical cultures that have developed some form of abstract writing. They are both sound waves moving through space and conceptual figures moving through the staff. This double life of musical existence can sometimes generate conflicts. During the Middle Ages, music was part of the quadrivium (along with arithmetic, geometry and astronomy) in what we could call the sciences of number, as opposed to the trivium (grammar, rhetoric and logic) that would be the knowledge about the lyrics (language) In such a way that music was understood more as a system of mathematical organization of sound signs than a language. The study of musical practice was secondary to the study of the logical proportions between the musical intervals generated by the division of a monochord (a kind of sonorous resonance box for single strings, which had already inspired Pythagoras in his mathematical reflections on harmonics). and intervals) The abstract and mathematical qualities of music were more significant than its expressive aspects and its ability to generate physiological responses in receptors. The true musical language was the mathematical language. Instead, the Baroque focused more on reflecting on the expressive life of the musical phenomenon. On the ability of musical waves to cause a physiological reaction in the body, in the form of emotion, affection or motor response. It was not only a rational system of abstract signs, but also an expressive, rhetorical language, capable of provoking emotional responses. Hence

the various treatises on musical affects that appeared during this period. If it had been quadrivium (numerical formula), it was time to claim that it was also trivium (expressive speech) capable of eliciting emotional responses. Hence the various treatises on musical affects that appeared during this period. If it had been quadrivium (numerical formula), it was time to claim that it was also trivium (expressive speech) capable of eliciting emotional responses. Hence the various treatises on musical affects that appeared during this period. If it had been quadrivium (numerical formula), it was time to claim that it was also trivium (expressive speech)

Music has probably been linked to dance since its remote origins. It was his ability, through the rhythmic patterns he created, to cause coordinated body movements that was valued. And without a doubt also its no less important ability to trigger fundamental emotions such as joy, sadness, anger or courage. Its rhythmic patterns were capable of interacting with the motor system of the human body, while its melodic-harmonic patterns mercilessly bombarded his amygdala, thalamus, hypothalamus and the rest of the operating centers of the limbic system (brain territory of emotions) firing a thousand and one affections. The romantics took all these expressive aspects of musical language to the extreme, remaining in the collective imaginary associated with "romantic music" to a sound practice of human emotions. Musical writing is not only an abstract exercise in the logical combination of signs, but also an affective cartography designed to provoke emotional responses in the receiver. A limbic pentagram.

From this point of view, post-tonalism will mean a return to the medieval conception of musical signs. His founding gesture is the substitution of the harmonic series (a set of physical-acoustic features of musical notes) for the twelve-tone series (an abstract and purely mental construct) as the basis and foundation of his musical discourse. With the difference that the ancient mathematical formalism (from the Pythagorean theories to the medieval quadrivium) still had its origin in physical phenomena of sound vibrations. Postonal

ideology will completely dispense with any reference to this physical foundation of musical notes and will take them as purely abstract signs having only a pentagrammatic existence. It will not only consider any attempt to provoke emotional or motor responses through musical discourse to be anachronistic, but it will completely disregard the expectations and desires of the listener, who will be relegated to the category of a self-sacrificing and patient subject who will have to stoically endure the peculiar sound result. derived from applying the syntactic and grammatical laws of the new musical ideology. With the satisfaction of knowing that you are on the right side of the history of our sound present. A new musical asceticism that, like all forms of puritanism, has to constantly fight to repress its most basic and elemental emotions. Only those able to resist and master the temptation to fall into the sin of the old tonal emotions will be fit to become members of the new musical cult. A cult that is very spiritual or platonic, since it favors the ideal world of musical signs over the material world of their sound incarnation. In this way, a musical piece will no longer be valued for the fact that it sounds good or bad, is more or less pleasant, satisfies or does not satisfy the sound expectations of the listener, causes pleasure or boredom, enthusiasm or indifference. All this is irrelevant. The only important thing is that it is elaborated following the abstract laws of the new musical ideology. With the threat of expelling from the group of the chosen ones and banishing to an anachronistic past anyone who does not abide by them. In this way, a musical piece will no longer be valued for the fact that it sounds good or bad, is more or less pleasant, satisfies or does not satisfy the sound expectations of the listener, causes pleasure or boredom, enthusiasm or indifference. All this is irrelevant. The only important thing is that it is elaborated following the abstract laws of the new musical ideology. With the threat of expelling from the group of the chosen ones and banishing to an anachronistic past anyone who does not abide by them. In this way, a musical piece will no longer be valued for the fact that it sounds good or bad, is more or less pleasant, satisfies or does not satisfy the sound

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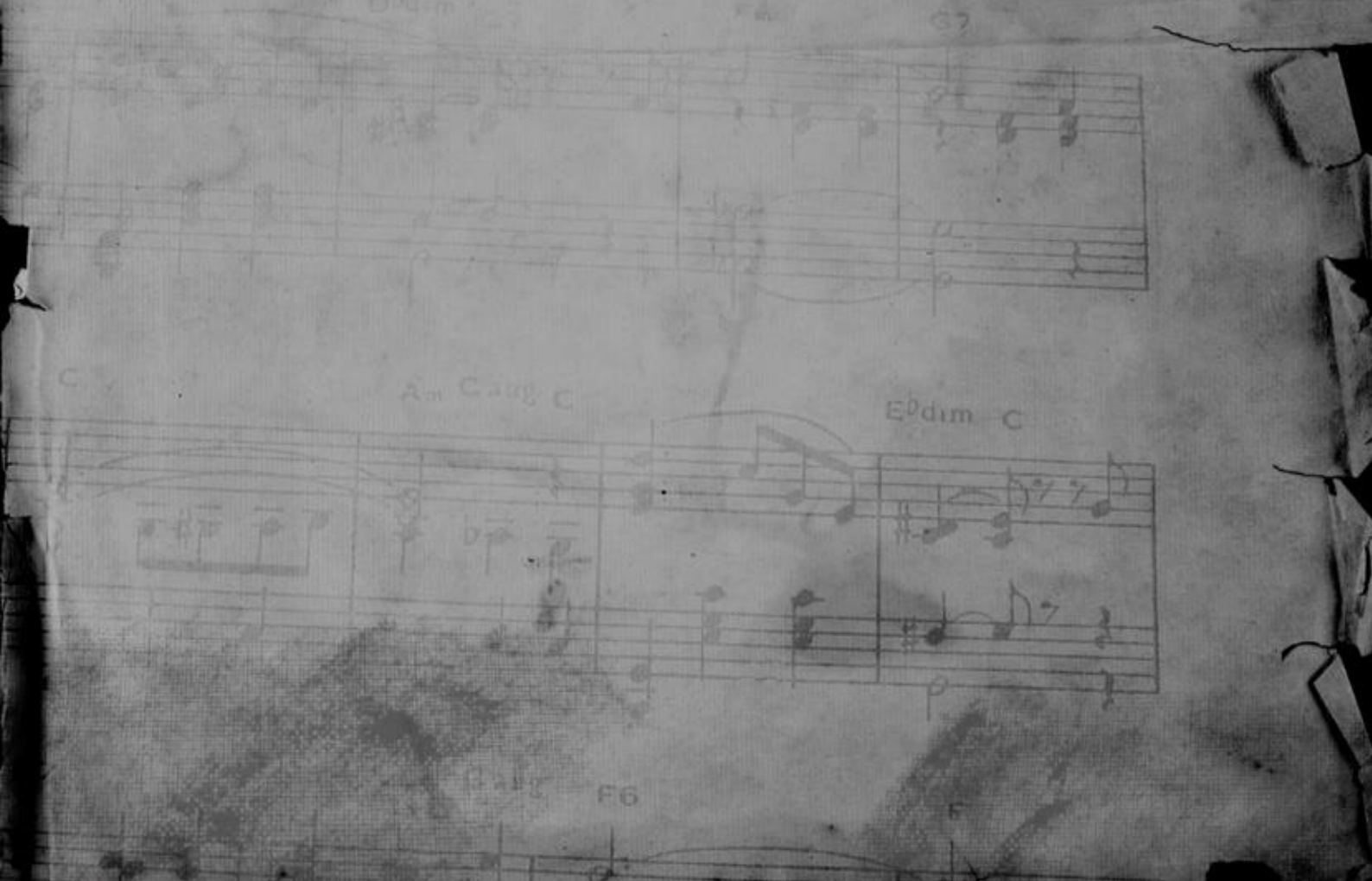
And it is that deep down here we find the eternal human conflict between the individual and the group. Ideological rules are never presented as personal options of free choice, but always as submission strategies to reinforce group cohesion. When they could perfectly well be considered as a palette of musical resources (among others, regardless of both the chronological moment in which they were created and the musical ideology that invented them) made available to the individual to express their own world of sound.




HARMONIA

In Greek mythology, Harmony was the goddess of concord and consonance. Her opposite was Eris, who represented discord, conflict and dissonance. Originally the muse of singing was Melpomene, but over time she became the muse of tragedy and her sister, Thalia, the muse of comedy, embodied in the theatrical masks of crying and joy. Theater derives from religious worship: a ceremony originally of a sacred nature that ended up giving rise to a profane staging. The ancient Greek theater is located in a peculiar bordering space between worship and theater, as we currently conceive it. It was no longer strictly a religious cult, but it was not yet a profane spectacle either. It was celebrated on certain marked dates of the religious calendar, especially the great festivals in honor of the god Dionysus, but an entrance fee was paid and it was not performed by religious representatives but by actors who staged works by theatrical poets. And, although it was an acted fiction, in its plot some cult rituals were still carried out that recalled its religious origin, from which it had not completely separated itself. And another of its peculiarities was that it not only included dialogue interactions between the actors, but also parts of music and singing. In fact, the choir was not only the representative of the community, it was also a choir that sang at certain times. More than a show of recited dialogues, it was an authentic theatrical musical. Each "playwright" had to write a tetralogy to be performed, consisting of three tragedies and one comedy. Although Greek theater had specialized in the creation of two different and antagonistic genres, comedy and tragedy, what we could call the theatrical spectacle brought them together and merged them into an entity of tragicomic nature. For three days, in the Dionysian festivities, people mourned the

tragic fate of the heroes who faced almost superhuman pain, but on the last day the crying mutated into laughter, in a happy ending to the celebration where everyone rejoiced in a slapstick comedy. where the same heroes, even the same gods, were objects of satire and ended up involved in the most grotesque and ridiculous situations. And it is precisely this spirit of tragicomic fusion that occurred in the theatrical spectacle that is the hallmark of ancient Greek theater, much more than the division of works into antagonistic and irreconcilable genres such as tragedy and comedy. More than tragedy or comedy, the true leitmotif of Greek theater was the tragicomic tetralogy. Perhaps that is why, when Wagner tried to recover the dramaturgical spirit of ancient Greek theater, he composed his own tetralogy. The difference is that the nature of the Greek tetralogies was not exclusively epic-tragic or tragic-mystical (like the one he composed) but tragicomic. The discord that emerged from the tragic conflict was not resolved with the hope of a final harmony in a religious afterlife of eternally happy souls, but in the hereafter of a harmony of theatrical laughter that reconciles us with life. Its final cadence was not the mystical chord of the harmony of the spheres, but the harmony of joy liberating from anguish, in the celebration of a paradoxical existence that included at the same time discord and concord, tension and relaxation, crying and laughter, Eris and Harmonia, Melpomene and Thalia.

Actually, nothing else is musical harmony. Its definition could not be more clear and concise: various musical notes sounding at the same time. How many? Two is enough. Although the fact of two notes sounding at the same time is usually called interval, in reality it is already a form of harmony, the simplest. And any way in which two or more notes sounding at the same time are related, they make up a musical harmony. It is not essential that they be organized in chord form. Reserving the concept of harmony for tonal polyphony is absurd. Modal polyphony, counterpoint, is part of harmony with the same right as tonal polyphony of chords.

Because the essential thing is that various notes sound at the same time, it being irrelevant whether they form a contrapuntal or chordal or even atonal union. Obviously modal harmony has its own characteristics that make it unique and differentiate it from tonal harmony, but that does not mean it is no longer a form of harmony. In the same way that polyphony, poly-phonos, various sounds, is a term that should be able to be used to talk about modal harmony as well as tonal or atonal harmony, because they are basically synonyms. The fundamental thing in the concept of harmony is that several sounds are played at the same time, everything else being irrelevant. Because, and this is what is truly relevant, what is fundamental in the harmonic fact is that there is a fusion of sounds to generate more complex sound waves. Actually, harmony is the first synthesizer invented by humanity.

Sound synthesis made by fusing various different sound waves was one of the first strategies used by analog synthesizers. It was called additive synthesis. And harmony is nothing other than a form of additive synthesis. Two or more musical notes are taken and fused together, making them sound at the same time. The result is the creation of more complex waves arising from the interaction of simpler waves, musical notes. The raw material of music was from the beginning that peculiar selection of waves of the sound spectrum that we call musical notes. With a very small group of sound waves it is possible to obtain an almost infinite number of different results. By successively combining some of them we obtain a melody, by simultaneously combining some of them we obtain a harmony. And the possibilities of combinations and recombinations are very high. Musical notes have traditionally been the alphabet of the language of music. But musical notes are not simple sound waves, they already have a certain degree of complexity. When the string of a musical instrument vibrates and produces a particular note, that note is actually the resulting product of several simpler sound waves that vibrate simultaneously. They are called harmonics. Therefore, a

musical note is already in itself a complex wave created by the sound synthesis of various simpler waves vibrating at the same time. That is, a musical note is actually already a form of harmony created by additive synthesis. The mechanism is the same that the musical language will use to generate more complex sound waves (harmonies) from the sound synthesis of simpler sound waves (musical notes).

How is a sound wave converted into a musical note? Why precisely have these sound waves and not others ended up becoming the raw material of a certain musical language? Surely each musical culture will probably have had its own criteria for selecting personnel among possible candidates. If we observe, for example, the raw material of Western musical language, we realize that all notes share one characteristic: they sound "good." That is, they are sound waves of a certain complexity that present a pattern of harmonics that make them a stable sound wave, with an internal organization that maintains a certain logic. This would differentiate them from certain sound waves in the sound spectrum that we could call noise and that would be characterized either by lacking organizational patterns or because their organizational patterns are irregular and do not generate stable and balanced sound waves: they sound "bad" to the ear. We can make a random combination of musical notes successively and the result will never be strident or noisy. It probably won't be the best melody in the world, but it won't be a real sonic disaster either. Because the raw material of the Western musical language is composed of a small number of consonant sound waves, with a pattern of harmonics that expresses more the concord and agreement between its harmonics, than the conflict and discord: musical notes. That is why medieval monophonic singing produces that feeling of relaxation, of a paradisiacal ecosystem with which to express the mystical fantasy of a regular life without fanfare: it generates mental patterns of harmony and inner peace. But the melodic succession of notes has limited possibilities and can

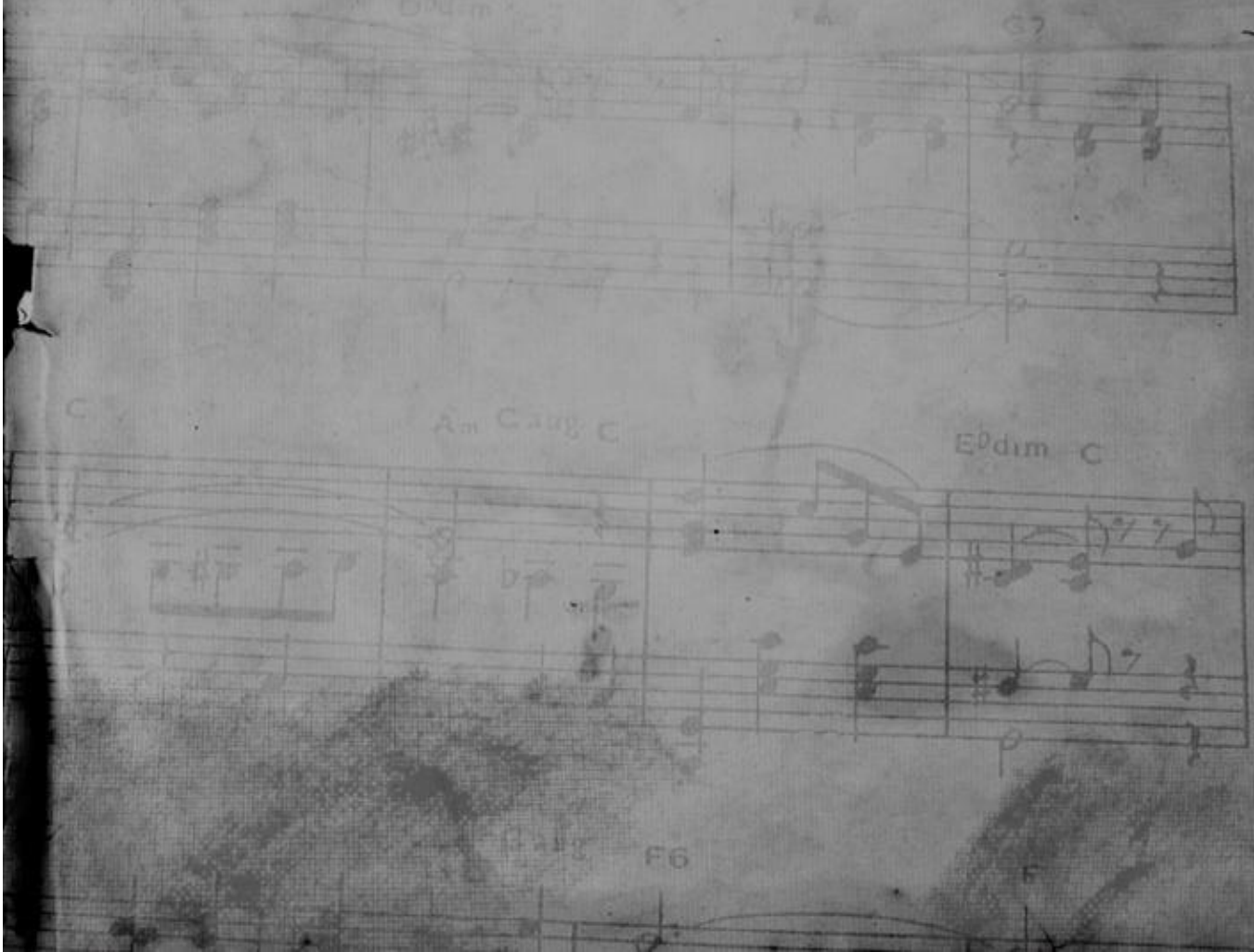
fall into monotony. And in addition to combining the notes successively, we can also combine them simultaneously and this opens up an almost endless field of possibilities. Generating new, more complex sound waves from the additive synthesis of musical notes will be the great challenge of harmony, which exponentially increases the amount of sound resources that the composer can count on. And here the paradox arises that simultaneously combining stable sound waves does not exclusively generate new stable complex sound waves, but also unstable, tense, discordant sound waves, because the vibratory patterns of the different musical notes that make it up can conflict. It is this "sound catastrophe" that was initially called "diabolus in musica": the tritonal interval, resulting from the additive fusion of two musical notes that come into conflict and generate a new complex sound wave with a certain degree of dissonance. A "harmonic" wave that was not very harmonious. At least for the modal system. Because in the new tonal system it would acquire a fundamental role: being part of the dominant seventh chord. And the tone system recovers the emotional spirit of the ancient Greek theatrical tetralogy, where Harmony was as important as Eris, concord as discord, relaxation as tension, Melpomene as Thalia. Not the absolutism of the tonic as is often said, but this dialogue between the complementary antagonists is what will characterize the tonal system. What is relevant will not be the monologue that generates an all-powerful tonal center, but the dialogue that will be established between a matrix that generates consonances and a matrix, equally important, that generates tensions and dissonances. The tonal ideology will establish this dialogue in its own way, with peculiar characteristics that will be its own, but which will not be the only ones possible nor necessarily the best. Many others are possible, neither better nor worse. Because what is relevant is not what we call them but how we characterize them. And their peculiarity is that they are systems based on dialogue and integration between sound elements that are at the same time antagonistic and complementary: tension and relaxation, cosonance and dissonance, Harmony and Eris, comedy and tragedy, laughter and crying, pain

and joy. Like life itself, which continues to be a tragicomedy of paradoxes.

The new atonal system that will replace the tonal system as the paradigm of musical academicism has some undeniable virtues. Like, for example, having enormously increased the resources available to express musical tensions. His exploration of the tensor resources of music has generated an estimable palette of sound resources at the composer's disposal. But he has definitely blown up all the bridges of dialogue in music with his own inner contradictions. He has lost himself in the labyrinth of a tireless monologue that recognizes no interlocutor other than himself, falling into a new monotheism of dissonant tension converted into absolute monarch. So absolute that he has even managed to alter, through some techniques of playing traditionally used instruments, the raw material of music, converting musical notes into sound waves with a significant degree of dissonance. A simple atonal melody sounds very different from any modal or tonal melody, because although it uses the same musical notes, it uses them in an altered way, so that they no longer have that characteristic of being balanced and consonant sound waves. Because any form of full consonance has come to represent the same devil and original sin, which must be banished from the new musical present. And the old artistic avant-gardes have ended up acquiring tics of religious fundamentalisms.

With the expulsion from its peculiar musical paradise of any sound that could seem consonant, any form of dialogue between complementary antagonists is now impossible. It is the price that every utopia that aspires to a saving revolution has to pay: generating a totalitarian system that does not recognize opponents, it simply expels them to some past time that would have been overcome. This messianism is characteristic of the ideology that the artistic avant-garde generated: the illusory fantasy that they were inventing the wheel. That the past was nothing more than an error that would be redeemed in a new future arising from some

apocalyptic revolution: the new coming of Christ, the classless society, the purified ethnicity, the new artistic language of modernity. A new art without past or future, because it would be an eternal present. A new art of the present that, in the words of one of the prophets of the new musical gospel, was to last at least a thousand years. And the artistic avant-garde has unfortunately become the closest thing to an aesthetic sect: a ritual code of obsessions and rhetorical formalisms that suffocates rather than liberates.




TEMPUS

The bar is the "cantus firmus" of rhytmic counterpoint. The basic rhythmic pattern on which rhythmic polyphony is built. A metric pattern that usually contains a limited number of beats graphically delimited by bar signs. The barline establishes a border between bars. The first beat after the bar is the initial or initiatic beat; the last, the final beat or cadence of the measure. The bar is a rhythmic pattern that divides the Time spectrum into discrete and limited units of time that are repeated in the form of cycles. The essential feature of the bar is that it creates small slices of time that can be repeat in the form of loops: the 4/4 time loop or the 3/4 time loop. It expresses a cyclical conception of Time: it is the time of the eternal return of the same. A conception of time that is probably as old as humanity. It is the chronic time of the Myth, as opposed to the chronological time of History. The bar is a limited time loop, but it can be repeated ad infinitum: we can always, as in arithmetic infinity, add one more beat. Generates a time series that has no limits or time. A time without time: an eternal time, without beginning or end.

This "cantus firmus" (perhaps it should be called "rhithmus firmus") of the bar will begin to create contrapuntal phenomena when it interacts with another voice that generates rhythmic patterns. What we call melody is a sequence of variations in the

frequencies of the waves (a combination of notes) and at the same time a sequence of variations in the duration of the times of the waves, which ends up generating a particular rhythmic pattern. When the frequencies used are simple frequencies (although really they are already composed of a multitude of other simpler frequencies or harmonics, since they are already complex waves) contained in a scale (which is nothing but a limited set of frequencies certain or tuned that we call notes) this combination of frequencies and times receives the name melody. This combination also appears in the sequences generated by more complex waves that are the result of simultaneously vibrating several of these simpler frequencies or notes. The difference is that the rhythmic pattern generated by the temporal displacement of these more complex harmonic waves is usually more static, with less dynamism and variation than the rhythmic pattern generated by melodic movement. In addition to the fact that its complex waves escape the tuning of the scale, as it is composed of the sum of several of those tuned waves or notes,

It is precisely this greater dynamism of the melody that makes it stand out and focus our sound attention, above a harmonic movement that performs more of a rhythmic basso continuo function, located as it is between the even more static pattern of the ostinato of the bar and the much more dynamic pattern of melorrhythmia. It would still be necessary to include the rhythmic patterns generated by the percussive instruments to have a complete vision of the different "voices" that make up what we could call the Rhythmic Polyphony, which adjusted to the cruising speed established by the tempo (measured in bpm or beats per minute) will weave the rhythmic texture of a musical work. A polyphony that is the result of combining various rhythmic sources that generate temporal patterns that interact with each other.

It is true that this rhithmus firmus of the bar, at least in its version as a sign of the pentagram, has a somewhat peculiar shape (and perhaps because of this it is why it has traditionally been considered more of a metric fact than a rhythmic one): it is soundless.

Does the silent rhythm exist? Or is it an oxymoron? It is no less true that in reality all the signs of the staff are silent and that they only become real music when some sources that generate sound waves (whether physical or virtual) interpret them. And yet, the bar of a work still doesn't really sound. It's still a phantom beat. More of a drum machine than a proper rhythm. However, it is the first step for the pulsating beat of the metronome, which segments time into completely identical units, to become musical time. By establishing a pattern of beats or beats that are marked regularly, they are distinguished from the others (let's call them accents, strong beats or whatever we want): it is that small regular irregularity that it introduces into the perfect regularity of the metronome time that makes it so significant. It establishes an alternation, a contrapuntal interaction between some times and others that will generate musical patterns. That is why, at the same moment that we begin to divide a staff into regular bar lines, we already begin to transform it into musical time. Although, paradoxically, it is a soundless musical pattern. And if we accept the existence of silent musical patterns (such as the beat), the idea that soundless rhythmic patterns can also exist is not entirely unreasonable. In fact, if we go back to the source from which music took the notion of meter, literary poetics, we find that a poem is divided into stanzas, which in turn are made up of verses. And the concept of verse (each horizontal line of a poem) is usually defined as a rhythmically organized combination of words. The metric unit would not be the words but the syllables. What makes the meter peculiar is not its difference from the rhythmic one, but rather that it establishes patterns of rhythmic accents that may or may not coincide with the accents of the words: it creates its own rhythmic pattern of accents (based on a peculiar count of syllables) that overlaps the pattern of word stresses. When talking about poetic metrics, reference is constantly being made to poetic rhythm. Thus one speaks of accentual rhythm (meaning that metrical accents are considered to create rhythmic patterns) or of the metrical rhythm of the poem (which is what differentiates it from prose, which does

not need to have rhythm) or it is said that a poet achieves give rhythm to a poem through rhyme and meter. Therefore, the metric is not understood as something alien or different from the rhythm, but as an integral and fundamental part of it. A silent (nonverbal) pattern that establishes the rhythmic structure of the poem. but as an integral and fundamental part of it. A silent (non-verbal) pattern that establishes the rhythmic structure of the poem. but as an integral and fundamental part of it. A silent (non-verbal) pattern that establishes the rhythmic structure of the poem.

For all this, although if we choose to consider the bar to be a metric unit, this does not necessarily imply having to expel it from rhythm, of which it can perfectly well be considered an integral and fundamental part. The problem is not to call the bar a metric unit (or in any other way we want) but to define it as something other than the rhythm. Because it is a theoretical distinction that can be more artificial than real.

Although soundless, the bar is not shapeless. It has an internal structure, which is like laying the first stone to be able to transform generic time into musical time. And that internal structure is related to the metric accent. Regularly accentuating one of the beats of the metronome clock transforms the tempo into musical time, starting from the creation of that fundamental rhythmic structure called bar. The time pattern of the bar is a rhythmic pattern of metrically accented time units. On what temporal unit of the bar does that metrical accent fall? It is unanimously accepted to consider that the accented beat (also called strong) is the first beat of the bar. But it is enough to observe how the rhythmic patterns are structured to realize that the accented beat is not really the first but the last of the series, cadential time, which is what stops the rhythmic flow and turns it into a complete rhythmic pattern. And it could not be otherwise, since the only essential structure of the key signature is the border (the bar line) that defines where one beat ends and another begins, thus generating an initial time and a cadence time. And the cadential time is precisely the one in charge of generating that border: it is the accented time of the rhythmic

pattern, the one that stops its rhythmic flow.

The most common resources to cadence the rhythm of a melody are long notes, silences and harmonic density, which function as a retaining wall that stops the flow of the melody. For this reason, when we use these resources by placing them on the first beat of the bar, turning it into accented or strong time, we are actually turning it into cadence time of the melodic rhythm, losing its role as the initial beat of the bar, whose function passes to the second beat of the bar, which is the one that will function as the first beat of a new melodic cell. Hence, believing that we are fitting the melodic rhythm with the rhythm of the bar, we are actually dislocating it. Convinced that we are creating a rhythmic monophony, we are actually creating a rhythmic counterpoint between the two voices.

But in this two-voice rhythmic counterpoint there is something deeper than playing at fitting and dislocating the rhythmic pattern of the melody and the rhythmic pattern of the bar. Although the bar establishes a finite temporal pattern, wedged between the two bars, it is actually creating a cyclical pattern, which can be repeated ad infinitum: it expresses a cyclical conception of time. On the other hand, the melody (despite the Wagnerian fantasy of creating an infinite melody) creates temporal patterns that are also finite but that, although in theory a single melody could also be repeated ad infinitum, in practice it hardly happens. It is practically never presented as cyclical time (unlike the bar) although the limited repetition of the same melody, with or without variations, is a common compositional resource. The Wagnerian leitmotif is a clear example. And what is called imitative counterpoint consists of nothing more than the repetition of the same melody in several voices (more strictly in the canon, more complex in the fugue), but temporarily out of phase, to create harmonic textures. This curious recursive mechanism is also present, for example, in fractal geometry: the reiteration of the same mathematical formula generates surprising ordered abstract forms. Recursive repetition is different from cyclic repetition precisely because it avoids falling into a loop. In some

way we could say that the imitative counterpoint generates a fractal music. But perhaps the most surprising example of recursion is the one that gave rise to the birth of human consciousness: a brain that thinks of itself. And what is called imitative counterpoint consists of nothing more than the repetition of the same melody in several voices (more strictly in the canon, more complex in the fugue), but temporarily out of phase, to create harmonic textures. Recursive repetition is different from cyclic repetition precisely because it avoids falling into a loop. In some way we could say that the imitative counterpoint generates a fractal music. But perhaps the most surprising example of recursion is the one that gave rise to the birth of human consciousness: a brain that thinks of itself.

So even though it makes use of recursive repetition, melodic time is basically finite time, time with a beginning and an end: chronological or historical time. So we could characterize the rhythmic counterpoint (the one that occurs between the rhythm of the compass and the rhythm of the melody) as a complex game of interactions between two temporal conceptions rooted in the collective imaginary of humanity: the chronological time of history and the chronic time of the myth. Musically expressed in the chronic time of the compass and the chronological time of the melody.

But not only does the melody express that finite conception of time, so does the harmony through the creation of harmonic progressions, with that cadential ending that converts an unlimited sequence of chords (which could extend to infinity) into a sequence with a time limit: a progression. Nor does only the ostinato of the bar express the cyclical conception of musical time. For example, an octave is nothing but a looped scale. The last note of an octave is at the same time the first note of the next one (curious enharmonic phenomenon, like being both flat and sharp, of having a double identity) The audible sound spectrum converted into a loop of octaves. And what about the famous cycle of fifths, that vicious circle that has become virtuous? Not to mention the loop of thirds, fundamental matrix in chordal tonal music. Or, in another

order of things, of that curious phenomenon of the recurring cycle in which musical ideologies are trapped: believing themselves eternal and ending up being ephemeral.

The eternal and the ephemeral, the loop and the cadence, infinity and death. That same temporary counterpoint that manifests itself in the animal that knows itself to be ephemeral and that dreams of an eternal time.