Musika: The becoming of an artistic musical metaphysics

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CHAPTER 1

Music and Consciousness

The ability to perceive or think differently is perhaps more important than the knowledge gained.

David Bohm

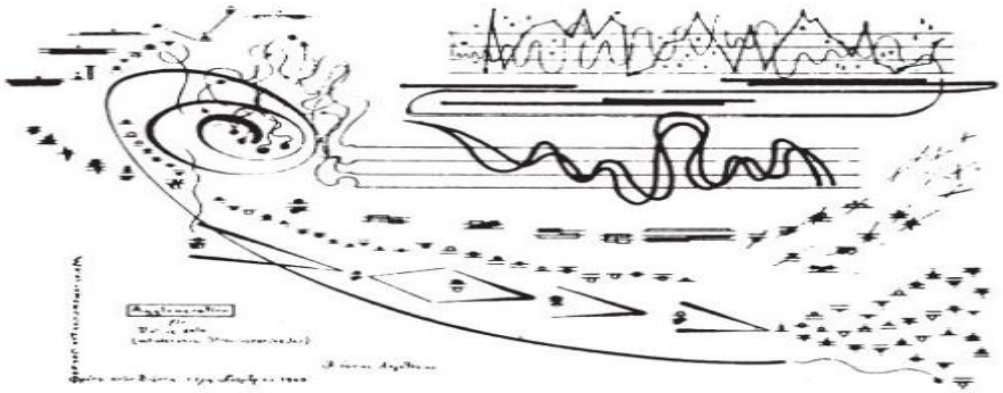

Figure 1// "Agglomeration" 1960 by Anestis Logothetis

Preamble

O, what a world of unseen visions and heard silences, this unsubstantial country of music! What ineffable essences, these touchless rememberings and unshowable reveries! And a privacy of it all! A secret theater of speechless monolog and prevenient counsel, an invisible mansion of all moods, musings and mysteries, an infinite resort of disappointments and discoveries. A whole kingdom where each one of us reigns reclusively alone, questioning what we will, commanding what we can. A hidden hermitage where we may study out the troubled book of what we have done and yet may do.

An introcosm that is more myself than anything I can find in the mirror. This music that is myself of selves, that is everything, and yet nothing at all – what is it?

And where did it come from?

And why?

Thus begins Julian Jaynes' only published book, *The Origins of Consciousness in the Breakdown of the Bicameral Mind* from 1976. Research from psychology, neuroscience, biology, history, and sociology Jaynes, then a psychology professor at Princeton University, weaves through with inferred evidence from religion and ancient texts, and bonds his multifarious material with the glue of intellectual speculation, to offer one of the most original consciousness theories. Jaynes proposes that consciousness emerged from the hallucinatory un-conscious mentality of the so-called bicameral man only around three thousand years ago. In the mind of the Iliad's man, the hypothesis states, the functions of speaking and hearing/obeying were divided between the left and the right hemisphere, respectively, hence, 'bicameral'. The bicameral man was a subject of auditory hallucinations originating in the right hemisphere, which were interpreted as the voices of gods and translated as commands and admonitions by the left hemisphere. Near the end of the Mediterranean Bronze age, about three thousand years ago, an important transition took place, during which the schizophrenic-like state of our brain switched to its integrated self-conscious mode as a radical neurophysiological adaptation to cultural change. To the brain, this was like an upgrade of an operating system.

Be that as it may, why does a book on consciousness begin with a rhapsody on music? It doesn't. The citation above is guilty of a couple of crucial substitutions in the first and eight line – of 'the mind' and 'consciousness' with 'music' – which fundamentally transform the function of the text from a poetic rant on self-consciousness to a poetic canticle on musical meaning. Self-consciousness and musical meaning are, by general admission, two separate, distinct phenomena. And yet, can one really tell the difference, reading Jaynes' lines? It is all there – the 'theater of speechless monolog,' the 'invisible mansion,' the 'lonesome kingdom,' the 'heard silences,' 'touchless rememberings,' 'unshowable reveries,' moods and musings . . .. Are not these the architectures, environments, building materials and habitants, the stuff that populates not only the country of the mind, but also the country of music?

Such were the questions I asked myself back in 2010, when first reading Jaynes' book. These questions were not new. Growing up with a daily quota of hours for practicing the piano (beginning at 7, practicing 2 hours a day by the age of 9 and increasing progressively to 8 hours a day by the age of 14), I have had plenty of time to lose and find myself into the territory, which could well indeed be named 'the country of music'. It was populated by moods and gestures, climates and sceneries, movements and encounters, by romancing

couples and lamenting silhouettes, moral standings, longings, and so many beings – always specific, real, tangible. Common sense frames the open belief in this most complex and sophisticated music demographics as childish naiveté, while contemporary musicology informs us that music is not a representational art: the palpable entities of music's are constructions of my imagination, illusions made-up in a cursory make-belief, products of my personal memories and unique experiences.[11] These reasonable claims have always seemed troublesome to me: how could the music beings be products of my mind, when most often they come as a surprise, when I 'encounter' or 'discover' them, sometimes I am even possessed by them? It is not that music makes me feel this or that – sometimes I don't even know how I feel until I find out in and through a seemingly random, never heard before, piece of music. Certainly, I can vouch that music knows me better than I know myself – like composer Rokus de Groot, I too could say, "No one knows me the way Bach does" (Groot, personal communication, September 2015).

So, in its core, this dissertation comes to address a personal matter. In order to understand the experiences of my younger self in terms other than mystical or esoteric, in order to make some sense of who I have become and how I am becoming, I need to probe into the foundations of one of my most significant relationships, asking:

Is music real? What is its relationship with reality?

What is the connection between music and consciousness?

What is the nature of the structures I call above 'music beings'?

I am not alone in asking these questions. Many people in many ages have wondered so before me, departing from their unique perspectives and arriving at different conclusions. And there are many candidates willing to claim ownership over musical beings. Besides my, apparently silently ingenious, conscious Mind, able to construct such fine entities, those could be thought to emanate from an osmosis-like connection between the Composer's and Performer's creativity, to take shape from my Instrument's *Umwelt*, to spring from the Collective Mind emerging in Performance, or, indeed, from all of these simultaneously coming together. It could also be argued that what I call a 'musical being' is a structure that makes up the bodymind of a mysterious entity called the Music work. D. H. Lawrence used

[11] The problem of representationalism in music is complex and has a long history. A concise summary is offered by Nicholas Cook in *Music: A Very Short Introduction* (1998), especially in the chapter "A Matter of Representation."

to say that novels are finely tuned, living "tremulations on the ether" that can make the whole man alive tremble (1936) – which is an easy thing to say, since novel's tremulations are powerfully representational, inviting me in plain language to identify with them. Music works are tremulations on the ether, too, but how do they make me tremble? How and where are they engineered? In music? In consciousness? In a sort of unifying field?

Not an intolerable thought. Strictly speaking, all we find in the country of the mind is manifestations of consciousness – perceptions, sensations, intuitions, feelings, memories, imagination, thoughts – pliable but organized energies, coalescing in the unique formula of the self, formula that shapes my inner world and subjective experience. As for music, who has not found herself "dreaming of an imaginary country, one that can't be found on the map" (Debussy 1901) while hearkening music? In such moments, do we not leave the known self behind, entranced, immersed in the ineffable reality of music's introcosm, entrained in the dialogs of the musical structures, to follow sounds there, where perceptions, sensations, intuitions, feelings, memories, and thoughts are assembled in such a way as to reimagine – extend and expand – the rhizome of selfhood? Music, or what we make of it, and our assembled self, fuse into one so naturally, that one can't but suspect them in a clandestine liaison: one that is at play under the thresholds of the watchful 'I'. Jaynes has a hypothesis on the different ways speech and music affect our consciousness, based on Boston Children's Hospital research on brain lateralization in 6-months old human infants. During the experiment, EEG electrodes were placed over Wernicke's area in the left hemisphere of the infants (crucial for human speech) and over the corresponding part in the right hemisphere (the proposed place of the auditory hallucinations heard as gods' voices): when presented with recordings of speech, infants' left hemisphere showed greater activity, as expected. Children's reaction to music, however, was quite dramatic:

> [n]ot only did the children who were fidgeting or crying stop doing so at the sound of music, but also they smiled and looked straight ahead, turning away from the mother's gaze, even acting as we do when we try to avoid distraction (Jaynes 1990: 368).

Jaynes connects this research to the possibility that brain is organized at birth to obey stimulation in what corresponds to Wernicke's area in the right hemisphere. Exploring the close connection between poetry – the voice of the right hemisphere gods – and music, he proposes that the invention of music, which, significantly, originated in the bicameral mind,

"may have been as a neural excitant to the hallucinations of gods for decision-making in the absence of consciousness" (Ibid.: 369).

Where I may not commit to the last proposition, the idea that 'understanding' of music predates 'understanding' of myself as an individual conscious being is an appealing one. Would not this be a plausible explanation of why music flashes recognitions of thoughts 'I' did not know I had, "finding its unsure way to something in us that knows and has known all the time, something older than the present organization of our nature?" (Jaynes 1990: 361).

Could not this be an answer to why music knows 'Me' better than my 'I' does?[12]

Does one not grasp in music more of oneself than any mirror can reveal?

Music and consciousness

My thesis is this: music is a form of consciousness, which evolves in mutualistic relationship with sentient beings in order to gain experience and to grow; consciousness here is understood as the fundamental nature of reality.[13] The aim of this first chapter is to prepare the ground and to examine the scope of such a proposition, i.e. to clarify and define the two phenomena, to inspect their points of correspondence and possibly convergence, to consider certain moments of contention in their respective fields of study, and finally, to introduce the conditions that should make possible to consider music a subset of consciousness. In other words, this chapter and the following one, set the course and stir the flow of ideas to the longitude and latitude of Chapter 3 and 4, the core of my dissertation. It is only natural for such an inquiry to begin with a comparison, for upon general observation consciousness and music, as phenomena science approaches objectively, exhibit a number of similarities.

To begin with, both music and consciousness are widespread phenomena. From bacteria to Bach, to borrow philosopher Daniel Dennett's expression (2017), we are all conscious, albeit in different degrees. In the words of Stefano Mancuso, a plant physiologist, "We exist on a continuum with the acacia, the radish, and the bacterium; it is the quantity, not the quality of intelligence that sets us apart" (in Pollan 2013). Obviously, in the case of bacteria we don't

[12] The power dynamics between 'I' and 'Me' is explored in the Intermission *On Practice*.

[13] This definition of consciousness, as well as the nature of physical, nonphysical and musical reality are discussed in Chapter 3. In brief, the view widely known as panpsychism contends that consciousness is fundamental, it is a working hypothesis for scientists like David Bohm and Thomas Campbell, philosophers Galen Strawson and David Chalmers, neuroscientists Giulio Tononi and Christof Koch.

mean subjective reasoning, but rather dim awareness and ability to respond to changes in the environment. From bacteria to Sapiens we all are musical too. Similarly, when discussing the effect of music on fungus (Jiang, ShiRen *et coll.* 2011)[14] or yeast and bacteria (Sarvaiya 2015)[15], we don't assume these organisms actually hear and appreciate musical sounds; instead, we refer to their ability to perceive and be affected by vibrations and patterns of vibrations, which, in strictly physical terms, is what music is – various changes in vibration. As sound communication among animals, music is an activity ubiquitously spread among several living species, subjects to zoomusicology. As for Homo sapiens, there is not a single human culture that does not engage in music making.

Both conscious experience and musical meaning are subjective constructions. The qualia, or 'what is it like to be something' – the raw and unique experience of sensations, feelings, color forms, movement, sounds and emotions centered on the body and its responses – is described by the American philosopher Ned Block as phenomenal consciousness (1995). This is perhaps the most personal part of our 'self,' the unique canvas on which the *access* consciousness assembles, articulates and expresses our personalities through accessing previously stored information, reasoning, introspection, reportability (Ibid.). Analogously, sound is often considered "the minimal condition of the musical fact" (Nattiez 1990: 43), along with its elements pitch, duration, intensity and tone color. But just as phenomenal consciousness' stimuli need to be embedded in an access consciousness network in order to acquire significance, so a single musical event is not music, as musical paleontologist Iain Morley reminds us: "it only becomes musical in the context of its relations to other, similar elements – and the consistencies and differences between them" (Morley 2013: 7). As soon as there is a context of relation to other sounds, we detect movement, direction, spaciality, pattern and sequence… in other words, we detect certain spaciotemporal organization and understand it as 'music'. Musical qualia[16] are the ability of music to impact us with its sounds, and also with its affordances of emotion or entrainment. They emerge from various

[14] The sound comprised of classical music celection mixed with cricket voice increased the mycelium growth of six kinds of mushrooms by 10.2%~21%, accelerated their fruiting, advanced the body fruiting harvest time by 1-5 days and extended the picking period by about 3-8 days.

[15] All tested bacteria and yeast treated to Indian classical music were found to register a better growth, with one exception. Music affected the production of bacterial pigments and increased antibiotic susceptibility.

[16] Musical qualia are defined as the non-compositional, multi-layered, enacted and situation dependent non-Cartesian properties of music – all residua that remains after the reductionist scientific analysis of 'measurable' elements, such as duration or loudness. More on musical qualia, see Joseph A. Goguen's eponymous paper (2000).

levels of musico-physical organization to produce a raw experience, or what the French philosopher Gilles Deleuze defines as 'affect' – an intensive product of the encounter between two bodies, an affected and an affecting one. The moment we inquire into the nature and the effect of this raw experience or 'raw feels', we reach to our access consciousness and begin contextualizing the sensation through internalizing, introspection, remembrances, and associations. Musical meaning, for example, is not 'raw' but 'cooked feels'.[17] Therefore, where both consciousness and music may be rooted in the very raw and ineffable, subjective and individual way one experiences reality within one's bodymind, both phenomena emerge as complex processes from series of context-dependent sequential interactions and integrations. This leads to the question of how.

"How did evolution convert the water of biological tissue into the wine of consciousness?" asks philosopher Colin McGinn (2000:13), summing up the essence of what philosopher David Chalmers casually dubbed the hard problem. How this most private, invisible reality that is our consciousness, emerges from electrochemical interactions of neurons, but is (seemingly) not material, i.e. cannot be created, located, numbered and measured? The debate sprawls across a panoply of disciplines, drawing intellectual power from philosophy to neuroscience, from physics to psychology, from cognitive sciences to religious studies, from biology to sociology. Similarly, the question of musical meaning has acquired an almost ontological status in musicology. Musical historian Richard Taruskin floridly describes the debate on musical meaning as one of "the most conspicuous arenas of social contention" in musicology (Taruskin 2009: XIV), or more bluntly, as a "cursed question" (Taruskin 1990 in Viljoen 2004). In the past century, prevailing was the notion of musical meaning as socially constructed, negotiated through homology-based approaches on the premise that music has (been) developed (in) a way to reflect normative patterns in society or ideology through its own material and according to its own formal laws. This view operates, albeit to different ends, along what I call the 'sociological-postmodernist' axis Adorno – New musicologists (in Martin 1995: 100, also see "open and closed" hermeneutics in Kramer 2016a: 1-2 and Kramer 2016b: 1-2). Another school of thought, maintaining that musical meaning is inherently musical and is to be understood in purely structural terms, populates the 'autonomous-formalist' axis Edward Hanslick – Heinrich Schenker – Robert Hatten. Both projects arise as reactions to and extensions of 19th century aesthetics' vacillation between

[17] 'Raw feels' is a term the behaviorist E.C.Tolman introduced in 1932 and defined as the material from which the mental and the physical is constructed: "Raw feels may be the way physical realities are intrinsically, i.e., in and for themselves" (Tolman 1932: 427). Tolman contended that qualia or the raw feels, although perhaps crucial to understanding, cannot be studied scientifically.

the “transcendent move from the worldly and the particular to the spiritual and the universal” and a “formalist move which brought meaning from the music’s outside to its inside” (Goehr 1992: 153). The edge of the either-or debate has relaxed somewhat in more recent years by certain both-and approaches, among which the idea of meaning as comprised of many “diverse phenomena, only vaguely connected” (Sparshott 1998), or, more generally, as an emergent property of music (Cook 2001). So, it is safe to state that musical meaning, this “great bane of contemporary musicology,” to cite yet another metaphor of Taruskin’s (2010: XVII), has been approached through numerous perspectives, most of which agree that it emanates from sound organization and music conventions at a certain level of complexity, but it can neither be explained by nor reduced to them. The problem with musical meaning and what it really is about is vividly exemplified in the metaphor of the ‘musicological juncture,’ as ethnomusicologist Charles Seeger names the particular conundrum – the “linguocentric predicament” – of the musicologist, forced to use words to express what lays beyond words:

> Twenty-five centuries of talk about music by people highly adept in the compositional process of speech but little or not at all adept in the compositional process of music have left us a vocabulary in the English language of a scant half dozen words of strictly musical meaning. We must, therefore, use words with meanings devised for reference to things other than music. Used in connection with music, these words bring with them those other meanings (Seeger 1977: 180).

And further, additionally fine-tuned:

> The meaning of something is what it stands for, unless, by rare exception, it stands for itself, which is next to meaningless. I find that the imputed meaning of music is precisely that (Ibid.: 183).

The linguocentric predicament or how we talk about musical meaning is one thing. What, how, and where the meaning comes to be – another. That side of music which, although we may lack the adequate conceptual or symbolic tools to decipher we still understand, if subliminally, the side of music which we attend to, which worries and affects us, is the side of music that supplies materials to the laboratory of musical meaning. Here, the pivotal question of McGinn’s applies with full force, too: how does the water of sound turn into the wine of musical meaning?

Both projects – the hard problem of consciousness and the cursed question of musical meaning – have an aura of urgency about them, and understandably so: 'solving' their mystery would be a bold advancement towards resolving that most fundamental of query, how does human being become, or come to be? Interestingly, while repeatedly married to non-physical essences, such as soul, mind, spirit, the innermost self, truth, noumenon and God, both consciousness and music have had difficulties fitting in Charles Darwin's Theory of Evolution. Researchers like Daniel Dennett have proposed that consciousness is but an illusion, albeit a "salient and convincing" one (2017). Others have attempted to circumvent the conundrum by developing methodologies 'proving' that consciousness does not exist at all: this, for example, is the thesis supported by the school of radical behaviorism established by John Broadus Watson in the early 20th century. Third, consider the problem by radically changing the question – not whether and how it exists, but what is its point, utility and function: Julian Jaynes, for instance, famously asks: Is Consciousness Necessary (1976: 46)? To its credit, consciousness has kept its wits during all tumultuous debates over its existence and usefulness, and has continued working as ever, maintaining a high-performance standard.

Music too, has been dismissed as a superfluous character in the evolution game: Darwin's position that musical faculties are "of the least use to man with reference to his daily habits of life" (Darwin 1871 in Morley 2013:1) has been reinforced by the infamous 'auditory cheesecake' argument served up cold by Stephen Pinker: "As far as biological cause and effect are concerned, music is useless" (1997). This diagnosis has reinvigorated the debate, stimulating coordinated research into the biological basis of musical predispositions, and the evolution of musical abilities. As a result, many of the carried investigations suggest that rather than being a byproduct of other evolutionary processes, music is a complex biological adaptation (Trehub 2006, Sridharan et al. 2007, Morley 2013).

It would appear that the angst surrounding the possible origin of music and consciousness is sponsored by the uncomfortable fact that we don't understand much, let alone everything, about these phenomena that we, people, allegedly 'produce' – not only is their origin speculative, their very is-ness is a matter of interpretation. We all know what the terms mean, intuitively. The difficulty arises when we try to unambiguously define consciousness and music as facts in the world. The problem of what music is, even in its scaled down version as what the music work is, is notorious in philosophy of music – whether most agree that music works are ontologically multiple, their nature is elusive. "Mental entities," "actions," abstract objects," "collections of concrete particulars," and even "historical

individuals embodied in but not constituted by physical things such as scores and performances" (Rohrbaugh 2003): when scanning through the definitions of contemporary philosophy (Kania 2017), one cannot help seeing them all as but footnotes of Plato's ideal object. Juggling with language and logic, one might even concoct the argument "There are No Things That are Musical Works" (Cameron 2008). But in the end, what each and every proposition that music works are abstract objects of any kind faces, is the question of how the composer has epistemic access to abstracta (Ibid.)? Catching the musical in music and its multiple entities is like a game, a philosophical whack-a-mole, where at the instant a problem is solved, another pops up, winking, at a different location.

Yet, despite their troubles, philosophers of music at least have the splendor of the abstracta toolkit. Scientists, in contrast, are by default restrained by concreta in their investigation of consciousness; as the acclaimed neuroscientist Christof Koch reminds us: no matter, never mind (Koch 2012: 153). In the past twenty or thirty years, science has made great strides in understanding the phenomena of consciousness, but even a convinced 'romantic reductionist' like Koch refers to four types of consciousness: a common sense one, behavioral, neuronal and philosophical. Adding to the plethora of meanings and definitions the phenomenon already bears, one can conclude that, indeed, the term "means many different things to many different people, and no universally agreed 'core meaning' exists" (Velmans 2009: 7). Similarly, music still roves around bearing the thorny crown of a "supreme mystery" (Levi-Strauss 1970), with no "single and intercultural universal concept defining what music might be" (Nattiez 1990: 55).

We have now seen that music and consciousness – in some of the ways they (don't) yield to objective reasoning and investigation and despite their different choices of medium and building material for the foundations of their respective countries – are engaged in a similar behavioral pattern. Both consciousness and music elude univocal definitions; as wide spread phenomena they both cover an analogous range of organisms; both are individual, subjective constructions; both challenge us with specific 'hard problems'; both are suspected of maintaining uncanny liaisons with the 'spiritual realm' and clandestine affairs – with Darwinian evolution. And there is another similarity, the *modus operandi*: 'consciousness' and 'music' are both compound events, comprised of three distinct stages – i) external stimuli, ii) integration/ internalization, and iii) experience/meaning. The attention of the experts who study them is usually engrossed by the second and third stages, for it is there where the two phenomena become particular and specialize. The first stage is taken as a donné. However, it is worth taking the time to zoom in the reality of the 'external stimulus'.

Could it be that there, outside of music and outside of consciousness, we find an objective common ground of both music and consciousness?

In the case of music, the reality of 'the stimulus' would be the reality of sound.

The sound of music: a possible life

Sound is a physical perception of energy motion. It is caused by a movement in a medium – air, water, solid object – in the form of pressure waves. The differences in pressure are caused by the changing motion of particles (atoms and molecules) through matter (air, water, solid object). The initial action, which will be registered by our ears as sound or noise, causes the form of matter of the medium to alternatively compress and expand. These compression and expansion cause pressure changes in the air around our head, which are picked up by the ear as pressure changes felt upon the eardrum. Without an eardrum to detect it, there will not be any sound or noise.

Music is not sound. In any case, not any more than a cow is the grass it eats, or coffee is the plant Coffea van *Rubiaceae*. Before becoming music, sound has a long voyage and intricate life. Firstly, the sound-to-be is conceived in the particular reality of its host-environment, establishing a nuanced relationship with the *Umwelt* of the medium: the density, motion, viscosity, and temperature of the latter ultimately in-form the speed of sound, its frequency and amplitude. The sound wave is a result of the interaction of pressure and time, which determines the properties of sound, like pitch, intensity, timbre, and duration.

These characteristics constitute the genetic make-up of the sound.

Ready to go, the sound is birthed in the world of shared sonic reality where it endures a second articulation: it becomes a tribal, cultural entity by interacting with others as part of a specific habitat – a forest, urban, ocean soundscape – which to a large extend determines sound's further fate.

Now the real life begins.

Depending on its medium and environment (nature and culture), the sound could become a random, fleeting, destratified murmur on the lips of the wind – a moody ruffle,

Plus vague et plus soluble dans l'air,

Sans rien en lui qui pèse ou qui pose.[18]

Alternatively, the sound could find itself articulated as a signifier in a message – a howl, a tweet, a word. In such a manifestation, there is not much space for freedom, so to speak: the sound is coded and confined to a small territory – in order to be (meaningful) it has to comply with the given order. Compliance and pliability are the means to the desired materiality. "Sound is language's flesh, its opacity, as meaning marks its material embeddedness in the world of things" (Bernstein 1998: 21). Indeed, the sound might be the least controllable of all sense modalities, inasmuch as we cannot handle it or push it away, we "cannot turn our backs at it, we cannot close our eyes, hold our noses, withdraw from touch, refuse to taste, we can't close our ears though we can partly muffle them" (Jaynes 1990: 96). There once was a painter who suffered an illness in his childhood, which left him profoundly deaf for several months:

> His memories of that time are vivid and not, he insists, at all negative. Indeed, they opened a world in which the images he saw could be woven together with much greater freedom and originality than he'd ever known. The experience was powerful enough that it helped steer him toward his lifelong immersion in the visual arts. 'Sound imposes a narrative on you,' he said, 'and it's always someone else's narrative. My experience of silence was like being awake inside a dream I could direct' (Prochnik 2011, 13).

Sound is an aggressive storyteller. But we can't really blame it, for the sound itself is not free – it is never free, because it is always a product of action, of someone else's action, of someone else's intent. It is not the freedom that is of value, then, but the chance to be, the capacity for expression. And even then, while it is true that all kinds of agents have expressive timbres, for the sound to be someone's timbre is but a duty, a 9-to-5 job, a utilitarian expression – when I am a howl, I stand for the wolf, I mean wolf. Language is an order-word that compels obedience (Deleuze and Guattari 2013: 88).

speak white and loud

yes what a wonderful language

[18] Paul Verlaine (1944-1896), "Art Poétique" (1885): (Of music before everything/ And for this like more the Odd—) Vaguer and more melting in air,/ Without anything in it which weighs or arrests. Translation Eli Siegel, 1968).

for hiring

giving orders

appointing the hour of death at work

and of the break that refreshes…[19]

On the other hand, music, unlike language, approaches employment of sounds with a motherly attitude – you have to conform and study and learn, so you find a decent place in the world, so you shine with your own light. Or rather, sing with your own voice. Music is coded, perhaps even more coded than language; in a single musical phrase there is an organization on multiple levels with not much chance to zigzag. So again, it is not a freedom of expression that music offers, but a perspective and a voice. The perspective comes from exposure to and community work with others – the sound is taken out of its natural zone and commanded to a certain address through an artificial medium – a musical instrument – created with the sole purpose to accommodate and the ability to re-produce a specific kind of sound. Skin suit. An exoskeleton. Commanded into the high register of the oboe, for example, the sound finds itself into the family of flutes and clarinets, but it is also very aware of its neighborhood blending violins, horns and trumpets, piano and harp sounds – all very present, very intentional. The sound would have never found itself in such a learned company, if it was not for music. Music territorializes the sound, and, while it liberates it from the sedimentary confinements of a signifier, it codes and stratifies it into a highly controlled disciplinarian system. "To be chosen by music, I must be special," the sound thinks; "it's a lot of work with a steep learning curve, but. . . I get to mesh with others. And if I am to play the solo, I get to be, to be someone with my own voice people recognize, remember, anticipate, listen to, and hearken. And love."

And this is the pinnacle in a possible life of a sound – to be listened to for what it is. Listening affords it individuality, a creaturehood. When the oboe soars above the strings in a baroque *adagio*, one listens to the riveting succession of sibling sounds, and in that moment, one is not oneself, for one becomes-sound.

[19] Michèle Lalonde (b.1937), "Speak White," 1968: Speak white and loud!/ (Qu'on vous entende/ De Saint-Henri à Saint-Domingue)/ Oui quelle admirable langue/ Pour embaucher/ Donner des orders/ Fixer l'heure de la mort à l'ouvrage/ Et de la pause qui rafraîchit/ (Et ravigote le dollar).

> Consider what it is to listen and understand someone speaking to us. In a sense we have to become the other person; or rather, we let him become part of us for a brief second. We suspend our own identities, after which we come back to ourselves and accept or reject what he has said. But that brief second of dawdling identity is the nature of understanding language; and if that language is a command, the identification of understanding becomes the obedience. To hear is actually a kind of obedience (Jaynes 1990: 97).

When we listen to the sound, we are equals. In that, the sound has acquired a pure voice, unpolluted by semantic meaning, plentiful of information. By objectifying sound, music has subjectified it; by disciplining sound in its abstract machine, music has gifted it a selfhood. Sound has ceased to follow sense, music has made sense of sound.[20]

To frame it otherwise, where sound is the flesh of language, music is the consciousness of sound.

The physics of reality

No sound – no music, no body – no consciousness. The fable above defines sound as the physical perception of energy motion or movement. While we could confidently claim that sound is a 'thing' with materiality, as it literally moves our eardrums, energy is not a thing, and neither is movement. Therefore, the becoming of sound is an example of how a nonphysical energy movement inoculates a process of in-forming, converting and interpreting, before it eventually materializes in the physical reality as a sense percept. From no-thing-ness a thing is created, what-is is defined by what-is-not, what you don't get is part of the identity of what you do get. As in the dialectical joke from Ernst Lubitsch's classic film *Ninotchka*, made famous by Slavoj Žižek (Žižek 2016: 291):

- Can I have coffee with no cream, please?
- Sorry, sir, we are all out of cream. But can I get you coffee without milk?

Or better yet, the interplay between what-is and what-is-not, is poeticized by Lao Tse:

Thirty spokes meet in the hub.

[20] A paraphrase on Bernstein's in *Close Listening*: "When sound ceases to follow sense, when, that is, it *makes* sense of sound, than we touch on the matter of language. This is the burden of poetry; this is why poetry matters (1998: 21).

Where the wheel isn't

Is where it's useful.

Hollowed out,

Clay makes a pot.

Where the pot's not

Is where it's useful.

Cut doors and windows to make a room.

Where the room isn't,

There's room for you.

So the profit in what is

Is in the use of what isn't.[21]

Matter, or physicality in general, is a fundamental constituent of both music and consciousness. The behavior of matter and its reality, then, should be of keen interest to the committed inquiry of musical meaning. The science that studies matter, and along with it, the behavior of the observable universe, the mapping of the phenomenal world, the production of 'things' out of 'no-things' and most of all – what is real – is the science of physics. It is in this capacity that we now turn to the field to probe a few relevant hypotheses on reality and to introduce a few important for my thesis names.

The fecund no-thing-ness of Lao Tse informs sound, the subject of hearing, but it informs our sense of seeing, too: the act of seeing also consists of converting and interpreting a no-thing, in this case light, into neuronal signals. Light is even more ambiguous than sound, in that on a fundamental level it exhibits dual properties. Understanding the matter with this duality (pun intended) is important for my discussion on consciousness and music, so let us consider. The basic unit of light, the photon – a bundle of electromagnetic energy – is a subject to the so-called Wave-particle duality, which postulates that under different circumstance the photon behaves as wave OR as particle. First, the dual nature of light was

[21] Translation Ursula LeGuin, 1998.

proposed by Albert Einstein in 1905.[22] Once this ambivalence was introduced, it soon led to more unsettling discoveries. In 1924 the French physicist De Broglie used Einstein's equations to demonstrate that electrons can act like waves, just as photons can act like particles. The phenomenon, also known in quantum mechanics as the Duality paradox, points towards the non-committal nature of reality, as it suggests that any given quantum object shares both particle and wave character, relative to its physical environment.

The quantum mechanics' revolution from the 1920s exposed unequivocally the limitation of the old Newtonian model, proposing that on a deeper level the universe is an indivisible whole rather than the sum of interacting constituent elements that are separately existent. Niels Bohr, a leading founder of the field, emphasized the wholeness of the process – the interaction between the observer and that which is observed. Yet he insisted that there is no way to make a concept of this underlying whole (the no-thing-ness), to make it intelligible. Mathematicians, he felt, could refer to actual results from the experiments but cannot discuss what is happening; anything beyond the empirical fact he would regard as a speculation (in Bohm 1989). Bohr proposed a solution of the Duality paradox with the Principle of complementarity, which states that the wave and particle function of light and matter are complementary but exclusive: "the dual nature of light and matter is like the two sides of the same coin that could display either face but not two simultaneously" (in Kumar 2011:375). This proposal was unsatisfactory to many, including Einstein, and was one of a few reasons of debate between Bohr and Einstein. The apple of discord was a matter of interpretation of quantum phenomena. Bohr proposed and stuck to, what is now known as, the Copenhagen interpretation (1927), according to which a particle swims in a quantum cloud of possibilities represented by its wave function; until a particle is observed – which causes his wave function to collapse – we can say nothing about its location. The conclusion and the essence of the Copenhagen interpretation is: "there is no quantum reality beyond what is revealed by an act of measurement or observation" (in Kumar 2011: 375):

> There is no quantum world. There is only an abstract quantum physical description. It is wrong to think that the task of physics is to find out how nature is. Physics concerns what we can say about nature... (attributed to Bohr, see Frayn 2007:431).

[22] In the first of four papers published in his 'miraculous' 1905, "*A heuristic point of view of the production and transformation of light,*" Einstein introduces the revolutionary idea that light is composed of both energy and particles, i.e. physical systems can behave both as waves (energy) and as particles (matter). In his theory of special relativity published in the same 1905, "On the electrodynamics of moving bodies," Einstein suggests that light has a momentum - which is classically equal to an object's mass multiplied by its velocity - even if photons have no rest mass.

In essence, the Copenhagen interpretation is a positivistic suppression on any inquiry and also interpretation of the meta-physical (at this point) reality that may have an existence independent of the observer. This limiting view was never accepted by Einstein and many others, for they felt that should we adopt it,

> We would forever be denied the possibility of saying anything meaningful about a world that was not being observed – the world as it might be in itself (Stannard 2010).

Niels Bohr left us a world in which that tree, this flower or the Moon are but constructs of our mind – a reality in which nothing exists outside of the current focus of the observer. Many felt that the complete indeterminacy of this novel situation we find ourselves in is unsatisfactory. Among the attempts to find alternative explanations, a notable one is the Broglie-Bohm hidden variable interpretation proposed in 1951, known also as the Pilot-wave theory, or more generally, Bohmian mechanics, after its creator. David Bohm, a next generation physicist, presumed that there must be some hidden reasons and circumstance explaining the Duality paradox and the strange behavior of entangled particles. In essence, his theory suggests that the particle and the wave are two real and distinct physical entities, and not one interchangeable entity, as suggested by Bohr. Each quantum particle has a fully determined position at all times. It is surrounded by a quantum field represented by its wave function. In addition, there is another mathematical entity called 'pilot wave'. On it, the particle swims like a surfer, until it reaches its location; then the pilot wave collapses and reveals the exact position of the particle. The big difference with mainstream Newtonian physics is that Bohm's theory is nonlocal: the trajectory of a single particle depends on what all the other particles described by the same wave function are doing. Given the fact that the wave has no geographical limits that means that the universe is interconnected in ways physics has not yet considered possible. The quantum field and the particle come together, organized by a hidden, Implicate Order, which accounts for the nonlocal correlations of particles.

The Hidden variable theory suggests a holistic world, a reality, which is much more communicative than we have thought possible, as everything in it is mutually interconnected and interpenetrated. While Bohm developed his theory based on Bohr's presumptions, he insisted that we should try to understand – and therefor talk about – that-which-is-beyond-the-experimental-data, not only for the sake of physics or mathematics, but also to make

connections to other disciplines and fields of study. For there, in the wholeness beyond current mathematics, is the beginning of our understanding of consciousness (Bohm 1989).

The trouble with interpretation: the language variable

It is only *a prima vista* that a detour to physics might appear out of place in a musicological paper: the further one descends into the rabbit hole of reality, the more concepts, questions and intuitions from distant disciplines, like musicology and physics, seem to gravitate toward each other, as if attracted by a hidden variable. Can't we, for example, entertain for a moment the idea that the frictions between the musical performance and the score, or between the multiple instances of the music work and the music work 'itself' are tensions between different frameworks or orders, the perceived incoherence being caused by their different scale, order, mechanics, like the tension between Newtonian physics, relativity and Quantum physics? One of the frameworks accounts for the causal materiality of the actual Musical assemblage here and now (performance), and the other – of the countless possibilities of the virtual and the imaginary (score)? Both physics and musicology struggle with the problem of interpretation: Niels Bohr's reluctance to probe human reasoning beyond the abstract domain of numbers is shared by a number of musicologists who find that speaking of music, or more precisely of musical meaning, is naïve or speculative, or even unfair. For them, the compulsion to interpretation is, to twist musicologist Nicholas Cook's expression, a little like telling secrets (Cook 1998: 268). The trouble is, Cook observes, that by telling how music is, we often tell how music is not (Ibid.) – we say what music does not say, as if we find it an inefficient communicator, and see to compensate its shortfalls. After all, it is a well-established fact that "music has no meaning to speak of" (Rorem 1967).

Although the pros and cons of interpretation appear to reflect particular problems in particular disciplines, the question is more general. It cogitates into the core belief of what and who we are: are we created by a tacit wholeness – the ultimate Other – as living products of evolution's "unintelligent design" (Dennett 2017), or are we co-creators? In the first case, we are dramatically separated by the wholeness, cast away parts that don't spare efforts trying to recreate the manual. We discover mathematics and initiate it as "the language of the universe" (Galileo 1623, in Burtt 2003: 75). We sacralize music and see to record each beat of "the soul of the universe" (attributed to Plato), minimizing risks along the way. To the parts, any attempt to understand the wholeness by imagining, groping, reaching, empathizing with it, would be naïve at best and speculative at worst, for the wholeness is a separate Other. As a subset we cannot possibly know anything about the superset, so why trying?

But there is an alternative belief, one that maintains that we create the tacit wholeness as much as it creates us, that we are co-creators in a communicative, symbiotic universe, which evolves not by competition and survival instincts, but by cooperation and teamwork (Margulis 1999). The wholeness is permeating everything that is and permitting everything that is not (yet), we are connected with it, as we are made of the same stuff.

> If, indeed, it be necessary to speak the truth, the contact with divinity is not knowledge. For knowledge is in a certain respect separated or distinguished from its object by a sense of otherness. But prior to knowledge - as one thing knows another - is the uniform connection with divinity, which is suspended from (or caused by) the gods, and is spontaneous and inseparable from them (Jamblicus, in Hitchcock 2013).

This 'uniform connection with divinity' – whether we call it God, soul, love, universe, the ineffable, consciousness, life, the quantum realm or the plane of immanence – however fuzzy or undertone it may be, informs, motivates and chaperones the creative endeavor. The reluctance to expound upon or to interpret it, is not necessarily a matter of denying its existence and neither it is a form of ekphrastic fear[23] (W.J.T.Mitchell 1994). Strangely though, it does seem rooted in language.

Among all things mediating our 'connection with divinity,' music must be one of the least controversial and most widely accepted. And remarkably, it could do this without words, too! Music and words have a difficult relationship, they are like affectionate but irascible lovers, their perennial affair marked by bold ultimate breakups and passionate penultimate makeups. It is complicated. More so, because we have introduced an asymmetrical power dynamic into the case, similar to that between the general and the particular, by inadvertently placing our loyalties on one of the sides – the words we use to think, communicate and create concepts with about everything, including music. How do we speak of musical meaning, or even, how do we not speak of musical meaning? Instead of remaining a backstage *scherzo*, an intrigue between musicians, the question of musical meaning has grown into a quest, a battle involving Marxists and pious alike, hermeneutists and formalists, performers and historians, cognitive scientists and philosophers. How the ineffable produces meaning that we could articulate? And is this a viable question of research?

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[23] "(Ekphrastic fear) is the moment of resistance or counterdesire that occurs when we sense that the difference between the verbal and visual representation might collapse and the figurative, imaginary desire of ekphrasis might be realized literally and actually" (W.J.T.Mitchell 1994). "The motive for ekphrastic fear is the sense that verbal paraphrase may work too well, that it threatens to engross and supplant the representation that it describes" (Kramer 2001:18).

The French philosopher Vladimir Jankélévitch, author of “Music and the Ineffable,” remarked that music has ‘broad shoulders’" to bear whatever specific meaning we ascribe to it and "will [never] give us the lie," (1961, in Abbate 2004). Indeed, it will not, for how could it? Perhaps nowhere in musicology does a resentment of language transpire more, than in the discourse on performance, which emphasizes music’s visceral agency. Take the lenient attitude towards the gnostic in Carolyn Abbate’s article “Music – Drastic or Gnostic?” (2004): on every page almost, we are treated with an mix of focused sarcasm and intellectual prowess, ‘deconstructing’ an array of perspectives engaged in ‘deciphering’ music (Ibid.: 512). “When real music is present (…) questions about musical meaning become absurd” (Abbate 2004: 511). But, one should think, this situation is not unique to music. When we are in the presence of something or somebody performing a statement, for example, perhaps at the time we don’t think of said other statement’s enunciation: we listen to it. But the questions of meaning assault our blank and fully receptive mind with the first thought afterwards. To the claims that music is a “black hole… down which the thought disappears,” musicologist Lawrence Kramer responds this:

> Even if performance did put the mind to sleep (but does it? Who’s mind? And don’t vivid performances actually *wake us up*?), there is nothing to prevent us on reflecting afterward on what we’ve heard. (…) One sentence is all it takes to open the door to language and the symbolic order (Kramer 2016: 2).

The debate between the drastic and the gnostic in music is on-going. Ineffable as it may be, music is to be talked about not despite, but precisely because of its ineffability. And it is not likely that humans will give up discussing this particular capacity of music’s – its production of meaning – for musing over it gives us much pleasure and intellectual stimulation. Like Seeger with his linguocentric predicament, Jankélévitch too pins the issue with music ineffability down to language conventions:

> Everything hangs upon the meaning of the verb **to be** and the adverb **like**, and just as sophisms and puns slip without warning from unilateral attribution to ontological identity—that is, make discontinuity disappear magically—so metaphysical-metaphorical analogies about music slip furtively from figural meaning to correct and literal meaning. (Jankélévitch 2003:14*)*

And if the problem with interpretation of music has implication most only for *Homo musicus*, the paradigm of interpretation in quantum physics envelopes reality of existence as a whole.

Niels Bohr is acutely aware of the fundamental – and limiting – role language plays in the construction of meaning:

> We must be clear that when it comes to atoms, language can be used only as in poetry. The poet, too, is not nearly so concerned with describing facts as with creating images and establishing mental connections (Bohr 1920, in Giles 1993: 28).

Bohr felt that we are "suspended in language" (1963, in McEvoy 2001: 291).[24] Preoccupied with establishing the relationship and the level of commitment language has with reality, Bohr was tortured by the lack of clarity in language, comparing it to the lucidity of mathematics and logic. He insisted that we can never be cautious enough with the kinds of statements we make about reality and pointed towards expanding the investigation of the possibilities of observation and descriptions in atomic physics (Bohr 1949, Ibid.). When considering the atomic world of quantum mechanics, we should be as subtle and as precise as possible, providing there is an agreement that we can never penetrate the phenomena, but investigate their possibilities (Ibid.).

The gravity and the effect of language constructs on our understanding and even perceiving music is distilled below by Nicholas Cook, apropos musical performance:

> (T)he idea that performance is essentially reproduction, and consequently a subordinate (…) activity, is built into our very language. You can "just play," but it's odd to speak of "just performing": the basic grammar of performance is that you perform something, you give a performance "of" something. In other words, language leads us to construct the process of performance as supplementary to the product that occasions it or in which it results; it is this that leads us to talk quite naturally about music "and" its performance (…) as if performance were not already integral to music (…). Language, in short, marginalizes performance (Cook I 2001).

But then, how to go about language that constricts and restricts not only the precision, but also the very expression of meaning, and yet it is our major tool for understanding?

> Bohr suggested that "the description of the experimental arrangement and the recording of the observations… be given in plain language suitably refined by the

[24] This belief was shared and endorsed by Bohr's contemporary and proselyte, philosopher Ludwig Wittgenstein, who stated that "The limits of my language are the limits of my world" (Wittgenstein 1922, in McEvoy 2001: 291).

> usual physical terminology" and *no language at all be used to refer to the quantum event*, because "plain language," with its analytical form and causal ordering of events and times, cannot adequately deal with the wholeness and indeterminism of quantum events (Murphy 1998: 116, emphases in original).

Hence, the Copenhagen interpretation in physics, hence the perceived offence by a deep hermeneutical reading of meaning in music (in performance).

Counting to occupy or occupying without counting

> Our neural wiring, the thing we inherited by our ancestors (the worms in the muck) through evolution, was not build for quantum mechanics, for higher dimensions, for thinking about curved spacetime. It was built for classical physics, for rocks and stones, all the ordinary objects, and it was built for 3-dimensional space. And that's not quite good enough for us to be able to visualize and internalize and ideas of quantum mechanics, the general relativity and so forth. So instead (…) we use mathematics. Eventually in time we develop intuitions out of abstract mathematics, we get better at it, and we begin to think that way. But that could be extremely frustrating when trying to explain to the outside world. The outside world … has not had that experience of going through the rewiring process, from converting their minds into something that can deal with 5 dimensions, 10 dimensions, or the quantum mechanics' uncertainty principle. So, the best we can do is to use analogies, metaphors (Susskind 2015).

Stanford's professor of physics Leonard Susskind is one who embraces, if reluctantly, the necessary evil, our thinking tool, language. However meek, however unsatisfactory or even inadequate, the effort to dress in words our experiences, feelings or intuitions is still our best bet for making sense of anything. In fact, music's very illusiveness and linguistic resistance in counterpoint with its carnal, tangible impact, is perhaps the reason the musical process has been an inspiration for those who seek to understand the illusive and resistant, yet mundane nature of consciousness and being. We shall see how Bohm and Deleuze and Guattari independently reach similar conclusions about the nature of reality through music, using the latter as a leaven boosting their philosophical concepts. Later in this and in the following chapters, in turn, I use these concepts to investigate the phenomena of music, bringing the travelling ideas full circle, home.

Like Bohr, Bohm, too, felt that language usage is not only crucial, but is at the crux of penetrating phenomena: he saw that language reflects the fragmentary Newtonian paradigm, where the formula subject-verb-object rigidifies the three agents and articulates them as separate entities; he, too, thought the invention of a completely new language with new rules and structure, unpractical. However, Bohm was not discouraged. He sensed that a more flowing, process-oriented language will enable us – literally – to go deeper into the quantum phenomena. Thus, he introduced a new mode of language, the *rheomode* ("rheo" is coming from Greek, "to flow"),

> (i)n which movement is to be taken as primary in our thinking and in which this notion will be incorporated into the language structure by allowing the verb rather than the noun to play a primary role (Bohm 1980, in Bohm 2002: 44).

In all good intentions, the value of the experimental rheomode extended a little beyond its theory.[25] But perhaps it was this kind of open-minded search for immanent flow-movement-process applications that led Bohm to music.

I his seminal book *Wholeness and the Implicate Order* (1980, I use the Routledge edition from 2002), Bohm introduces his idea of the two fundamental frameworks for understanding reality. In some way the Implicate and the Explicate Orders reflect the two paradigms in physics – respectively, the holistic quantum world of fluidity, movement and process, and the classical Newtonian world of phenomena, objects and parts; we perceive the latter, but we feel the former.[26] As F. David Peat, Bohm's colleague, friend and collaborator states, Bohm considered what we take for reality

> surface phenomena, explicate forms that have temporarily unfolded out of an underlying Implicate Order . . . Bohm gives the Implicate Order much deeper status and suggests that it is the ground from which reality emerges (Peat, in Carvallo 2013: 304, also Bohm 2002: 190).

[25] Through his rheomode experiments with the staff and students of Brockwood Park, the famed Krishnamurti's school in England, Bohm concluded that the mindset associated with the orthodox noun-centered thinking is too strong: the students began using the verbs in the rheomode as nouns. Bohm introduces and offers discussion on the rheomode in *Wholeness and the Implicate Order* (2002: 34-60). For the history of the idea, the experiment, and of Bohm's discovery of the 'ideal' Blackfoot language, see F. David Peat's account in *Pathways Of Change* (2007: 68-69).

[26] This idea will return in the discussion of the smooth and the striated.

Bohm was not a musician himself, but music has captured his attention in more than a few aspects. After all, music might be as close to the 'ideal language' as it gets – the implicate reality of music, as composed by movements, flows, structures, and processes, inspired Bohm in the early 1980s, almost two decades before finding its proper musicological grammar in the verb musicking, famously coined by Christopher Small in 1998. In *The Implicate Order* Bohm first reaches to music as an example in his discussion of 'measure,' and of the fundamentally different ways the 'East' and the 'West'[27] have internalized this concept. In Western civilization, founded on the ground of Ancient Greek's thought, measure is "the essential key to a healthy, happy, harmonious life," proposes Bohm (Ibid.: 26). It lies in the core of notions such as medicine, moderation, meditation, ratio, reason. Furthermore,

> Whenever we find a theoretical reason for something, we are exemplifying this notion of ratio, in the sense of implying that as the various aspects are related in our idea, so they are related in the thing that the idea is about. The essential reason of the ratio of a thing is then the totality of inner proportions in its structure, and in the process in which it forms, maintains itself, and ultimately dissolves. In this view, to understand such ratio is to understand the 'innermost being' of that thing (Ibid.: 27).

Here, Bohm reminds us that in Ancient Greece, "a grasp of measure was a key to the understanding of harmony in music (e.g. measure as rhythm, right proportion in intensity of sound, right proportion in tonality, etc.)" (Ibid.).

It is curious the position of the 'Eastern' thought in regards to measure. Bohm points that the word for measure in Sanskrit, *matra*, and the word for illusion, *maya*, are obtained from the same root, which is an "extraordinarily significant point": what the 'West' has come to consider the key to the essence of reality, the 'East' regards as "false and deceitful:"

> In this view the entire structure and order of forms, proportions and 'ratios' that presents themselves to ordinary perception and reason are regarded as a sort of veil, covering the true reality, which cannot be perceived by the senses and of which nothing can be said or thought (Ibid.: 29).

[27] The terms 'East', 'West' and 'Western', as well as 'Occidental' and 'Oriental', are used here within quotation marks with full awareness of their contentious, outdated, and colonial connotations. Wim van der Meer offers an in-depth discussion on the history of the terms and their alternatives, particularly with regards to musicology (Meer 2013, 2015). Here, for simplicity, I keep the terms in question as used by Bohm, Deleuze and Boulez in their original writings, with added by the quotation marks caution and awareness.

Music is important in this discussion as a mode of thinking, as a musicologica (see Glossary). It is precisely measure that is in the foundations of musical systems – what differentiates a Tyrolean yodeling song from a Hawaiian one, Gregorian from Buddhist chant, if not their different measures of sound articulation, the measure of space (interval ratios, scales, tuning, range, intensity) and time (tempo, pulsed or non-pulsed time, length). It is precisely in measure where the divide between musical 'East' and 'West' cuts through, too:

> (t)o the transcendent, organizational plane of Western music based on sound forms and their development, we oppose the immanent plane of consistency of Eastern music, composed of speeds and slownesses, movements and rest (Deleuze and Guattari 1980, 2013: 315).

The divide between 'East' and 'West' performs not only the forms, modes, tonality, rhythm, equal temperament, sound intensity, and even time, but, more generally, the expression, the ethos, and the 'musical logic'. In his text "Oriental Music: A Lost Paradise?" (1981) the composer Pierre Boulez shares his impressions of the musical Far East and India. His observations point towards the complementary duality of the 'Oriental'/'Occidental' musical landscapes: the composer is impressed by the ethics of existence ('East') vs. esthetics of enjoyment ('West'). Boulez expounds on a number of differences in the treatment of fundamental musical concepts. Time, for example, is "stretched" in the 'East,' measured by "long, unmetered tones" (in Campbell 2014: 119); the work of art is admired as an element of spiritual life, and not as a masterpiece; the technical aspects, glorified in the 'West', are rather inferior in the 'East;' there is a difference even in the orientation of the intervals: Boulez admires the fineness of the horizontal 'Oriental' interval disentangled from the thick polyphony (Boulez 1981: 421-422). In reference to "certain intermediary dimensions in improvisation, especially in the wonderful Gagaku" (the ancient Japanese court music and dance performance), Boulez writes:

> I like this not wholly defined dimension, which gradually becomes defined. There is here no masterpiece achieved for all time; one learns to live within the music and to make one's choices there. The influence of India and Japan is thus an influence of thought (Ibid.: 422).

This "not wholly defined dimension, which gradually becomes defined" is what Boulez as composer has been interested in for decades, negotiating between spontaneity and system, between structure and ornamentation, exploring and distending the boundaries of musical time, of musical organizations, and, we could say, of music itself. The body of his work as a

composer and polemicist inspires Deleuze. The latter pays homage to Boulez's musical thought on a number of occasions, performing composer's flow through his own conceptual filter, which renders the musically-philosophical philosophically-musical. The outlined by Boulez "not wholly defined dimension" Deleuze frames as "occupying without counting" juxtaposed to "counting in order to occupy space-time." What Boulez hears as differences between the musical 'Orient' and 'Occident,' Deleuze treats fundamentally: through the juxtaposition "occupying or being occupied without counting, without measure" (Deleuze 1986, in Angelaki 1998: 70), he articulates the double quality of being, the two-way we experience reality.

Another important export of musical ideas concerns another conceptual pair, smooth vs. striated, which Boulez introduces in *Time, Notation and Coding* (1960). Here we find both dimensions – of 'being occupied without counting' corresponding to the smooth (nonpulsed or filling time) and of 'occupying' corresponding to the striated (pulsed or counting time). Boulez uses these modes to account for the direct link and the causal relation between these musical times and the musical actions, states, and conditions they create. Inspired by the vivid terminology that conjugates binary oppositions, Deleuze and Guattari borrow the musical terms and expand their territories. From musical temporal modes in Boulez, in Deleuze and Guattari they become two planes of existence– the Plane of immanence and the Plane of organization, insofar as the striated concerns fixed, distinct things, organizing and producing "'order and succession', and the smooth is the continuous variation, continuous development of form" (Deleuze and Guattari 2013: 556).[28] While Boulez uses the factor of time as an envelope, "opposing the two temporalities as an effective means of articulating form, of playing with perception, and of establishing or inhibiting orientation and direction" (Campbell 2010: 236), Deleuze and Guattari take the musical ideas of the smooth and the striated and inject them with a conceptual boost to create their form of ontology of consciousness. By superimposing the smooth and the striated on other entangled multiplicities, like nomadic/sedimentary, becoming/progress, topology/geometry, Deleuze and Guattari illuminate different aspects of the opposition, maintaining that while both spaces are distinct and even contrasting in nature, they exist only in mixture (Deleuze and Guattari 2013: 552) – infusing, inflecting, inaugurating each other.

[28] The smooth and the striated is one of the *Thousand Plateaus*. Significantly, philosopher and translator of *A Thousand Plateaus* Brian Massumi, defines the whole volume as "an effort to construct a smooth space of thought" (Ibid., xii).

Here we can extrapolate that the smooth and the striated are not only two musical times or two forms of consciousness, they are two modes of musical consciousness. When we perceive, we follow a protocol and therefore occupy a striated spacetime. The musician, who is learning and practicing a work of music, dwells in a striated mode of rehearsing oneself, of overcoming and mastering a piece of music according to its number and measure. The pianist who performs a program of pieces with beginning (middle) and end, the listener affected by the drastic side of music, the musicologist who analyses a work of music as a part of a system, the baby enjoying the musical qualia, are all perceiving, counting, and evaluating music as sound configurations in a three-dimensional physical matter reality, as sonic spacetime assemblages. The smooth reality of music transpires from beyond the obvious firmament of the striated, over it we have "no control" (Boulez, in Campbell 2010: 235). Smooth is the spacetime the musician aspires to achieve with her practice, the effort-less, count-less state she strives to transport to. It is the mindspace the performer occupies during performance, the ineffable quality of music the musicologist fails to comprehend in the incessant deconstruction/reconstruction of musical analysis,[29] it is what makes the baby listening to music smile, or cry. In other words, we experience the smooth spacetime when we relax our rational mind and let the music in, to conceive a world in our own image. While we perceive the striated, we create the smooth. Smooth is the conceptual, nonphysical meta-reality of music, where

> Number has not disappeared, but has become independent of metric and chronometric relations, it has become cipher, numbering number (…) and no longer measure, and instead of dividing up (…) a closed spacetime in view of the elements which make up a block, on the contrary it distributes in an open space-time the elements circumscribed in a bubble. It's like the passage from one temporalization to another: no longer a Series of time, but an Order of time (Deleuze 1986, in Angelaki 1998: 71).

'Order' is an important word not only with regards to the discussed distinctions in our relating to music. It is 'order' that acquires an ontological status in Bohm's *Wholeness and the Implicate Order*. To understand the Implicate Order and music's significance to it, as well as its significance to music, we must revisit Bohm's framework.

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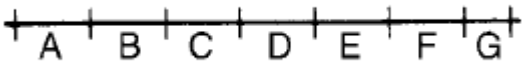
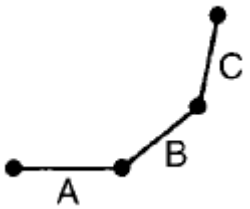
[29] "(T)he word 'analysis' has the Greek root 'lysis', which is also the root of the English 'loosen' and which means 'to break up or dissolve' (Bohm 2002: 159).

The Implicate Order

In his search for alternatives to the Copenhagen interpretation, seen as a turning point in physics, Bohm introduces a set of concepts and neologisms, i.e. Implicate/Explicate Order, enfolding/unfolding, holomovement. The notion of Order is fundamental.[30] With the stipulation that this subtle a concept we can understand only tacitly and by implication, Bohm begins elucidating 'order' with the suggestion that we perceive it when we give attention to similar differences and different similarities (Bohm 2002: 147). The similar differences' relations he illustrates with the example of the geometric curve. Bohm shows how the elements constituting the curve are relating to each other: A:B::C:D::E:F are exhibiting one independent difference, in position:



Curved in, the same elements show a second independent difference, in direction:



The helix will introduce a third, a dimensional one, and so on.

We can easily transfer these differences to music. The whole note (four counts) relates to the half note (two counts) as the half relates to the quarter (one count), as the quarter relates to the eight (half count), etc. The first independent difference would be in duration. If the cited note values are placed on a staff, respectively on the first, second, third and fourth line as e-g-b-des – all minor third apart – they would exhibit a second difference, in pitch (or frequency). Alternatively, we could use here the Pythagorean interval ratio,[31] in which case the intervals following the template A:B::B:C::C:D would be G-g-d1-g1 (octave – fifth – fourth). Intensity could be a third difference, if the notes receive the dynamic signs, respectively, p-mp-mf-f.

[30] Bohm uses the word in two ways – as a fundamental low, a code to reality (e.g. the Implicate Order) which I distinguish with a capital, and more simply, as the sequential way in which things and moments are organized.

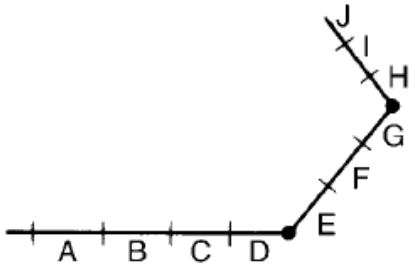
[31] http://www.phys.uconn.edu/~gibson/Notes/Section3_2/Sec3_2.htm

This example shows a number of similar differences in the proposed musical succession, where the ratio's organizing principle is univariant – A:B::B:C etc. Further, Bohm considers a second degree of difference where we could observe not only similar differences but also different similarities, as in

$$A:B:^{S1}::B:C$$

S1 here stands for "the first kind of similarity," i.e. in direction (or in music, duration). The whole curve then will look like this:

$$A:B:^{S1}::B:C::\ C:D \text{ and } E:F^{S2}::F:G \text{ and } H:I^{S3}::I:J$$



S2 stands for 'similarity of the second kind' and S3 – 'similarity of the third kind'. Further, Bohm considers the difference in the successive similarities (S1, S2 and S3) as a second degree of difference, from which a second degree of similarity in these differences is developed: S1:S2::S2:S3, translated in music terms as, duration: pitch:: pitch: dynamic. This is the beginning of a hierarchy of similarities and differences, which could be followed up to higher or order and complexify, in theory, endlessly.

Thus introduced the notion of 'order', Bohm continues with discussing 'measure' in the sense of 'limit' or 'boundary' as a function of order (Ibid.: 149). 'Measure' outlines the edges of forms and things, and thus defines them for what they are. Water, for example, runs limited between 0 and 100 degrees Celsius: more than a 100 and less than 0 degrees it changes state and becomes something else. In music too, measure-as-limit is fundamental: not only in the easy sense of musical flow division (as in bars) but as a central spatiotemporal organizing principle (as discussed on pp. 48-49). The simple sequential suborder of ABCD above reaches its limit at the beginning of E: at that point something different begin to happen – what, it depends on the aesthetic idea of the composer or the music-maker. People and

music alike inevitably bump against the invisible walls of their measures and limitations. When not determined by artistic considerations, the range of duration, pitch, dynamics, tempo, and texture is limited by our, human beings', perception boundaries. For example, our hearing range is spread between 20 Hz and 20 kHz; our ability to discriminate between fast sounds in close succession begins when the sounds follow one another not faster than 40-50 milliseconds apart (or 1500 BPM);[32] as for loudness, we can hear between 0 and 140 decibels (leaf falling is evaluated as 10 dB while monthly siren from close by is at 140): there are some individual variances, but the scientific agreement is that the daily exposure to anything beyond 80 decibels requires hearing protection.[33] Exceeding these boundaries not only could damage our hearing – it renders music mute, non-intelligible, or simply unmusical. Excess negates music.

Back to Bohm's discussion of organizing principles: to ratio and measure, he adds structure, from Latin *struere*, "to build, to grow, to evolve" (Ibid.: 151). With this basic arrangement, ratio – measure - structure, we scaffold and arrange a variety of sequential orders to create the compositions, forms, and systems at the heart of the Explicate Order. With regards to music, we could abstract that the sequential order outlaid above is, naturally, based on counting units, i.e. A, B, C, whatever the unit's value may be. 'Counting in order to occupy' is one of the definitions for Deleuze and Guattari's striated spacetime, which, I proposed earlier, we occupy through our sense perception. Curiously, sense perception is a main defining feature Bohm assigns to the Explicate Order:

> (E)xplicate order arises primarily as a certain aspect of sense perception and of experience with the content of such sense perception. It may be added that, in physics, Explicate Order generally reveals itself in the sensibly observable results of functioning of an instrument (Ibid.: 200).

Similarly, we may say that the Explicate Order reveals itself in the detectable sonic yield of musical instruments, voice included, without which there will be no music. Perception, materiality, performance of music, therefore, belong to the Explicate Order.

If the striated spacetime is explicitly ordered, then we can perhaps find analogies between the Implicate Order and the smooth spacetime, which I tagged with the labels 'occupying

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[32] This phenomenon is known as the Precedence effect, or Haas effect, first described by Wallach et al. in 1949.

[33] As per UK legislation, https://www.legislation.gov.uk/uksi/2005/1643/regulation/4/made

without counting', 'continuous development' (process), 'conceptual'. Also, 'out of our control'.

Bohm proposes the Implicate Order as a function of agreement between the two major theories of 20th century. With relativity theory Einstein bifurcates from the old way of seeing the world as made by 'atomic building blocks' that are independently interacting without affecting each other; he introduces the idea of the pliability of spacetime, his field equations show that the very fabric of reality can curve, bend, warp. Quantum mechanics goes further still in departing with the classical Newtonian view, maintaining that: i) process is fundamental and indivisible as one whole, each process is a whole; ii) depending on the context, entities show different properties, i.e. the wave/particle duality; iii) non-locality is the notion explaining the immediate connection of distant entities, such as electrons, which initially combine to form a molecule and then separate.

> So, approaching the question in different ways, relativity and quantum theory agree, in that they both imply the need to look on the world as an undivided whole, in which all parts of the universe, including the observer and his instruments, merge and unite in one totality (Ibid.:13).

The name Bohm offers for this new form of insight[34] is Undivided Wholeness in Flowing Movement. The flow here is fundamental. Things and objects, parts of the old fragmentary view of reality, are formed by and dissolved in this flow, they regarded as approximations of an underlying process. "Not only is everything changing, but all is flux. (…) *what is* is the process of becoming itself, while all objects, events, entities, conditions, structures, etc., are forms that can be abstracted from this process" (Ibid.: 61). As building blocks of the process, then, Bohm proposes 'moments'.

> [A moment] cannot be precisely related to measurements of space and time, but rather covers a somewhat vaguely defined region which is extended in space and has duration in time (Ibid.: 263).

As each moment – whether it is a moment of consciousness (~seconds) or moment of history (~centuries) – is not entirely localizable, events are allowed to overlap, and are being

[34] "The word 'theory' derives from the Greek 'theoria', which has the same root as 'theatre', in a word meaning 'to view' or 'to make a spectacle'. Thus, it might be said that a theory is primarily a form of insight, i.e. a way of looking at the world, and not a form of knowledge of how the world is" (Bohm 2002: 4).

connected, enfolded, in an over-all Order appropriate to a universe of unbroken wholeness (Ibid.: xviii). This is the Enfolded or Implicate Order. In this deeper level of reality space and time are not determining factors, but abstracted derivatives; each moment is enfolded (i.e. folded inwards) in the total structure and contains it within. The example Bohm gives for this "everything is enfolded into everything" is the hologram.[35]

All these concepts coalesce in the holomovement. The ultimate becoming, the process of enfolding and unfolding of everything – from observable reality to deep levels of unknowable reality – the holomovement is "the fundamental ground of all matter" (Bohm and Peat 1987: 180). Bohm conceives of it as is an unbroken undivided totality, where its forms merge and are inseparable; it is the interplay between the Implicate and Explicate Order.

> Our basic proposal was then that *what is* is the holomovement, and that everything is to be explained in terms of forms derived from this holomovement. Though the full set of laws governing its totality is unknown (and, indeed, probably unknowable) nevertheless these laws are assumed to be such that from them may be abstracted relatively autonomous or independent subtotalities of movement (e.g., fields, particles, etc.) having a certain recurrence and stability of their basic patterns of order and measure (Bohm 2002: 226).

This chapter was charged with multiple tasks: to sketch the vistas to be explored, to outline the problems to be tackled, to establish the method, to select the tools. It began with defining the 'hard problems' of consciousness and music, by examining resemblances in the fields of consciousness studies and musicology. Establishing that both consciousness and music are grounded in matter (no matter – never mind; no sound – no music), and in pursue of common ground, the inquiry continued on the territory of physics, as the field of study concerned with matter, the external stimuli, reality. Demonstrating that the problems of 20th century physics resonate with the greatest issues musicologists and philosophers of consciousness tackle, the attention was zoomed in on a concept of the Implicate Order, a notion at the core of my thesis. If indeed everything hangs upon the meaning of the verb to

[35] "The hologram makes a photographic record of the interference pattern of light waves that have come off an object. The key new feature of this record is that each part contains information about the whole object. That is to say, the form and structure of the entire object may be said to be enfolded within each region of the photographic record. When one shines light on any region, this form and structure are then unfolded to give a recognizable image of the whole object once again" (Ibid., 224).

be and the adverb like, as Jankélévitch argues, then the Implicate Order is the leverage that enables and propels the ontological leap from the analogy 'music as consciousness' to the homology 'music is consciousness', which is the thesis I propose and articulate in this dissertation. In the unity of the Implicate and the Explicate Order, the holomovement, many of the previously discussed dichotomies converge:

- The two physical modes of reality: one, based on Newtonian physics, is characterized by the 'objective' tangibility of falling apples, sticks and stones in terms of which we perceive, participate and communicate with the world; the other, based on quantum physics, outlines a more holistic, processual, nonlocal big picture view of a hyperconnected universe and our role in it;
- Relatedly, the two philosophical planes of reality, the actual and the virtual, as proposed by Deleuze: the striated plane of organization, of hierarchy and structure, measures and numbers, and the smooth plane of consistency, brimming with intensities, encounters and haecceities, where all distinctions are cancelled and which is immanent only to itself.
- The two grasps on consciousness: one, as awareness derived from sense perceptions, as our subjective mind, as introspection and self-reflection, the other – as the fundamental fabric of all that is, as the potent no-thing-ness from which all forms and matter spring forth;
- The two phases of music: one, in which one needs to count in order to occupy, musical reality one plays, performs, learns and practices; the other, which one occupies without counting, is the musical reality one creates, experiences, derives meaning from.

Another concern of this first chapter was the problem of interpretation – how and should we at all 'interpret' mathematics-based intuitions, how and should we talk about meaning in music. By deriving meaning of dry data and mathematical findings in the field of physics, the concept of the Implicate Order contributes not only to this field or to the ideational pool of philosophical thinking, but to the process of thinking itself. Interpretation, as literary polymath George Steiner used to say, is understanding in action (Steiner 1991: 8). It emphasizes the importance of interpretation, by demonstrating that even in its most fantastic insights it is a tool not only for analyzing and communicating reality, but also for creating reality and for integrating meaning – both in physics and in music. Taking this point further still, the English psychotherapist and writer Adam Phillips suggests that

interpretation alone is but a starting point, a base line of a much more relevant and rewarding process – that of over-interpretation:

> You can only understand anything that matters – dreams, neurotic symptoms, literature – by overinterpreting it; by seeing it from different aspects as the product of multiple impulses. Over-interpretation here means not settling for one interpretation, however apparently compelling it is… The [authoritative] interpretation might be the violent attempt to presume to set a limit where no limit can be set (Philips 2015).

I agree with Phillips: settling on one interpretation-understanding means cutting off all other possible interpretations-understandings. We cannot afford that. But we must start from somewhere. In the next chapter I explore the idea of music as Implicate Order. Upon the proper defense of this proposition depends the success of my claim that music – literally, in the very material sense of the verb – is consciousness.

I INTERLUDE

The Medium is the Message

My house has always been a residence of a revered soloist, the piano: no other instrument has ever acquired its solid status of a family member. Until the day my nine-year-old daughter announced, “I want to play the oboe.” As the previous year she had cried her way out of playing any musical instrument, e-v-e-r, I got quite excited and unconditionally embraced this statement of interest. Said and done, the faster – the better.

Although I am, of course, familiar with the live oboe sound, now, when its boastfully stabs and pierces the ether in my living room, I am struck by its novelty: the oboe conjures up the physical presence of some-thing feeling easy and cozy in my personal space. The feeling is strange and somewhat primordial, for this unfamiliar presence, this otherness, is visceral to the extent of me not feeling comfortable eating with the oboe voice behind my back. When I take the black wooden stick and attempt to produce a sound my astonishment grows – the effort is taxing, and the expression reminds me of a spinster who has given up on ever being heard by others and has, thus, adopted a yelling, shrill tone. The oboe aims at out-loud-ing everybody. Its sound producing mechanics require an engaged diaphragm and a strong, almost violent blow of air squeezed through the tightly pressed lips into the fantastically narrow opening of the reed. It takes our delicate, familiar and superficial breath and commands it into a confident, imposing and mighty flow with an agenda.

What a fundamentally different relationship with music that must be, I ponder; different, from the one acquired through the piano, that is.

Instinctively, I begin comparing the piano I’ve grown up with the newly met, the oboe. The piano is horizontal where the oboe is vertical. The piano has relatively constant geographical coordinates, while the oboe is a nomad. Piano’s vast range grants it an immense expressive potential with practically countless combinations of sounds, exceeding by far these of any language (88 keys vs. 26 letters of the English, for example); the oboe distills the available reality down to (less than) three octaves. The piano is big enough to resemble another quasi-human being, while the oboe could be regarded as a body extension. The piano is a conglomerate of materials, mechanisms and codes, there are 57 individual parts behind the action for just one key, but this intricate mechanics is all hidden behind and beyond the pale

ivory, mimicking humans' endoskeleton. The skeleton of the oboe is on the outside, like an insect or a superhero. And a skeleton it is indeed, for the heart of the oboe beats in the hollow insight, the bore, where the breath organizes air into a flow, livening the wood, supplying it with a character. Yes, the oboe breathes, and in this sense, it is more alive than the piano. There is a requirement for a physical distance between the pianist and the instrument, the piano's voice is actualized through hands and fingers, which are already semi-autonomous extensions of the pianist's body. The oboe uses fingers too, but in order to produce a sound it plugs right into the headquarters: the specific embouchure the oboe relies on, employs humans' most informed and intimate space, the mouth, thus temporarily the oboe becomes a body organ. Lastly, when I want to get close to the piano, I lean forward so my heart almost touches the keyboard; the oboe is closest to the brain.

Later. The piano I imagine as a friendly landscape, a mindspace one travels to, overcoming physical distance – I 'go to' the piano to find peace or to reconnect with myself, to distract myself, to rest, to crystalize my mood, even to define it. The richness of its expressive potential containing both the singular and the multiple affords the piano capacities for philosophizing, rhizomizing, schizophrenizing, hysterizing; it makes the piano feel like the company of another mercurial human being with a distinctive voice and a distinctive smell. The piano has the sex appeal of an Other.

The oboe, however, I 'take'. It is very much about my body to which it is an extension, an extra limb: I am the oboe. Its sound is a me-song with a humble beginning, which grows, refines and ennobles itself along with my skill. The basic me-song conveys lowbrow particulars about chest cavity and lung capacity, of limbic rhythms, mating routines, phallic totems, and carnal bacchanalia. The sophisticated me-song, however, is of a heavenly origin – epicene and equanimous yet sensual and seductive, it is Orpheus, the singer-king.

King or a snake charmer, oboe's message is always lucid: "This is who I am and what I do, I am here to manifest myself."

Playing the oboe is not an easy walk, a friendly chat or lazy strumming; it doesn't ramble, it doesn't browse. It takes all the concentration and courage one has to make a sound, to sustain a phrase, to say one's line. The oboe is about self-transcendence into a world of spells, of talking trees, of ritualistic gesture; it is about the personal statement, mission and drive. The oboe is political where the piano is psychological. The oboe is an archetypal hero – basic, condensed dweller of *illo tempore*; the piano is a modern citizen. The oboe stands for the change the individual can and does bring in the world, while the piano is about a shared

reality, about learning through encounters and interactions with others. The oboe is the 'I' – the tip of the subjective self-consciousness; the piano is the 'me' – the vast and unfathomable unconscious that defines, informs and constrains the 'I'. The oboe sings its heart out, while the piano presents a great intellectual conundrum: fantastic is the technical challenge, gigantic – the amount of complex information needing organization and integration. The possibilities of the piano make it a rhizome. The oboe selects a few of these possibilities, materials and desires, and in-forms them in an elongated shape, becoming a tree.

It is sobering to realize that our precious opinions are often not only culturally, but also historically and geographically biased: appreciating the oboe from the standpoint of 1) THE PIANO, 2) EUROPE, 3) TODAY, is one thing, and quite another, it would seem, is to perceive it from the perspective of the LYRE in ANCIENT GREECE. Eric Csapo, a professor of Classics at the University of Sidney, describes the disrruption and resistance the pipes' were met with during the so called New Music revolution from 5 century BC in Greece; 'pipe' or *aulos* is the ancient relative of the oboe, a double reed wind instrument with many local variations. The situation Csapo describes marks the ascending status and importance of the pipes coincident with the parallel rise of theater performance; this period is also characterised by the professionalizing of musical performance and the invention of the virtuoso superstar musician. The general public, including its most sophisticated and learned members (e.g. Plato and Aristotle, quotted in the text), meets the pipes with cries "insurrection" and "buggery" (Csapo 2012: 65) – the perceived contrast with the traditional lyre everyone has been accustomed with, is that great.

Csapo elaborates on five distinctive features of the pipe that have become points of outrage. Firstly, the obvious fact that it engages the mouth thus stopping the breath. This is the most brutal point of contention for it is interpreted as obstructing one's right to free speech: Aristotle comments on the pipes as "orgiastic" and "hindering the use of one's *logos*" – i.e. hindering one's speech and reason (Ibid.: 77). Also, the pipe disfigure the face by blowing up the cheeks and puckering the lips so one's face become bloated like *gorgoneion* (Ibid.); the symmetry and composure of the body, too, is affected. In short, the pipes 'spoile' the body – a calamity akin to committing a sin, a transgrassion against the soul, for "'soul' for the real Hellen was in the last analysis the form of his body," another connoisseur of Ancient Greece, philosopher of history Oswald Spengler remarks (in Paglia 1990: 109). Secondly, the pipes have greater versatility than the lyres, which usually played with seven open strings – the

pipes could play many more notes, with greater volume and tone color; they were known to be the most mimetic of instruments, able to play all sounds and voices, with great flexibility and expression. Related, is the third feature, pipe's volubility. Unlike the precisely tuned strings with always reliable and measurable tone, the pipes produce tone greately dependent for its pitch, color, volume and general character on the psycho-physiological condition of the performer, on the quality of the reed, and on the nature of the performance venue – many complain that the pipe tone is indistinct, unstable, gliding, giving the impression of a "constant and confused flux of sound" (Ibid.: 79). A forth distinctive feature is pipes' ability as double-reed intruments to produce two tones at the same time, or diphony. And lastly, their ability to play continuously and uninterupptedly – to sustain a single tone or to move between tones with no pause through circular breathing techniques (Ibid.: 18). These new musical capacities of the pipe affect and influence the theatrical drama, which it was meant to accompany. Sound continuously gains more and more priority over words. The traditional unison between sound and sense (music and logic) steps down to a more dynamic, versatile, dialectic dialogue-duet communication deemed extravagant and disturbing. In addition, a new chromatic system of tuning was developed in fifth century, which only adds to the perception of the pipes as unintelligeable, sensuous, seductive, volatile, aimless, soft, loose and . . . "womanish" (Ibid.: 91-94): indeed, the lyre was deemed as and understood in terms of 'male' and the pipes as 'female'.

What a telling clash between my perception and relation to the oboe and that of the old Greeks! Where my consciousness perceives it as male, limited, precise, and direct, the Greek community from 5th century BC interprets it as female, versatile, unprecise, and gliding. We both see it as Other: whether I call it archetypal' and they specify 'barbarian,' we agree on 'orgiastic' and 'Dyonisian' – and for different reasons. Whether our predispositions and opinions are rooted in our experiences, and whether our experiences are already encultured and contextual is not the question of interest here. It does seem reasonably accurate to suggest that all we can form as a perception or an observation is a sofisticated download from a somewhat digested and somewhat personalized but largely unconscious pool of data available to us. But true as this may be, the other way around appears equally, if not more, relevant: that our rational, transcendent Apolonian constructs and opinions are much simpler, much more base and instinctual than we suppose, rooted in primitive survival habit-thoughts ranging from 'mistrust of the new' and 'different is stupid' to morphology-based assumptions and judgements.

What good it is, indeed, to revisit Plato, when an oboe could just as well give you a glimpse of another world?[36]

Experiencing sound through a new instrument ripples my established view on music in general by pointing out that this view is heavily informed by my playing the piano, so what I come to think about music is not about music itself but is about music from the vantage point of playing the piano, it is piano's thoughts and understanding, awareness, feeling, smell and shape, or consciousness, integrated through piano's qualia. As each and every sentient being experiences reality through its singular genetic and epigenetic referential frame, so do we access and experience music through its numerous sound mediums. How straightforward and clear is in this context Marshal McLuhan's succinct formulation, the medium is the message!

> For the 'message' of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs (McLuhan 1964).

The meaning of a thing is conducted through or manifested in the form and the specific material nature of its medium. Bohm saturates and further sharpens this point: A change in meaning is a change in being (Bohm 1986). Then, each musical medium, like the piano, the oboe, the violin, is thinkable in terms of being, in terms of different musical species – music enters the instrument and, governed by its morphogenetic field,[37] it emerges as different beings and different meanings in the different musical works. How crude and plain is our carbon-based physical reality compared to the complex multidimensional organization of music! If a man takes his dog friend to a walk and play in the park on a sunny day, all they are going to be is a man and a dog having good time together under the sun. If they are deep into their play, they may be considered what Deleuze and Guattari call an *assemblage* – a dynamic, emergent arrangement defined by relations of exteriority. However tuned-in into each other man and dog are, they are still 'man' and 'dog' and never a 'mandog', or a 'dogman'. But what an oboe and piano produce when they play together is of a different

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[36] A paraphrase of philosopher Emil Cioran's original quote: "À quoi bon fréquenter Platon, quand un saxophone peut aussi bien nous faire entrevoir un autre monde?" (*Syllogismes de l'Amertume* 1952).

[37] A concept in developmental biology from the beginning of 20th century. Morphogenetic field is the field of information which reacts to various biochemical signals to guide the development of a cell into an organ. These fields are specialized, they constrain the outcome to a particular form, e.g. a cell in a limb morphogenetic field becomes a limb. Morphogenetic fields are considered a link between genes and evolution (Gilbert et al. 1996). Rupert Sheldrake explores and further develops the concept in *The Presence of The Past* 1995.

nature: they melt into each other, they complement and make up for each other's limitations, they in-fuse the resulted arrangement with their individual meanings to create a whole new integral being that is more complex than any of them taken separately – they create the totality[38] of a provisional new species.

Or to take the orchestra. If I squint, I can see it as a template for interspecies organization, a theater of genera and species, a showcase of a social system, like a city, a neighborhood, a family. A habitat of order, measure and meaning, an orchestra is a meticulously conceived and scrupulously managed model of deliberate communication, cultural coherence and psychological integrity, where each individual and group voice matter, where all can act, play and connect simultaneously and non-locally, providing service not to their own individual cause but to the cause of the whole. Imagine an analogous to the orchestra situation in the mammalian realm, with baboons and gorillas, foxes and wolfs, cows, humans, lions and zebras, kangaroos, rabbits and gazelles – can we conceive of even one possible outcome past the wreaking havoc unleashed in the first two minutes? Perhaps if we spread the animals far enough? Put them behind bars?? Even if we restrict our thinking to Homo sapiens and gather 100 specimens, they may and probably will find a way to cooperate, under the guidance of a conductor-figure, but not by speaking and acting all at the same time, by merging and producing new species, as the instruments in the orchestra do. The organization of humans is not an original organization and we should not attribute it to an intrinsic human law and order: rather, it is a copy of a physical, three-dimensional, Newtonian kind of organization. In Newtonian nature's explicate ways, objects rarely flow and merge with one another – generically they stand apart and communicate signals from within the membranes of their echo chambers. This Newtonian communication and the relationship between different species is rarely a rapport between equals, as it is rooted in ingrained hierarchies of dominance and subordination. The organization of musical instruments, species, beings and meanings also begins in a hierarchical structure as variously subordinated parts of a whole, but, enfolding and unfolding through various dimensions of complexity these parts co-emerge as a shared beauty, flowing through and interacting with its multiple selves. Led by considerations of unity, this organization transcends the natural template and emerges as a uniquely musical order. Is this order of a more evolved kind than human order is? Is not music, thus considered, more of a super- rather than a sub- set of humans?

[38] Manuel DeLanda elaborates on the distinction between assemblages and totalities in the first chapter of his book from 2006 *A New Philosophy of Society: Assemblage Theory and Social Complexity*.

It is and it is not, for we human beings create music in our own image. Bipedal creatures, inhabiting a world of opposites. In it, the left hand of the pianist composes a different dimension of the musical idea than his right one, the right bow hand of the violinist shapes and forms the expression inherent in the left hand's content; the left hand of the conductor sculpts and alivens the spatial images while the right one counts time. The melody is on top of harmony as the head is on top of the body. Closer to our sight, our hands are more developed and dexterous than our feet, hence we intrust them to 'make' music. Yes, music we create in our own image. But that is not to say that the music we make and hear is what music is. And even though inevitably conceived as an auto/portreit (for can it be otherwise?), musical organisation is so alien. What it would have been like if we had three hands, fourteen fingers, two mouths and three lungs – what music would we have created? What questions about music would we have devised?