Taller de Música Electroacústica

Analysis of *Connotations* (2015) by Panayiotis Kokoras

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The sensibility and experience of sound-in-itself, has been a philosophical, musical, ontological and linguistic area of debate in the XX century. The concept and experience of sound, has morphed from different denotations throughout history: from definitions associating it with noise, high entropy state, unpleasantness and incomprehensibleness (Toledo, 2006) to organized sound (Varèse, 1936), Sign (Saussure, 1916) and a contemporary artistic expression: a return to original conceptions of a musical discourse and musical connotations. Composer and innovator P. Kokoras uses timbre or sound, as the main source for his musical compositions and for his piece, "*Connotations*" for String Orchestra and Electronics.

Encompassing the morphing of musical interpretations of sound, he has coined this transition as "*Holophony*" (Kokoras, 2007) as well as "*Morphopoiesis*" in ". . .*systematic form-creating device*" (Kokoras, 2006). Holophony describes his philosophy of sound, wherein each independent sound (*phonos*) contributes equally to the synthesis of the whole (*holos*).

As music evolved with language-like attributes, it became a semiotic device across cultures that conditions and reinforces specific musical cognitions. With Holophony, it becomes an analysis tool, a philosophy and a recompilation of processes that ". . . *were disparate and widely-scattered without a single unifying thread to connect the elements*" (Kokoras, 2006, p.4); they function as a guide for future analysis and *a priori* considerations.

In both instrumental and electroacoustic writing, his music requires a "*sound virtuosity*", emphasizing the precise production of infinite sound possibilities and the correct distinction between one timbre and another to convey his musical discourse as well as *"...Transformational variation as a next step to the evolution of structural process. . ."* (Kokoras, 2006, p.2).

Connotations (2015-6) for String Orchestra and Electronics.

"*Connotations begins with a piercing Holophonic musical texture, which gradually loses its momentum and its abstract form. During this transformation, the material acquires a more dramatic character creating soundscapes with train engines, squeaky brakes, birds, wind or locomotive horns like the widely used Leslie horns. The soundscape assimilated by a Homophonic section with emphasis on double base sounds, which ends with a single tone from the whole orchestra resembling a Monophonic lament. The title refers to mental associations, a process by which representations arise in consciousness*." (Kokoras, 2015).

Although *Connotations* can be coarsely divided into four sections due to its character changes, these function as meta-indications of the function in that part, its inherent sound and what the sounds are associated with: its cultural and psychological connotations [6]. By stating that the character of a section is a "*Holophonic Pandemonium*", "*Polyphonic Uproar*", "*Homophonic Balance*" and "*Monophonic Lament*", Kokoras implies a musical Sign into his philosophy of sound: "Pandemonium" not trying to represent a Theological situation of chaos and disorder, but more as an approximation of chaos (apparent violence or disorganization) through a conceptual abstraction of content and form, without regards to programmatically portraying the signified, and trying to create through the signifier new forms of expression and understanding of sound.

As John Cage (1958) wrote about sound as musical instruments in The Future of Music: Credo: "*Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it*
fascinating. The sound of a truck at fifty miles per hour. Static between the
stations. Rain. We want to capture and control these sounds, to use them
not as sound effects but as musical instruments."

The sections mentioned here are only an analysis tool; the content of "*Connotations*" is different sound discourses (that work as layers) intertwined and can't be divided into blocks of formal structuring. Each discourse has its own complexity, sublayers and is only represented here to plot out the main layers of sound and music perception.

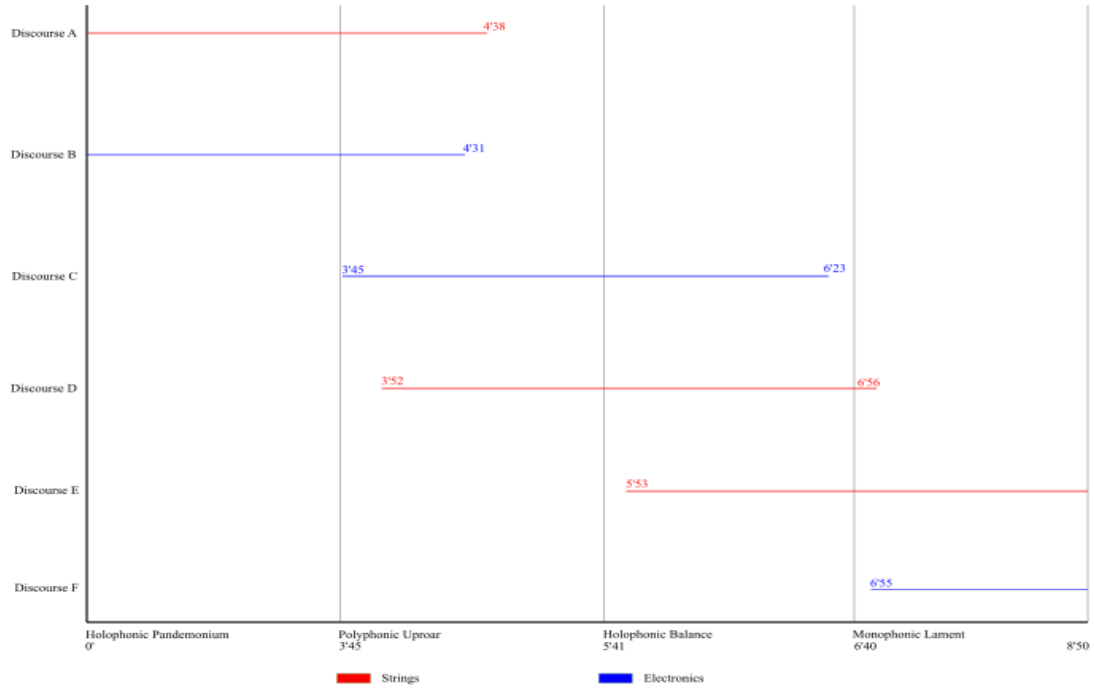


Figure 1. Main sound discourses in "*Connotations*". Red lines represent the discourse of the Strings and blue lines represent the discourse of the Electronics.

As seen in the previous figure, the different discourses do not function traditionally or simultaneously. The composer employs different compound lines of sound that blend indistinguishably from one "section" to the other and that complement the total form. The character indications are not intended as formal structuring: they work as a frame of reference in both ensemble integration and meaning construction. He constantly transforms one sound into another and abstracts the form through the content.

Figure 1.1 An example of a sound transformation trajectory and an abstraction in "*Connotations"* by P. Kokoras

Violin → String Sound → Metallic String Sound → Metallic Sound → Train Brakes

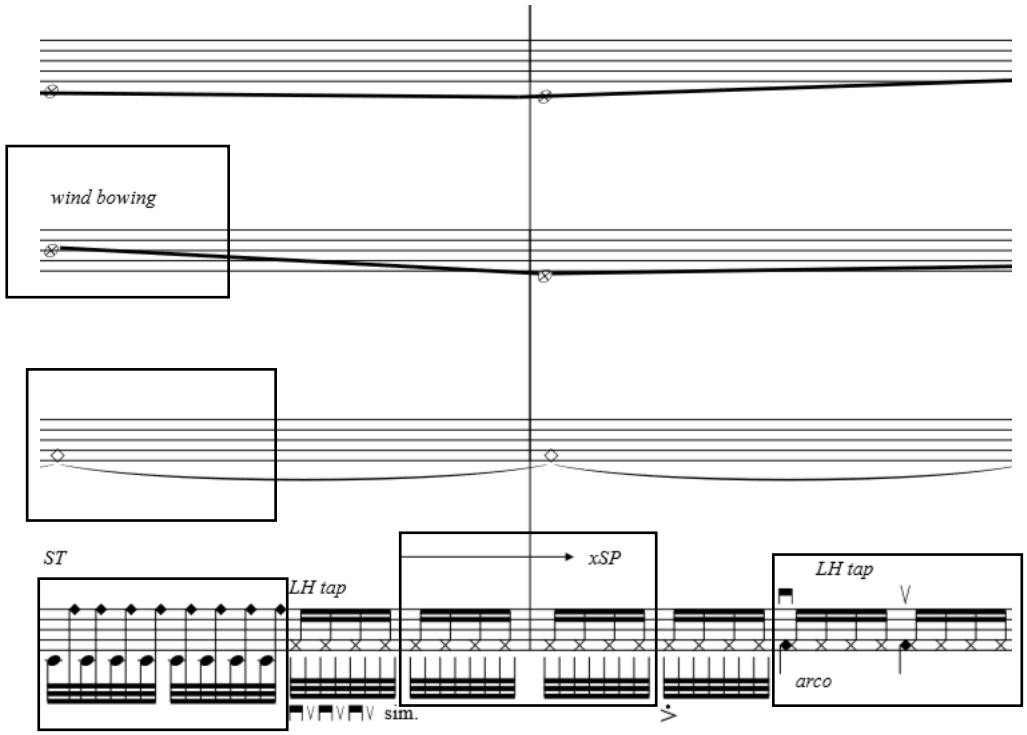
Train Brakes → Sound Gestures → Content ⟷ Form

Section I: **Holophonic Pandemonium**

In this section, music emulates sonic chaos, "*whose texture is formed by the fusion of several sound entities which lose their identity and independence in order to contribute to the synthesis of a whole*" (Kokoras, 2007).

This is accomplished by several sound-gestures, that integrate themselves with the electronics to create a morphological transition into one sound identity onto the other. The sound gestures are not limited to one discourse, they may appear in different moments throughout the piece:

Figure 2. Different sound gestures in the same section (Monophonic Lament)



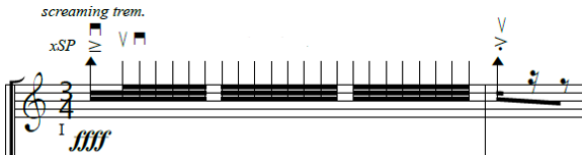
It should be noted that specific sonic descriptions (represented as extended techniques indications) were created, to ask the performer to blend indistinguishably from the electronics or sound-itself. Kokoras created specific descriptions in the English language for the performer to be an active listener of Holophony:

Figure 2.2 Holophonic descriptions of sound for the performers

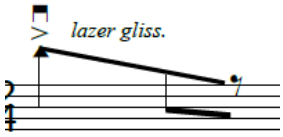
With the sound transformation trajectory (figure 1.1), P. Kokoras erases the signified of the sound. He does not intend to portray a specific sound association; he's stating the very ontological nature of sound and through new transformations, equation and sound-gesture assembling, he is creating a sign. According to Saussure, the nature of Signs is always morphing; in musical language, the compositional tools morph and through "*Connotations*", the composer creates specific sound-meaning relations:
"*A language is radically impotent to defend itself against the factors that displace at every moment the relation of the signified and the signifier. This is one of the consequences of the arbitrariness of the sign.*" (Saussure, 1916, p. 114).

The sound-gestures used by the composer to accomplish holophony in the first section, and that achieve textural-sonical fusion, are the following:

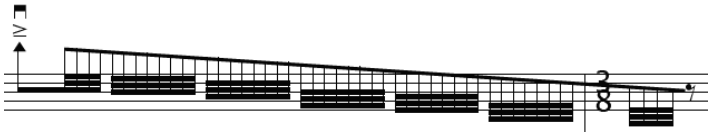
1) Screaming tremolo



2) Lazer gliss. (descending)

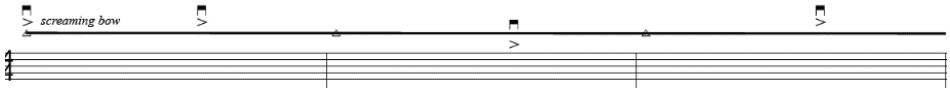


3) Combination of the two previous numbers (descending)

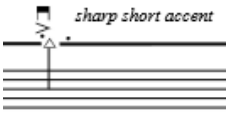


4) Reversed sound (asc. – desc.)

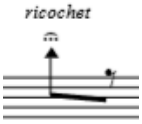
5) Screaming bow



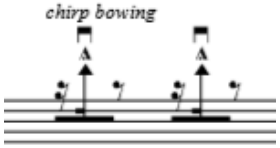
6) Sharp strong accent



7) Ricochet



8) Chirp Bowing



The electronics alternate their role throughout the piece: they act as a voice in a sonic polyphony, as a continuum in a musical discourse, and as an abstraction of the piece's concept: to invoke a word in addition to its primary meaning and alternate their appliance through its different denotations. In the first section, we could speculate the use of the electronics as the two previous mentioned roles: it is a continuum in the morphing of the sounds, and an abstraction of the intention of the piece. Trying to enlist the sounds used for the electronics are just a listening guideline and an attempt to analyze the possible logical relation between them besides their main conceptual attribute[1]:

a) Train sounds (Leslie horn, train steam start, train steam stop, train whistle, rail road lever)
b) Diurnal and nocturnal nature (birds, crickets, leaves sounds, puppies)
c) Bouncing metal objects
d) Processed Strings
e) War sounds (airplanes, bombs, lasers, sirens, screams)
f) City sounds (fireworks, orchestra, irrigation sprinkler, bicycle bell, vacuum cleaner)
g) The Sea (waves crashing, sea breeze, seagulls)
h) Western Whistle
i) Wooden doors, stretching leather objects, rubbing plastic surfaces

Figure 3. Spectrogram of the first section from "Connotations" (0 – 3'45) represented in audio software Audacity

[1] To fully comprehend his sound sensibility and compositional technique, a profounder spectral analysis should be done as well as musical adjectives to describe his morphing. In this analysis, only superficial spectral components are included.

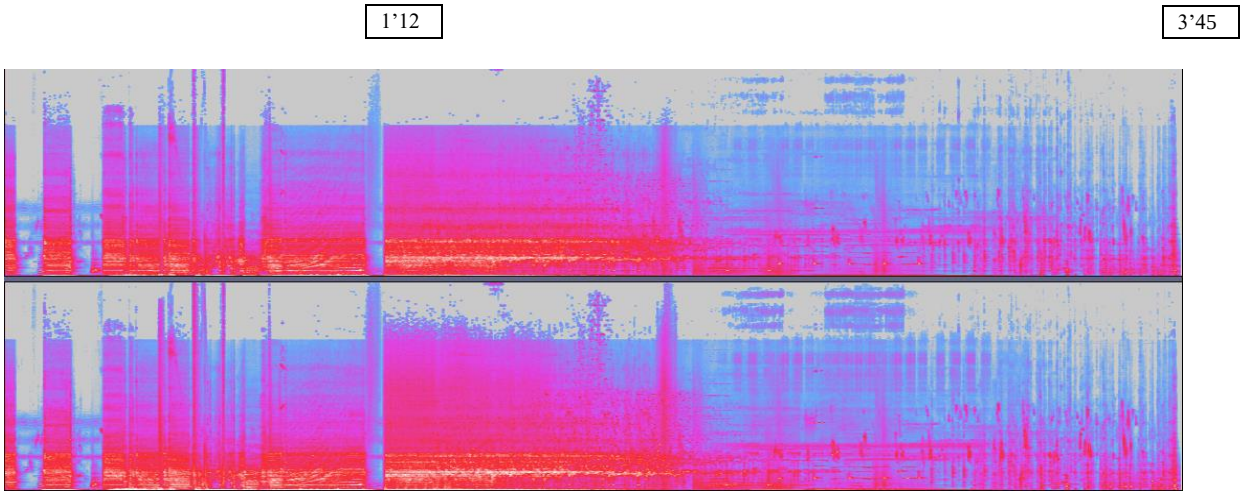


Figure 3. Spectrogram of the first section from “Connotations” (0 – 3’45) represented in audio software Audacity

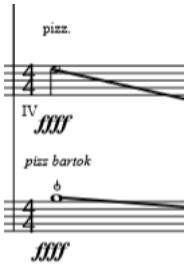
Seen from a spectrogram, we can observe that there is a non-linear massification of holophonical texture from the start to 1’12 into the piece. In addition, there are only four instrumental pauses across the first section. From 1’12 to 3’44 (where the second section begins) we can see a descending holophonical density.

Section II: **Polyphonic Uproar**

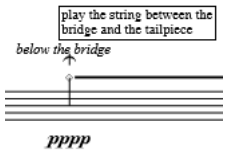
This section begins with the technical gestures in the strings used at the first section, the difference being that these are completely fused with the sounds of the electronics (Train sounds specifically); Form derives from the locomotive content. Dynamics, subito attacks, crescendos, diminuendos are used to become completely indistinguishable from the causal sounds of the train that permeate the third section.

The new elements used in the second section are the following:

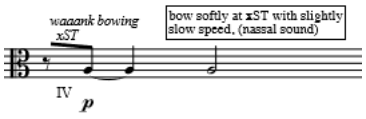
1) Pizzicato and Pizzicato Bartok



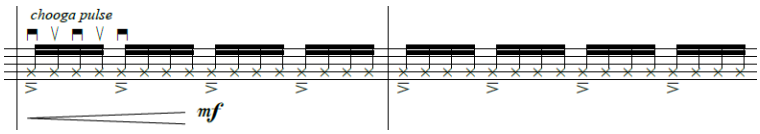
2) Below the Bridge



3) "*Waaank*" bowing (Although he uses specific pitches, these are intended only for blending string sounds with train whistle sounds: A4, C#5, D#5, E5, G#5, A5, B5, D6)

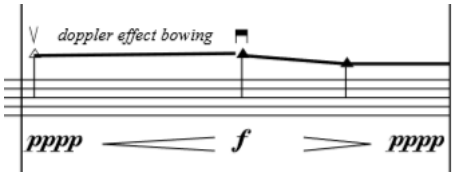


4) "*Chooga pulse*"

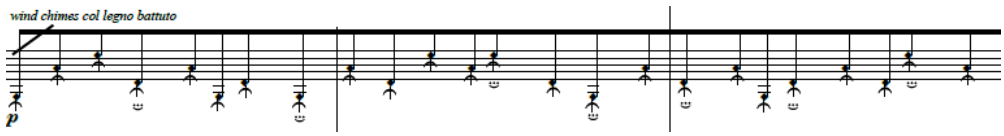


5) Bird Gliss

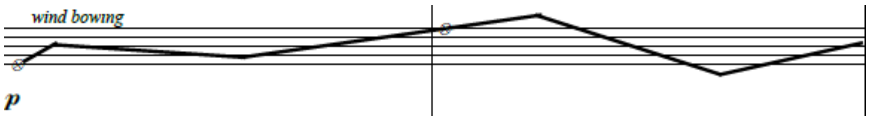
6) Doppler effect bowing (specific pitches: F3, F5, G5):



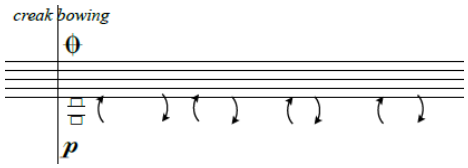
7) Wind chimes *col legno battuto* (specific pitches: G4, D5, A5, E6 (open strings)):



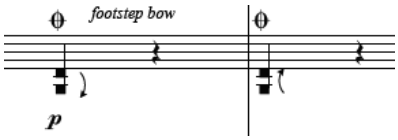
8) Wind Bowing



9) Creak Bowing



10) Footstep bow



Although the composer introduces specific pitches in this section, these are not organized in any previous musical language; these are only intended to be used through a known reference (treble, bass and alto clef) to portray a different meaning.

As stated before, the Electronics in Section II are derived from the train causal sound relations. It is not possible to determine or portray a narrative onto the sounds of the train, but it is apprehensible that all the sounds of the train as a spectator (specifically not asking the driver to produce sounds for the composer) are used. At the "division" of Section I and II a Seagull sound is perceived. This is only briefly used, since he combines the white-noise associations of steam release with sea waves crashing association. At the same time, he uses sounds of sport shoes rubbing the floor briefly, as a continuation of the bird-like sounds of the previous section. The Electronics and Spectrogram are the following:

a) Sea sounds
b) Sport shoes rubbing the floor
c) Train sounds (Leslie horn, train steam start, train steam stop, train whistle, rail road lever)

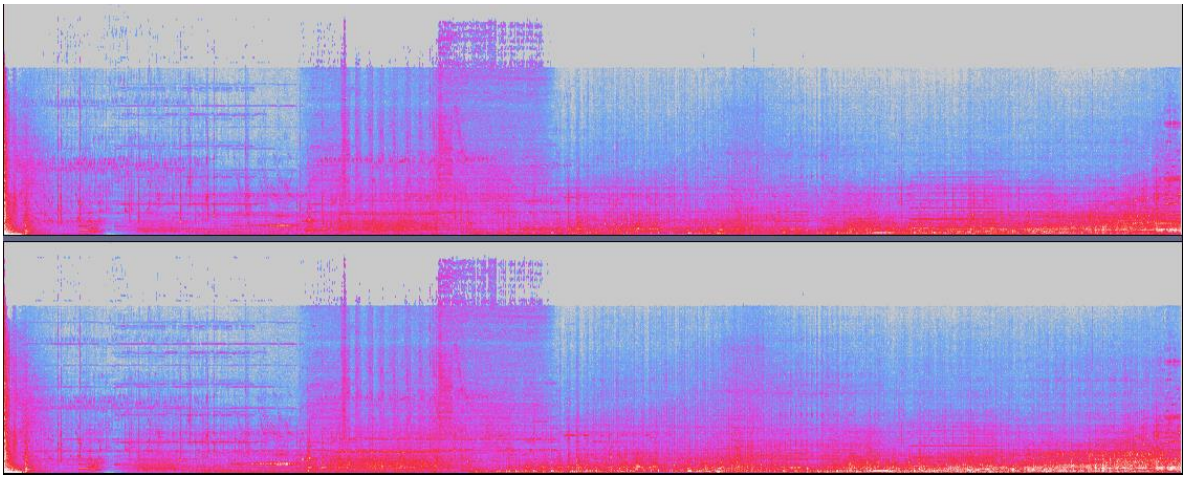
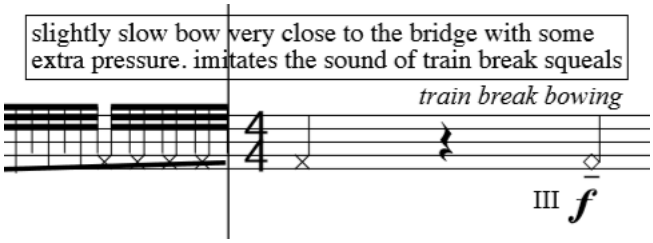


Figure 4. Spectrogram of the second section from "Connotations" (3'44 – 5'41) represented in audio software Audacity

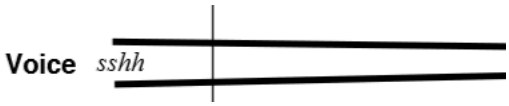
Section III: **Homophonic Balance**

Although the character change of sections is barely noticeable, section III begins with a preponderant train steam release, that is followed by the performers saying "*sshh*".
The new sound gestures used here are the following:

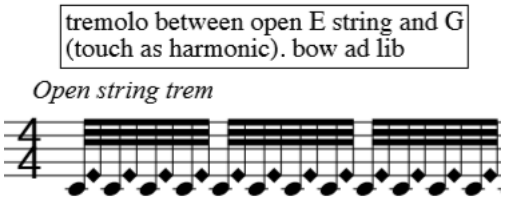
1) Train Break Bowing



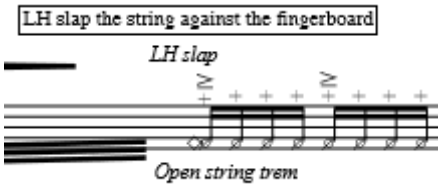
2) Voice "*sshh*"



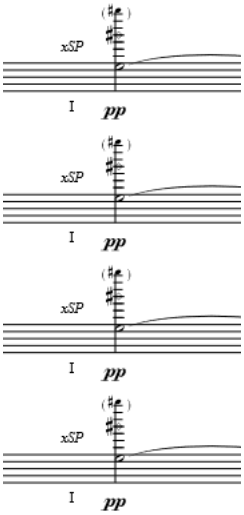
3) Harmonic Tremolo



4) L.H. Slap



5) Artificial Harmonics



The Harmonic Tremolo is a transformation of a previous musical discourse momentum. In bar 138 Kokoras uses 32th notes to represent the "*chooga pulse*" but immediately in bar 139, he changes the technique to a Harmonic Tremolo and combines them at bar 142. This is consistent with the idea mentioned in Figure 1, where a discourse can continue to another section and become a part of that section too. Panayiotis Kokoras does that by keeping the substance of the discourse (the 32th rhythmic figure), changing one of its attributes (the timbre), and oscillating between the two. In addition, the harmonics that appear in bar 143 are a precursor of the next section: a chant on only one note.

As stated before, the electronics begin with a train steam release and slowly transform into crickets and night sounds. They fade out completely at 6’23 to reach an “*Homophonic Balance*”; Homophonic meaning a function dependence and not a hierarchy of roles.

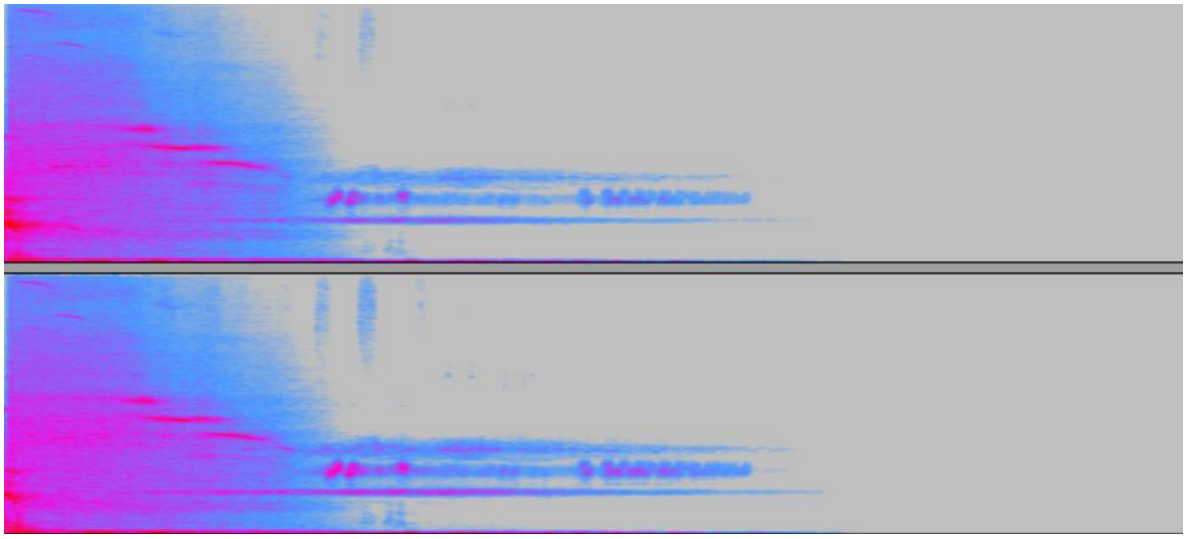


Figure 5. Spectrogram of the third section from “Connotations” (5’41 – 6’40) represented in audio software Audacity

Section IV: **Monophonic Lament**

The fourth section is a representation of a Holophonical stability and fusion: different discourses converge into one single note. The composer does that by carefully transforming the attributes of the discourse, and by introducing new elements minutes before the “beginning” of the section:

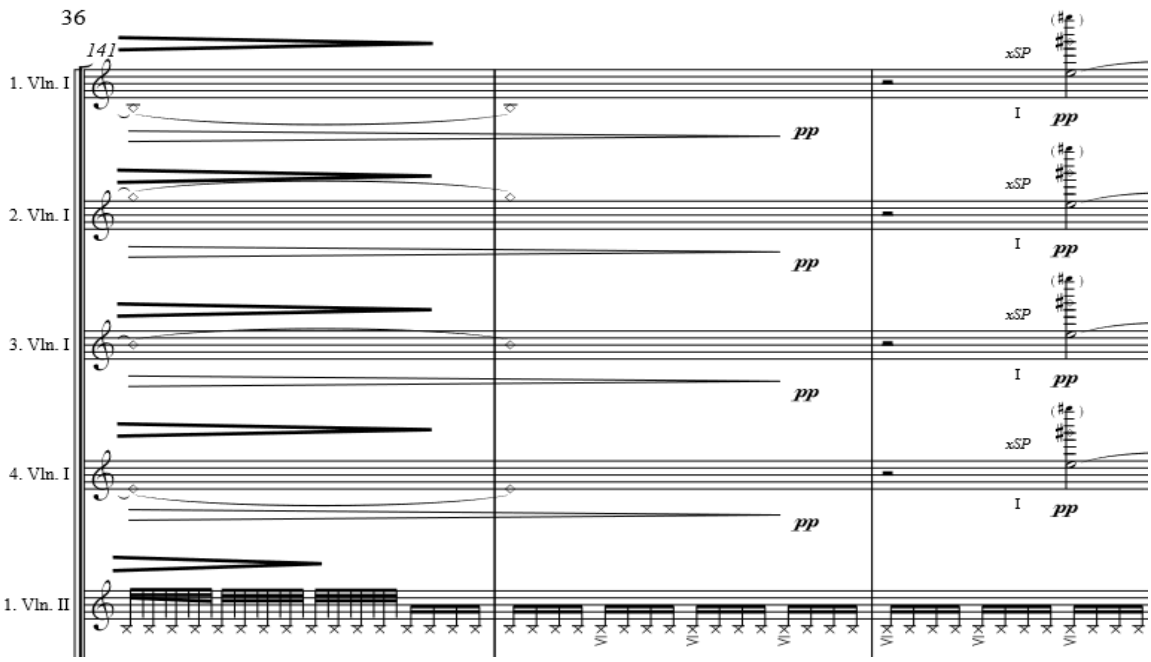
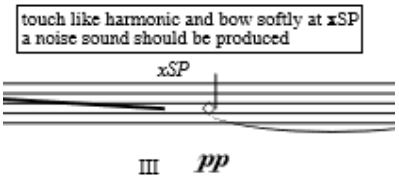


Figure 6. Score excerpt (bar 141) from "*Connotations"* where different discourses interact: "*sshh*", "*chooga pulse*", harmonics and artificial harmonics.

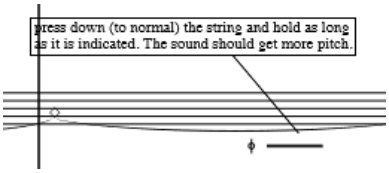
As stated in the previous section, the composer converges into unison. The procedure to arrive at A in different octaves, is by step motion and timbre transformation. It is essential to divide the character into two parts: "Monophonic" is a technical texture representation. Alternatively, "Lament" is the closest to achieve true linguistic sign: the electronics represent a Lament Song (Music of Epirus "*Μοιρολόι Ηπείρου*"). The Song that is played by the electronics, are Homophonic by nature but the composer uses a Monophonic character indication in this context to abstract the intention of using only one note to achieve complete integration of the different discourses.

In this section, he uses different sound-gestures that were formerly used during the piece and introduces three more that are just different states of noise, sound and silence:

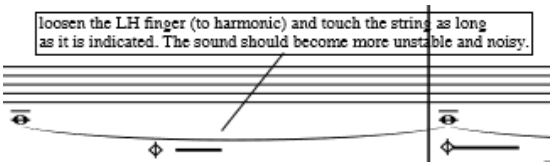
1) Noise soft sound



2) Pressure pitch



3) Unstable sound



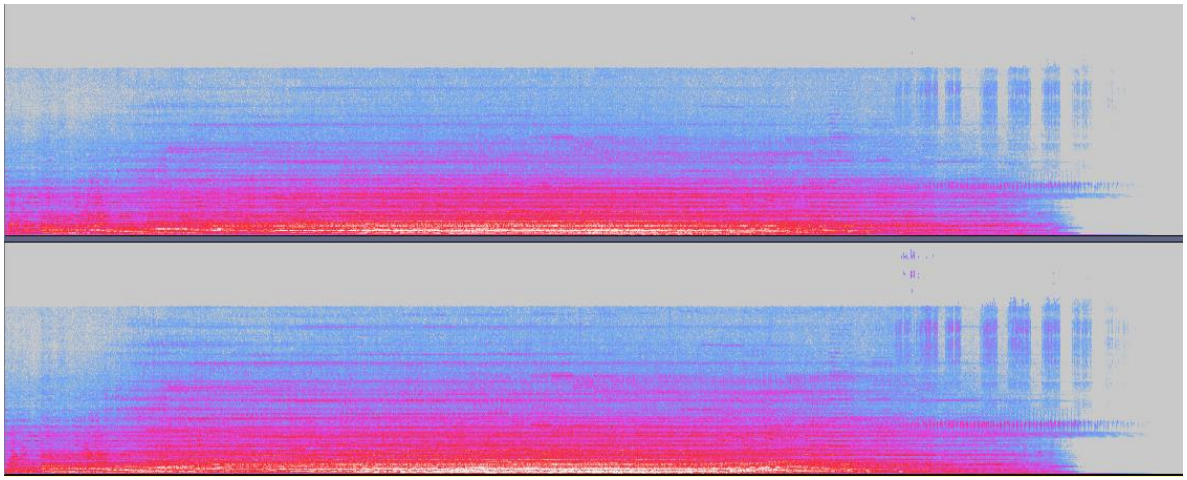


Figure 7. Spectrogram of the fourth section from "Connotations" (6'41 – 8'50) represented in audio software Audacity

The different discourses of the electronics merge for the final appearance in the IV section. The sounds of the Lament Song (IV Section) converge with Nature sounds (I, II, III Section): it can be affirmed that the electronics and the string ensemble undergo a "*transformational variation*" [2] that in future analysis will have to be considered as sub-branches of the main discourses.

Conclusions:

The lexicon used here to analyze this music is an attempt to describe with known English signs, unknown sound and language phenomena. Special vocabulary approximations and structural references must be used to disarticulate an articulated work of art, particularly one that is not intended to be understood by segments.

Panayiotis Kokoras' music is the result of high sound sensibility and appreciation, as well as a profound and inspiriting musical composition language. A throughout listen to the electronics and the sound of the acoustic instruments separately is indispensable to fully appreciate the form-articulation. This paper is intended to contribute to XXI century musical thinking, sound-sensibility and cognition: one intended to see sound its macro and micro attributes in extensive detail.

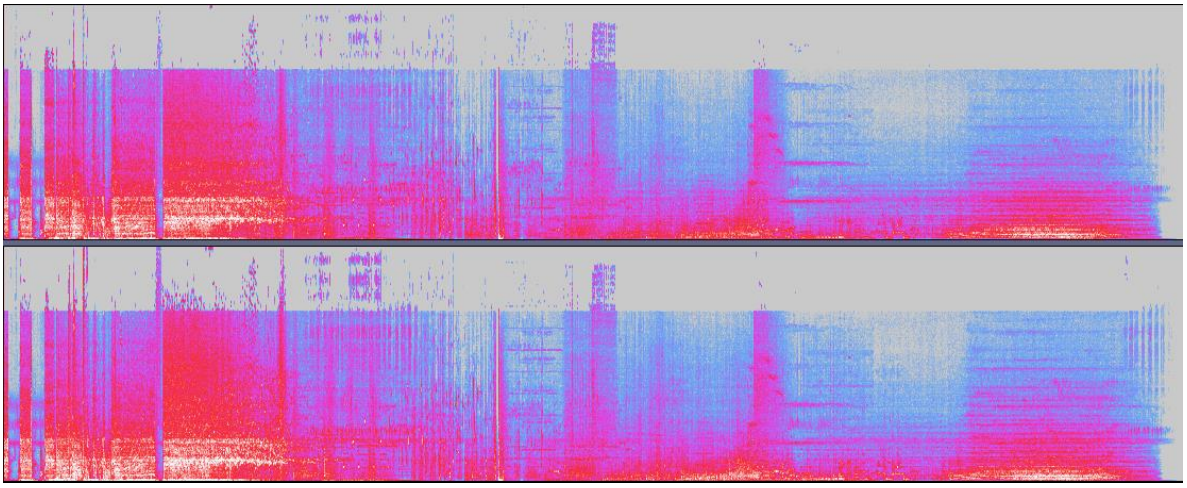


Figure 8. Spectrogram of the piece "Connotations" represented in audio software Audacity

References

1. **Toledo, M.** (2006). *Mapa del ruido en la música del siglo XX*. April 09, 2018, from http://www.journals.unam.mx/index.php/pim/article/view/17133
2. **Varèse, E.** (1936) *The Liberation of Sound.* Perspectives on New Music New Instruments and New Music.
3. **Saussure, F.** (1916). Curso de Lingüística General (Quinta ed.). Cuidad de Mexico: Distribuciones Fontamara.
4. **Kokoras, P.** (2007) *Towards a Holophonic Musical Texture*, Journal of Music and Meaning (JMM). JMM 4, Winter 2007, section 5. University of Southern Denmark. April 09, 2018, from http://www.panayiotiskokoras.com/en/writings.html
5. **Kokoras, P.** (2006) *Morphopoiesis: An analytical Model for electroacoustic Music*. In Proceedings of the International Computer Music Conferencee (ICMC) (6-11/11). Tulane University. New Orleans, USA, April 09, 2018, from http://www.panayiotiskokoras.com/en/writings.html
6. **Connotation**. Retrieved April 11, 2018, from https://www.merriam-webster.com/dictionary/connotation
7. **Kokoras, P.** (2015) *Program Notes*. April 10, 2018, from http://panayiotiskokoras.com/_connotations/
8. **Cage, J.** (1958). Silence: Lectures and writings. Middletown, CT: Wesleyan Univ. Press.