

KLAMA: the Voice from Oral Tradition in Death Rituals to a Work for Choir & Live Electronics

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Abstract — *Klama*, for mixed choir, live electronics & prerecorded sounds, has its origins in the ritual lament of Southern Peloponnese (Greece); a “polyphony” composed of improvised monodies (*moirólóya*), epodes, crying, screams and monologues, accompanied by ritual gestures. By its acoustic violence the lament can be considered an alteration of vocality which affects simultaneously tonality, timbre and language. *Klama* has been developed in three levels, a nexus where vocal writing interacts with electroacoustics and live electronics, the latter seen as a metaphore of the inherent vocal alterations on the lament. In this paper we will show : 1) how the compositional material derived from the voice in oral and byzantine church tradition is explored for the choir and electronic writing; 2) how the three levels of *Klama*, acoustic, electroacoustic & live electronics interact through the act of composition and by means of the technological tools (Open Music, Max/Msp, Audio Sculpt).

Keywords : *lament, vocal techniques, noise, Max/Msp, OpenMusic.*

INTRODUCTION

Klama has been commissioned by Ircam and the Accentus Choir and performed at Agora Festival 2006 at the Centre Pompidou, Paris. It is a work for mixed choir, live electronics and pre-recorded sounds, having its roots in the death rituals, performed in the region of Mani, in Southern Peloponnese. The meaning of the word “*klama*” is simultaneously “cry” and “ritual lament”. It characterizes a “polyphony” encompassing improvised monodies (*moirólóya*), epodes, crying, screams and monologues, accompanied by ritual gestures. Due to its acoustic violence, and related to the experience of loss, lament can be considered more like an alteration of vocality rather than a song; an alteration which, because of the emotional shock, affects tonality, timbre and language as well. Performed by women, mainly in the dead person's house in front of the corpse, this “polyphony” is a kind of accompaniment and appropriation of the dead, reorganizing the social structures. This ritual is followed by the Byzantine monody of an Orthodox Funeral Mass celebrated in church. The two forms are then joined in a complementary and at the same time antithetic way, in a kind of chaotic acoustic dissemination and dispersal.

In the structure of *Klama* my intention was to (keep and) explore this dramatic opposition which separates and brings together two cultures dissimilar to each other, an oral and a textual one. The material of *Klama* originated from the recording of Katerina Xirou's voice, together with others, found and performed in situ.

The musical text evolves in three parallel levels that are superimposed and interact with each other as in Arnulf Rainer's *Übermalungen of Totenmasken* (overpaintings on

the photographed people's death masks). The vocal text uses melodic traits and certain techniques of the mourning voice. The electroacoustic text assembles rough or transformed material, integrating the noise and the deterioration of the analog storage medium (vinyl record and audio tape); mainly focused on timbre, the electronic treatment focalizes on distortion, mask “filtering”, vocal noise simulation, accentuation of breath, amplitude modulation and granular synthesis. It has an effect on the voices of the choir in real time and acts as a metaphor of the vocal perturbations inherent in the lament.

Klama has been composed for an 8-part mixed chamber choir of 33 voices (SSAATTBB) with 3 soloists, soprano, contralto and baritone, who at certain moments join the other parts.

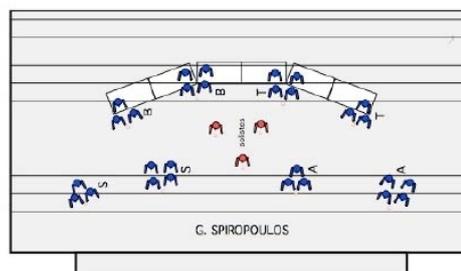


Fig. 1. Choir on stage

Klama develops as a triptych form of three semi-autonomous panels, *klama – melos – diaspora*, bordered and bound by electroacoustic parts.

Intro	Klama	Interlude I	Melos	Interlude II	Diaspora	Finale
	<i>lament</i>		<i>monody</i>		<i>dissemination</i>	

Fig. 2. *Klama* - form

I. COMPOSITIONAL MATERIAL & VOCAL WRITING

A. Compositional material

The compositional material of *Klama* comes from three sources of found and created audio “documents”:

1) mourning and speaking voices and ambient noises form an old audio tape recording of a ritual lament in situ;

2) excerpts of a Katerina Xirou's lament cycle recorded at Ircam and pressed in a vinyl record; 3) excerpts from a hymn of the byzantine Funeral Mass of Ioannis of Damascus (7th-8th centuries). Both electroacoustic & live electronics parts are a deliberate combination of HiFi and LoFi sound. The deteriorated audio tape and vinyl record quality, natural or artificial, offers a large sound palette (noises, crackles, hisses and scratches) determining for the "noise" aesthetics of the work. The vocal, the electroacoustic and the live electronics parts are interwoven and interdependent; these three levels tend to maximal fusion as if past and present formed a continuous circuit, a new acoustic reality where different "époques" co-exist.

B. Text

The text use on *Klama* is restrained, mainly based on the acoustic quality of the phonemes; melted in the sound, rarely perceived, the text is used more as a vehicule of phonetic colors and as a "guide" for the form narratives than for its semantic quality. The Mani's linguistic and poetical idiom, whose imitation is condemned to failure, exists only as "traces" on the fragmented prerecorded voices.

Klama starts with a sequence of five vowels (e i ou a i) derived from the first words of a traditional lament. We can mention shortly some other types of used material: isolated phonemes chosen for their acoustic quality in relationship with vocal register, articulation and intensity; fragmented or entire screaming words; the first word "οιμου" (= imi, a greek exclamation of pain) of the byzantine hymn; the poetic text of a traditional lament in a spoken version.

C. Vocal writing

In Mani's ritual lament tradition we find two types of interpretations of a lament : the *mourning way*, in situ, during death rituals and the *singing way* in an "every day" context. My main interest focuses on the womens' *mourning way* and the *beyond-the-singing* vocal "techniques" and timbres; consequently I chose not to use any modal contents of the singing, the tonally stable "every day" version. As for the fragment of the byzantine hymn, attributed to the male voices only, an approximation of the voice position in the church tradition is demanded.

All vocal parts of *Klama* should be sung without any vibrato. The main vocal techniques used are scream, voiced pant, sob, hoarse voice, "breathing in" and "breathing out" noise, speaking voice sotto voce.

The "melodic" vocal writing is based on: single-tone or drone phrases, sometimes including microtonal fluctuations or short glissandi, and continuous ascending glissandi as those observed at the end of phrases/verses of the laments - often, these phrases are to be sung with a continuous raising intensity until exhale air finishes; two citations, short looped melodies in Byzantine Mode 2, of the world "imi" of the byzantine hymn; short melodic skipping phrases, executed with the chest voice in a high intensity, shapes of real *screams* (words or syllables) often time-expanded. Some other extra-singing sound shapes and rhythmic cells of the mourning voice are used: approximatively pitched, like aspirated *sobs* (descending glissando), noisy and unpitched like short voiced *pants*, long *hoarse voice* sounds and short "breathing in and out

noises. Fast spoken sotto voice passages are used for a traditional lament murmured by the tenors in the singers language. The passage of the score (meas. 55) on "Fig. 3," includes some of the above vocal techniques.

The image shows a musical score for Soprano and Contralto parts. It consists of two systems of staves. The first system has a Soprano staff and a Contralto staff. The second system has a Soprano staff and a Contralto staff. The score includes various musical notations such as notes, rests, and dynamic markings like 'f' (forte) and 'p' (piano). There are also some annotations in red and green, possibly indicating specific vocal techniques or performance instructions.

Fig. 3. Vocal techniques for sopranos and contraltos; scream – aspirated sob – voiced pant – "breathing in" noise.

D. Electroacoustics

The introduction, both interludes and the end of *Klama* are entirely electroacoustic; the introduction is spatialised in the hall during the audience entrance until the choir finds its final position on stage. The sound material uses speaking and mourning voices and ambient noises from an old audio tape recording of a ritual lament in situ and a high pitch-shifted sampled lament of K. Xirou, representing the "announcing bird". The electroacoustic part accompanying throughout the vocal part uses similar transformed audio material integrating deteriorated audio tape and vinyl record sounds. *Klama* ends with vinyl record laments phrases spatialized all around the audience.

II. COMPUTING TOOLS

A set of computing tools has been specially developed for *Klama* at Ircam by Benoit Meudic. They have been used in different steps of the construction of the piece: for the composition of one section of the score (using the OpenMusic software), for the creation of the electronic sounds on studio and for the real time sound treatments of the choir (using the Max/Msp software).

A. Open Music

Open Music is a full visual programming language. It is mainly used by composers for non-real-time generation of symbolic materials (such as midi-files) used for writing scores.

We have chosen this language to emulate a granular synthesis module (*munger~*) taken from the software Max/Msp. We have called our module *simul-munger*. It is written in Common Lisp Language and uses the Open Music graphic interface. The interest of using Open Music stands in the possibility of fine tuning the parameters of the module, and in the conviviality of the symbolic music editors that are provided by the environment. Each time we evaluate the module, it outputs a new 8-voice midi-file that we can visualize in a graphic score editor. The module can potentially provide a great number of different

scores that correspond to many possibilities for making the glissando texture attributed to the sopranos and altos at the third section of *Klama* (meas. 143-164).

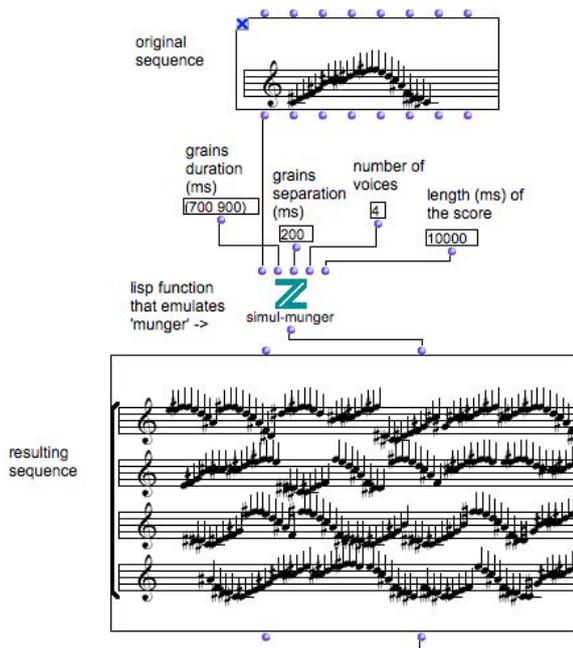


Fig. 4. An OpenMusic patch generating a glissando texture.

B. Max/Msp and Audio Sculpt.

Following the same concept as Open-Music, Max/Msp is a full visual programming language, but it is more dedicated to real-time sound processing. Its modularity provides a great flexibility of use and offers the possibility to personalize the interface in depth.

We have used it for making several real-time sound treatments modules. The choir was divided in 11 groups (SSAATTBB + 3 soloists) and each of them could be treated independently during the concert. The signal communication between the modules uses a matrix so that the modules can be connected to each other in all the possible ways. Considering that, the total number of possible module combinations is very high. For instance, if we provide a sound file as input to the system, we can transform it and record the transformations as a new sound file. This can be done an infinite number of times and makes the generation of a great variety of sound files possible starting from only one sound. The modules that we have developed correspond to some special voice treatments that had been desired by the composer. Many of them consist in of adding some noise to the voices following the idea that the emotion of the singer alters his/her voice, as it occurs in a real *lament*. In the following paragraph we will describe some of the modules and provide some examples.

1) *masque*. The *masque* module is a set of filters that have been developed starting from the idea of applying different real “masks” (that is to say objects modifying the vocal identity) to the choir-singers. Four masks have been built from the recording of real masks. The process consists of computing a filter that transforms a given source (singer without the mask) in a given target (singer

with the mask). This is very delicate because the source and the target should be synchronous. We have used a Max/Msp library called FTM to compute the signal vector matrices. The resulting masks, even if not so near from the initial targets, provide filters that alter the sound by giving to it a particular colour. It is also possible to interpolate between two masks. We may find some examples of the *masque* use on measures 18, 80 (contralto solo) and 73 (tenors).

2) *modamp*. The *modamp* module applies an lfo (low frequency oscillator) to the voice. It can be used to alter a continuous sound. One could compare the result to an extreme tremolo (amplitude vibrato). It has been used in a prerecorded hoarse voice (voix rauque).

3) *disto*. The *disto* module provides another kind of distortion by modifying separately the amplitude and the phase of a signal in the frequency domain. It is possible to shift, randomize, resample and filter any component of the amplitude and/or the phase and to re-inject the result in the processing via a matrix. The result sounds hoarse and can be used on harmonic and clean sounds. “Fig. 5,” ‘patch+disto’ shows the matrix and the different graphs from which the module is controlled. The “disto2” module has been used for the basses byzantine melos on the part II of *Klama* and simulates the timbre of the voice of K. Xirou singing a B-flat low tone (Bb2).

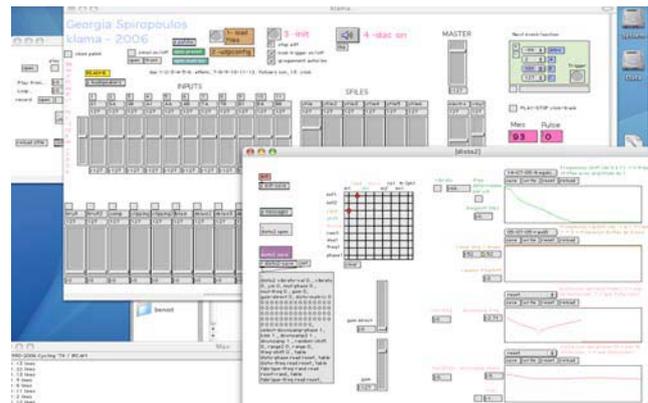


Fig. 5. patch+disto. The *disto* module and the main Max/msp patch

4) *munger~*. The *munger~* module is a granular synthesis object made by Luke Dubois that we use in order to emulate another kind of distortion. Various-sized grains of sound are taken from the signal and re-synthesized after adding small random time and pitch variations. The “announcing bird” audio file on the electroacoustic introduction of *Klama* has been generated with the *munger~* (and *psychoirtrist~*) modules applied on a “screaming” phrase of K. Xirou.

5) *bruit*. The *bruit* module has been developed to emulate a specific vocal mode very difficult (maybe impossible) to be produced by a singer who is not used to that mode. Starting from an original audio recording of K. Xirou, we have generated a sonagram with Audio Sculpt, a software that performs in-depth spectrum analysis and editing, and we have analysed it in order to emulate the different noisy components of the voice. We have defined two transformations: the first one is the adding of inharmonic partials by modulating the signal by an lfo

tuned to a harmonic frequency of the voice, and the second one is the adding of noise filtered by the cepstrum of the voice in a specific frequency range and scaled by the amplitude envelope so that high amplitude levels provide more noise. “Fig. 6,” “voixrauque” (hoarse voice) shows the two areas of the sonagram from which we have defined our module. “Fig. 7,” “bruit” (noise) shows the interface controlling the module.

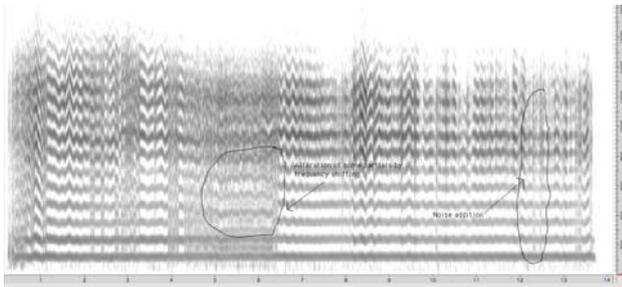


Fig. 6. The “voixrauque” AudioSculpt sonagram.

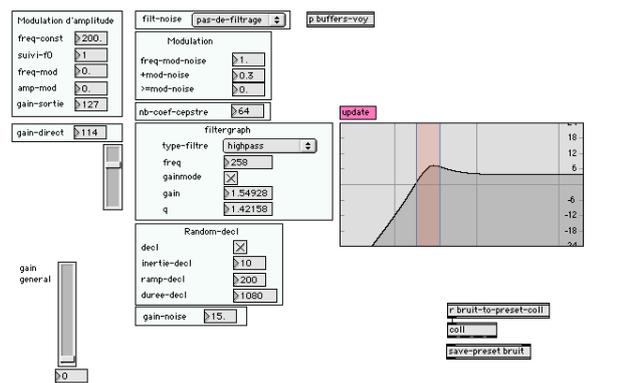


Fig. 7. “bruit”. The *bruit* Max/Msp module parameters.

6) *psychoirtrist~*

The *psychoirtrist~* module is a *psola* (pitch-synchronous-overlap-analysis) choral harmonizer developed by Norbert Schnell at Ircam. Applying random temporal and pitch modulation parameters it is used to emulate a choir from the voice of one singer. It has been used on the electroacoustic part of the first section of *Klama* to create progressively a 4-voice virtual choir glissando texture between a given interval (major second and major third) from a single repeated tone phrase of five vowels.

Several other classical treatments such as clipping, frequency filtering, granular synthesis, compressors and delays have been used in the piece in complement to the modules we have described.

C. Spatialisation

Several spatialisation techniques have been used for isolating some singers from the choir. We have used a 6-point diffusion system disposed around the audience.

loudspeakers configuration



Fig. 8. Basic loudspeakers configuration

ROOTS & ROUTES

Klama reflects the questioning of compositional approaches and music technologies use which is based on two main axes :

1) the relationship and movement *from orality to textuality* and vice versa; how living oral/aural traditions are conveyed through "voice" (and body) and audio/visual “documents”; how orality, reinforced by personal experience, can be integrated in new forms through textual representation (musical score), material innovation and vocal/instrumental/computer techniques evolution; in which way a foreigner to a given tradition interpreter embodies, mixes, transforms and (re)creates orality to a new milieu. How the musical idea and consequently the text can create topoi and liberate regions (entities from fragments) where different “*époques*” co-exist in constant dialog with each other.

2) the movement *from noise to sound* and vice versa: how found noise models and intentionally inserted noise transforms and becomes part of the musical sound in order to produce a whole new living sound organism; how noise may be used to testify the presence of the medium, the passage of time or the distance of the "source"; how sound/noise can be used as music material in all of its aspects and qualities, from natural to artificial and from "hi-fi" to "lo-fi"; finally how noise, as a positive force dynamically related to sound wouldn't turn to the totalitarianism of the maximum level and of the constant fullness of the sound space.

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