

AGELASTA: THE ILLUSION IN MUSICAL COMPOSITION

AGELASTA: a ilusão na composição musical

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Abstract

The present article intends to present and discuss the role of the perceptive system and its relations with the musical universe. In this context, the concept of sound illusion assumes a relevant role in the definition, analysis and interpretation of this relationship in the process of musical composition and interpretation. Considering the objectives of this article the changes to the musical text will be essentially addressed through the following characteristics: time, timbre, reverberation, structure and form. Based on this understanding the empirical course assumes two paths: (1) analysis of some examples of Western Music repertoire with the aim of categorizing and perceiving how these characteristics are assumed as elements of sound perceptual illusion; (2) composition of an original musical work, where some of the aspects resulting from the previous phase are explored from the point of view of musical creation.

Resumo

O presente artigo pretende apresentar e discutir o papel do sistema perceptivo e suas relações com o universo musical. Nesse contexto, o conceito de ilusão sonora assume papel relevante na definição, análise e interpretação dessa relação no processo de composição e interpretação musical. Considerando os objetivos deste artigo, as alterações no texto musical serão abordadas essencialmente pelas seguintes características: tempo, timbre, reverberação, estrutura e forma. Com base nesse entendimento, o curso empírico assume dois caminhos: (1) a análise de alguns exemplos de repertório da música ocidental com o objetivo de categorizar e perceber como essas características são assumidas como elementos da ilusão perceptiva sonora; (2) composição de uma obra musical original, onde alguns dos aspectos resultantes da fase anterior são explorados do ponto de vista da criação musical.

Key-words: *Musical composition; Perception; Sound illusion.*

Palavras-chave: *Composição musical; Percepção; Ilusão de som.*

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INTRODUCTION

Man has always shown his fascination by the universe of perception where the visual and sound distortions are assumed as an instigating object. Shepard (1990) considers this distortion of the world that we see and hear as a normal aspect of our perceptual system. But is the world really what we perceive? We think that optical illusions are a relevant indicator in confirmation that this world is not as we think it is. This raises another question: why does our perceptual system do this? In the view of Levitin (2011), perhaps the explanation is reduced to a certain evolutionary adaptability existing in this system. Much of the sounds and visions we receive through our sensory receptors have partial/ambiguous information and other informative elements that are not present. In the particular case of the sound world, our auditory system presents a very specific / complex version of this perceptive complement (I Warren, 1970; Bregman, 1990), where ascending and descending processes play a significant role in the representation and understanding of reality. The exploration and knowledge of these singularities has led many authors to have observed / studied the phenomenon of perceptive complement as an element of and in musical composition. It is noteworthy the *Shepard Scale* (1964), *Risset's Perpetual Glissando* (1969) and *Deutsch's Triad Paradox* (1986). An important contribution to the exploration and experimentation of this subject in the field of musical composition is undoubtedly the theories associated with perception, cases of Gibson's Direct Theory (1966), Gregory's Theory of Constructivism (1970) and its main mechanisms (gestalt grouping principles, filling and unconscious inference). It is important to emphasize the contribution of Place Theory, Temporal Theory and Duplex Theory (Licklider, 1951; Cheveigné, 2004, 2010; Warren, 2008), in understanding the analytical process (spectral and temporal) of our auditory system.

The visual and sound illusions assume different understandings in the academic universe. For Gregory (1997) and Warren (1970), these distortions are defined with errors of perception. On the other hand, Risset (2007) mentions that the illusion presents itself as an error of the senses and truths of perception. This understanding of Risset puts in this concept a sense of support for the understanding of the mechanisms involved in the functioning of human perception (Patrício, 2015). Wessel and Risset (1983) present in their article *Les illusions auditives* a proposal of categorization of different illusory effects resulting from perceptual and sound processes.

For the authors these can be divided into: (1) perceptual restitution of sounds; (2) polyphony with one voice; (3) paradoxes of dissociation of sound height; (4) paradoxes of rhythm; (5) integration; (6) auditory localization. In the work of *The Science of Illusion*, J. Ninio (1998) presents a classification of auditory and visual illusions centered on the great processes of perception (i.e., perceptual limits, contrasts, segregation, fusion, complement, among others). More recently Féron (2006) presents a classification according to the various perceptive domains of sound (pitch, space, time, intensity and timbre). That is, for the author the illusions can be of: (1) perception of sound height; (2); space (3) temporal; (4) intensity; (5) reference and timestamps; (6) kinesthetic. Despite the interest that all these domains present for the study of the thematic, the present work will be centered in the temporal illusions.

Daily experience shows us that there is a marked difference in the perception of objective (physical) time and the subjective experience of time. Fernandes and Garcia-Marques (2012) report that time intervals with "identical durations are not always perceived as equivalent in their subjective duration". These temporal illusions are induced by multiple characteristics of the stimulus or even the presentation context. For Skinner (1938), the time element can be considered a dimension of the stimulus. This understanding places the existence of this element in the relation assumed with something.

Starting from the classification of Féron (2006), the present study assumes the fundamental objectives: (1) to perceive the role of the perceptive system and its relations in the musical universe; (2) portraying the entire creative process inherent in the construction of an original work for electronic and solo guitar; (3) to explore, experience, and present results from the manipulation of temporal and non-temporal variables (schedules of illusion) in order to perceive their influence in the creative and interpretive musical process.

1. AGELASTA: AN OVERVIEW

This work was built from a mythological passage depicting the abduction of *Persephone* (goddess of Herbs and Perfumes), daughter of *Demeter* (goddess of Earth and Fertility), by *Hades* (god of the Inner World). Originally narrated by *Hesiod*, this myth carries with it fundamental aspects (aesthetic and formal) that mark the creative process of the present musical composition.

A first prominent aspect is the title attributed to this composition. In the account of this myth, when *Demeter* realizes that she has lost her daughter she sits on a stone called *agelasta*. This neologism is attributed to the one who is devoid of laughter, to the one that F. Rabelais calls as belonging to two planes of existence (that of possibility and that of its lack, that of empathy and that of irascibility). Another aspect of importance is the cycles, which in the mythological passage refers to the agreement of *Zeus* and *Hades* so that during six months *Persephone* stays with its mother and the other six months it returns to the underworld. It will be from this element that the Greeks explain the months of the year. This last element finds crystallization in the processes of repetition (linear, block and textural additive process) that constitute the micro and the macroform of the work. In formal terms, it presents in its constitution three moments that epitomize this whole mythological passage: (1) *loss*; (2) *absence*; (3) *the return*. Each of these moments presents differentiated metric and tonal peculiarities (see Table 1). This last characteristic is marked by the relation of the affects and tonalities of Johann Mattheson (1691-1764). In this particular were used tonalities that represent or are close to the affectionate characteristics that mark each one of the three moments of this work. For this study, only the first moment will be analyzed.

Table 1 - Metric and tonal organization

Moment	Title		
	<i>time</i>	<i>tonality</i>	<i>character</i>
<i>the lost</i>	4/2	E minor	Deep
<i>the absence</i>	4/4	A major	Bright
<i>the return</i>	4/4	E major	Desperate

2. METHODOLOGY

From the empirical work outcrops in the bibliographical review, to which the epistemological and conceptual contributions of Terry Riley (1935) and Pauline Oliveros (1932-2016) are associated, an experimental methodological paradigm was defined that focuses on the manipulation of two independent variables: duration (temporal variable) and what we call the agent of illusion (not temporal variable). In the first moment (the loss) of this work was used cumulative and parallel *Tape Delays* with different temporal subdivisions (see Figure 1 and 2).

This combination of delays has been used extensively by several composers of which the core associated with the *San Francisco Tape Music Center* stands out. The *Logic Pro X* music editing software was used for capture and processing. The analytical software *Sonic Visualiser 3.0* was used for analyzing and comparing the audio file contents (spectrogram).

Fig. 1. Delay of Guitar 1.



Fig. 2. Delay of Guitar 2.



3. DISCUSSION

By crossing and analyzing the different data is perceptible the textural influence that the use of the independent variable prints on all the motifs that constitute the first moment of this composition. In general, the harmonic and rhythmic transformations/relationships resulting from the manipulation and action of this variable represent and assume particular characteristics in each of the motifs. One of these transformations (harmonic) is visible in the analysis of the spectrogram (peak frequency spectrogram) referring to the action of variable 1 on the first motif (see Figure 3).

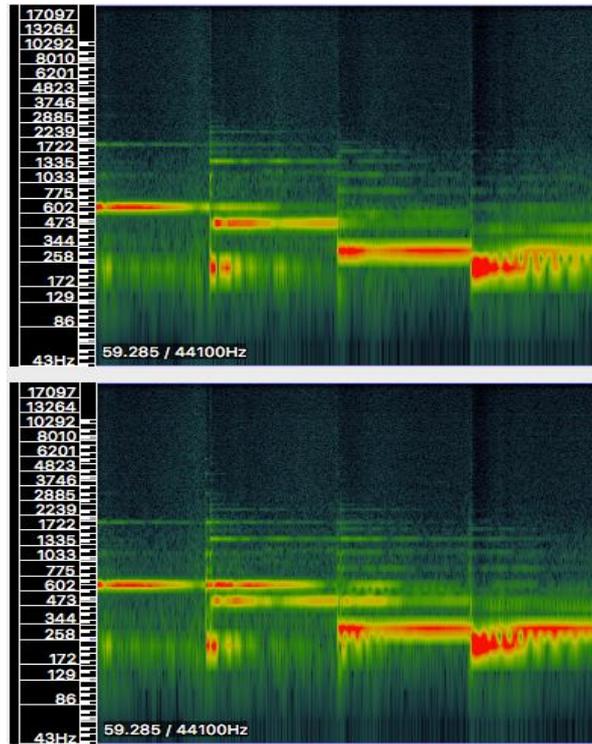


Fig. 3. Peak frequency spectrogram (variable 1).

As we can see, there is a construction of harmonic blocks mainly between the notes E/B (2nd time) and B/G (3rd time). This leads to a transformation of motif 1 (see Figure 4).

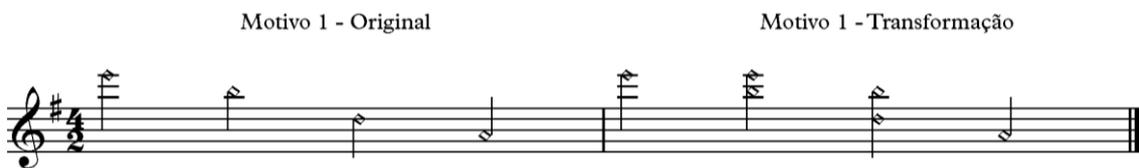


Fig. 4. Motif 1.

In the particular case of the manipulation of the independent variable 2 there is a change (rhythmic decrease) of the previous motif (see Figure 5).



Fig. 5. Motif 1 (transformation).

Another relief factor resulting from the action of the independent variable is the generative power that comes from this manipulation. The following figure shows an example of a rhythmic generation constructed from the second reason.

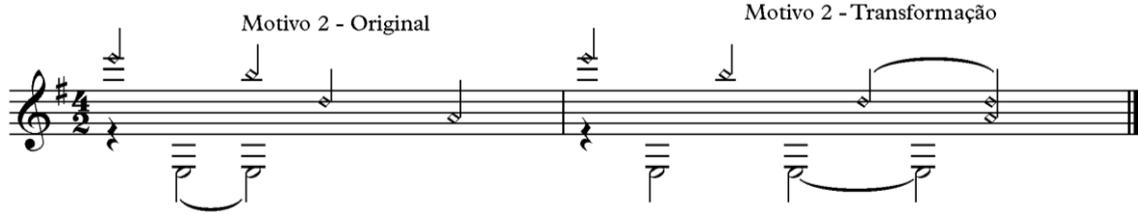


Fig. 6. Motif 2.

With regard to the third and fourth motives, the manipulation of the independent variable makes clear the previously mentioned words that there is a differentiation between the objective time and the one that is subjectively performed. The rhythmic development performed by the notes D/E and F#/G put a change in the metric and temporal perception of this phase of the work.

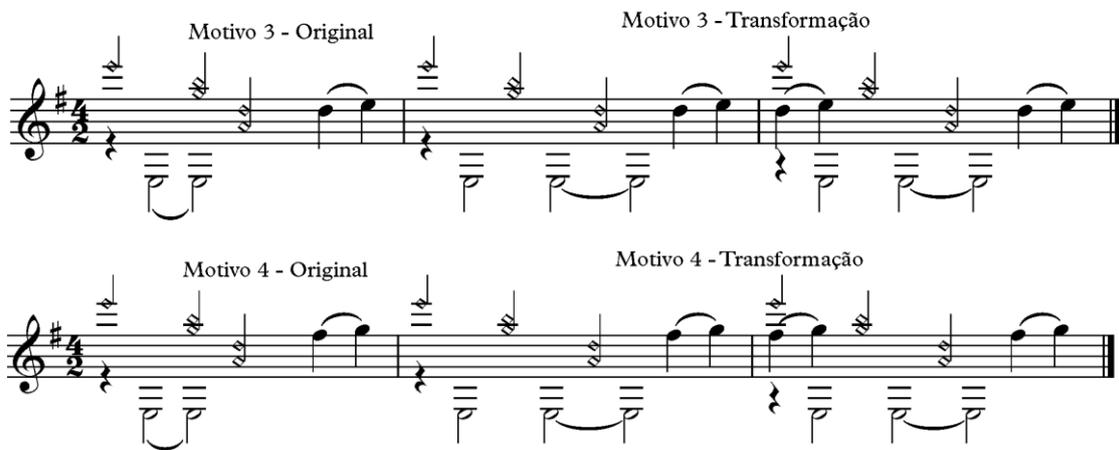


Fig. 5 e 6. Motif 3 and 4.

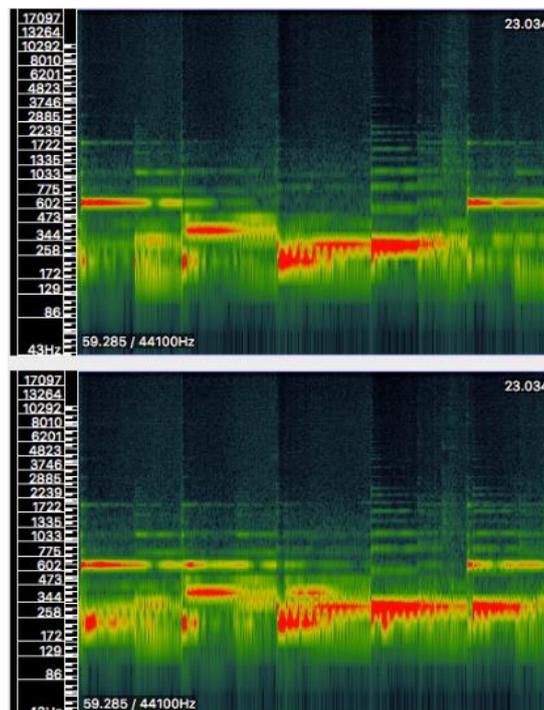


Fig. 7. Peak frequency spectrogram (variable 2)

It should be noted that in the case of the independent variable 2 there is, in the particular case of these two reasons, an annulment of the final notes (see Figure 8).

4. FINAL CONSIDERATIONS

From the analysis and comparison result indicators that allow us to affirm that the temporal manipulation of the different delays contribute to the creation of a temporal illusion in the whole dimension of the first moment of this composition. The influence of this illusion agent goes beyond the scope of the time characteristic / component and contributes to the existence of blocks and texture addition processes that lead to the construction of rhythmic and melodic elements that were not found in the initial composition. There is a certain compositional metamorphosis resulting from the manipulation of this agent. Although the temporal element presents itself as the prime objective of this work, it is also possible to see the changes in the spatial perception resulting from the manipulation of the non-temporal variable. In short, this manipulation and exploitation of cumulative delays as an element or agent of temporal illusion represented an evolutionary element in the aesthetics and atmosphere of the work that was intended here, as well as metamorphic element and generator of the tonal and rhythmic component of the work.

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