The analogies toy: poetic algorithm as a composition strategy

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Resumo: Este artigo tem como objetivo propor uma estratégia geral lúdica para compor músicas inspiradas em analogias poéticas. Ele tenta ampliar as perspectivas da composição algorítmica ao considerar ideias extramusicais multifacetadas como etapas sucessivas válidas para alcançar objetivos criativos específicos em música. Ao mesmo tempo em que mantém, metaforicamente, uma intenção algorítmica geral, esta concepção propõe o uso de fatores interdisciplinares como uma alternativa a procedimentos matemáticos em planos formais de composição.

Palavras-chave: composição musical; analogia poética; música algorítmica; estratégias lúdicas; intercultural.

Abstract: This article aims to propose a ludic general strategy for composing music inspired by poetic analogies. It tries to expand the perspectives of algorithmic composition by considering multi-layered extramusical ideas as valid, successive steps to reach specific creative goals in music. While metaphorically preserving an overall algorithmic intention, this conception proposes the use of interdisciplinary factors as an alternative to mathematical procedures in formal plans of composition.

Keywords: music composition; poetic analogy; algorithmic music; ludic strategies; cross-cultural.

In its contemporary and more conscious[1] version, algorithmic composition is generally considered both in its mathematical (stochastic) and translational possibilities, and also as a sort of code, which examines a particular musical style and establishes parameters to be adopted in a new musical piece, usually a kitsch emulation of the compositional style that served as model. The approach proposed here is a very different one. This article explores the algorithmic conception at its basic conceptual core, namely, the use of a set of rules and steps that may lead to a specific end.

For some years I have been developing the notion of a poetic algorithm, which is a set of visual or poetic images, concepts and extra-musical ideas that, by means of a spiral of analogies, generates the musical material to be adopted in a piece. I have experimented with this procedure in some conjectural compositions. In the work for string quartet *In Natura*[2], for example, I conceived a tripartite form to represent nature in three distinct aspects: number, physics theory (dark energy), and human presence. Thus, in the first part I adopted some numerical patterns of Indian classical music as a model for the development; in the second part, I metaphorised the sense of subtle expansion of space by means of a gradual process of motivic acceleration and intervallic expansion; and in the third one I created a theme inspired by a Brazilian popular rhythm, the telluric force of the music that lies within the people and my own memory and sensitivity.

In *Newton's Pendulum II*, I turned a pendulum toy (the Newton's Cradle) into a musical form[3]. In the piece, the basic representation of the toy in music is childishly simple: each metal ball of the pendulum object corresponds to one of the five violoncellos on the score. The stereophonic game of the instruments, similar to the medieval *hoquetus*, imitates the pendulum swinging of the balls in diverse configurations: a ball thrown against four, two balls against three, three against two, four against one, a ball on each side against the three of the centre, and finally two balls on each side thrown against the one standing at the centre. Rather ridiculous? Yes. But this is just the ironic trigger of a more important

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[1] The algorithmic idea was intuitively used throughout the history of music with no theoretical knowledge of the concept. Appearing as a sort of game, there is algorithmic creation in Ars Antiqua, Ars Nova and High Renaissance (Philippe de Vitry, Orlande de Lassus, and others), Baroque, Classicism (like the Mozartian dice game) and modern music. Romanticism is an exception because it was a period of greater emotional subjectivity, which pushed composers away from playful and objective devices without extra-musical connotations. Only in the twentieth century does the algorithmic technique begin to be exercised with greater conscious intentionality. See COPE, 2000, p.1-15; 1997, p.192-205.

[2] Watch a scrolling score video of the piece at <https://www.youtube.com/watch?v=1OUwpobkfPU>. Accessed on 23 feb. 2020.

[3] My Ph.D thesis at the University of Edinburgh (2018) focused on ludic possibilities of musical construction, inspired by texts that investigate the notion of play in human culture, like the classic *Homo Ludens*, by Johan Huizinga.

question discussed in the piece. The conceptual objective of *Newton's Pendulum II*, emphasised by its accompanying literary text[4], is to comment on the dissipation of cultural energy in the process of historical erosion of traditions, while proposing the pendulum figure, rather than the circle, as an anthropological metaphor of Time.

Another good example of my first attempts at using the poetic algorithm technique in composing procedures is *Diaspora?* – a piece for violin, violoncello, Rhodes piano and berimbau. It is based on a very simple idea, related to certain techniques employed by the Hungarian composer György Ligeti[5]: from the middle C, played in unison by the violin, cello and Rhodes piano, a gradual process of spatial separation begins, with the violin rising the scale while, at the same time, the cello moves in the opposite direction. Meanwhile, the Rhodes piano plays phrases that fill the intervallic space between the notes played by the bowed instruments, which increases over time. The one-string berimbau (tuned in C) appears then to reunify what had been dispersed. At first, this sounds just like an arbitrary musical idea. However, this structuring device was the fruit of a process of analogy carried out from the literal meaning of a word (the dispersion) and from a historical fact (the African diaspora in Brazil).
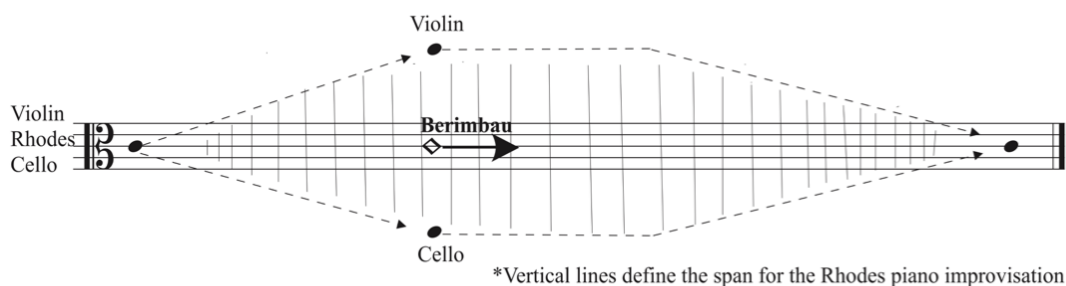
Source: LÔBO, Armando (Diaspora?, 2013)

Historically, the slave trade[6] in Brazil was carried out in a very disordered way, with traffickers indiscriminately mixing people from diverse ethnic groups and languages of the African continent. Cultural isolation and social incommunicability produced among black slaves in Brazil the phenomenon of the *banzo*[7], namely, the depressive and nostalgic feeling of exiled Africans. Many became ill and died of

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[4] A video containing the music and conceptual information of this piece at
<https://www.youtube.com/watch?v=961Y9UiLZrc>. Accessed on 23 feb. 2020.
[5] See LIGETI, 1993, p. 164-171 and ZUBEN, 2005, p. 125-146.
[6] See COSTA E SILVA, 2003.
[7] See KANANOJA, 2018, p. 69-91.

sadness; others committed suicide. The Brazilian colonial government, realising the potential economic losses from the debilitation of the slaves, tried to provide them occasions for socialisation[8]. Certain African rites and other cultural practices that could contribute to socialisation were therefore adapted, amalgamated, promoted and/or allowed to take place.

Capoeira is one of these manifestations, and the berimbau is a major symbol of Capoeira. In this way, the poetic matrix of my piece is completed. The creation of music itself from this matrix is therefore activated by a network of analogies between the extra-musical and the musical. Here is a schematic representation of the main analogy employed in the piece *Diaspora*:

Homeland (unity) ---------------------------- middle C (unison)

Diaspora (dispersion) ------------------------ gradual separation from middle C

Resocialisation ---------------------------------Capoeira berimbau (middle C)

At first glance, this network of analogies may seem arbitrary, and even naïve. However, one could make the same accusation of arbitrariness to the techniques of serialism, as well as to the algorithmic technique itself in its stochastic ramification. Why would mathematics have primacy over the human sciences or the poetic imagination? Would not this be a scientistic abuse, a more ideological than artistic gesture in its attempt to emulate a hidden "natural order" and, by that means, discredit an alleged cultural superstructure which is considered illusory or retrograde? Exploring a kind of subjectivity that feeds on historical, philosophical and literary knowledge, instead of the sometimes cold "objectivity" and already made cliché of many incipient or far-fetched mathematical or sub-scientific models of composition, the general aim of the poetic algorithm is in a way the same as the stochastic one: inciting surprises, sound states that would not appear if we were to follow, in the very act of composing, the conventional steps of harmony, rhythm, melody, and the like. However, the poetic algorithm is not artificial intelligence, it is metaphoric intellectuality. It combines multiple cultural references, treated as a *toy of analogies*, to produce more or less automatic results derived from the highest kind of reverie, that is, poetry. All this artifice prior to composing does not invalidate the work of delicate craftsmanship during the act itself. The ear changes, adapts, transfigures, participates in the choices, corrects the directions and asks for the

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[8] See GUERRA-PEIXE, 1981, p. 15-24.

creation of new poetic strategies, when the pre-chosen ones do not show themselves more proficient in the course of the composition. In the case of *Diaspora*, the idea of evasion from the middle C was able to meet almost all the interval needs of the piece, which functions as a sequence of variations of this dispersion. However, the berimbau element has even more force as a sign because it is directly communicating and able to transmit, as an archetypal instrument, the symbolic ethos of Afro-Brazilian culture. That is to say, if *Diaspora*'s poetic-musical idea had been merely the intervallic one, the composition could have been a mere derivation of a Ligetian technical device. With the berimbau and the Rhodes piano improvisation in the final part, the contest of meanings redirects the listener: in the piece, there is ancestral memory, black African culture, improvisation and freedom, even in captivity. It is this, by the way, the allegorical role of the Rhodes piano in the work: showing the possibility of freedom even in situations of oppression; that is why this instrument improvises freely and unmeasurably to an extent determined by the interval space between the notes being played by the violin and the violoncello. Does it work musically? Yes, it can work. When a poetic strategy is well elaborated in its formal analogic potentialities, the musical outcome tends to be satisfactory.

The simple application of the *analogies toy* requires the establishment of certain pre-stages of musical construction, from the general to the particular:

1. The poetic idea, usually extra-musical, although it can also be a merely musical device, like a timbral or intervallic idea, a form of overlapping, the temporal expansion of a chord, and so forth.

2. The playful survey of mimetic forms and analogies that can be used from the original poetic idea.

3. The choice of instruments that may have some archetypal resonance with the poetic idea and the chosen analogies.

4. The decision of a harmonic and/or spectral model to be followed.

5. The decision of whether to create some motivic structure. Usually the existence of this step depends on step 2 because motifs can be rather melodic signs, and so they can steal meanings from the main idea of the work.

These prior stages may not be sufficient to sustain the fluency of a piece, or not be fertile enough to

generate the contents of a work of larger proportions. When this occurs, a simple solution is to forge new steps and micro-processes of analogy, or reformulate those previously chosen. In fact, it is a healthier decision combining previous extramusical poetics and improvisation, so that the composer can also welcome what the material has to offer as a phenomenon in the very act of composing. Some micro-processes will be forgotten by the end of the main process, but this is not a problem. The important thing is to keep the poetic substance and the most relevant structuring idea that is attached to it.

A network of analogies or "poetic algorithms" should be a multifaceted resource of inspiration, a vivid speculation, not a paralysing tool. The lack of architectural procedures in the development of extramusical contents, metaphorical images, affections, and textual relations often results in music that bears little relation to the initial idea, being mere arbitrary subjectivity. Thus, the purpose of the *analogies toy* is merely to bring more objectivity to an already common subjective practice, a proposal of application of poetic-analogical formal steps for the achievement of musical goals.

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ABOUT THE AUTHOR

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