

# A perceptual assessment of sound in distant genres of today's experimental music

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**Abstract.** This paper enquires into the ways in which listeners perceive certain practices of today's experimental music. Trained and untrained listeners evaluate short musical excerpts coming from post-spectral and contemporary compositions (G. F. Haas), as well as glitch and electronic music (Pan Sonic) but all belonging to a recognized aesthetic frame of references. The work explores the potential of semantic descriptors to define sound and examines the ability of participants to sort audio samples, express criteria and recognize common sonic characteristics. Moreover it reveals the difficulties that lie in expressing our perception of experimental music. In applying perceptual surveys for the development of comparative methods in musicology, this article shows that the recognition of a cross-genres perspective could pass through perceptual and empirical studies.

**Keywords.** cross-genres studies, experimental music, listening survey, sound perception.

## 1 Introduction

Today, experimental music is enormously diversified and different genres have some characteristics in common besides the distance of their cultural and social environments [1]. Certain currents within post-spectralism, minimalism, sound art and electroacoustic music, glitch and IDM's offshoots share similar perspectives in approaching sound. Focusing on these contexts, I proposed a sonic correlation among compositions of G. F. Haas, G. Verrando and B. Lang, and performers coming from independent scenes such as Pan Sonic, R. Ikeda and Raime [2]. These correspondences concern intrinsic characteristics of sound and similar practices like the use of complex spectra and periodic movements within globally rich and sculptural textures. This paper examines these correlations within perceptual studies. Taking benefit listening questionnaires, it is intended to investigate how distant genres of music with a similar approach to sound are perceived and to grasp how empirical data could be integrated with theoretical elements, supporting the definition of a cross-genres aesthetic. Many studies that consider verbal descriptions of music make use of several strategies moving between two approaches: on the one hand, some analytical assessments ex-

plore sound's qualities and timbre, using adjectives to define simple sounds in order to have a consistent response in their examinations [3]. On the other hand, certain works have to do more with philosophy and emotional aspects and traditionally refer to western classical repertoire and popular music [4]. Surprisingly, only a reduced number of perceptual surveys deal with the contemporary experimental scene and this lack is a sort of paradox, since many genres of exploratory music, today, involve perceptual aspects more than ever. Which would be the best approach to handle pieces (*i.e.* post-spectralism and minimalist compositions and glitch and basic-channel style pieces) with no tonal construction, no traditional narrative and time perception but containing complex sonic textures, noises, acoustic, electronic and manipulated sounds?

In order to consolidate previous theoretical analyses of the same collection of pieces, this paper focuses on the ability of different typologies of listeners to deal with sonic characteristics of music challenging listeners to describe the sound.

## 2 Method

The examination consists of a listening session combined with a questionnaire. In order to obtain a survey able to balance a rigorous approach for sonic description and a free appreciation of musical pieces, the perceptual evaluation is structured into two parts: first (Perceptual Evaluation #1, PE1), participants (N=55) are invited to sort the audio samples<sup>1</sup> into groups and to indicate which criteria they have applied; second (Perceptual Evaluation #2, PE2) they are asked to associate each sample with a given list of descriptors starting from the most fitting. The array of descriptors is defined considering a previous analysis of the same selection of pieces [2] in a way that common musical elements of the pieces are translated as a collection semantic descriptors specifically prepared for the questionnaire (Table I).

However, the choice of appropriate musical descriptors is crucial. In many cases semantic descriptors are randomly used without a careful clarification of their qualities. An important distinction between *affective/emotive* and *structural* descriptors should be accomplished [5]. The former descriptors encourage the emotional expression (*e.g.* “happy”, “joyous” or “tender”); differently the structural descriptors challenge the listener to focus his/her attention to sound intrinsic qualities (*e.g.* “scattered”, “ascending” or “fluctuating”). These descriptors define the sound characteristics and refer to aural features of music better than other adjectives.

The emotive impact is differently conveyed in case of a contemporary composition or an electronic club-based session: there are different purposes, enjoyments, stimuli and interests. Therefore, the emotional responses to these pieces are greatly different and are not the central part of this investigation. Rather, this work focuses on the ability of

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<sup>1</sup> Nine extracts taken from: B. Lang – *DW 7, 15, 17*; Pan Sonic – *Rafter*; G. F. Haas – *In Vain*; G. Verrando – *Dulle Griet*; Pan Sonic – *Rafter*; Raime – *Passed Over Trail, Told And Collapsed*.

different typologies of listeners to express and distinguish sonic characteristics. Thus, structural descriptors help participants to focus their attention to sound intrinsic qualities, defining the sound characteristics and refer to aural features of music better than other adjectives.

TABLE I: CORRESPONDENCES BETWEEN MUSICAL ELEMENTS [2] AND STRUCTURAL DESCRIPTORS

Musical Elements	Structural Descriptors
Expanded Spectrum	Rich / Heterogeneous
Microtonal Variations	Compact / Fluctuating
Systematic Glissandi	Descending / Ascending
Rhythmic Developments	Rhythmic / Pulsating
Static Masses	Static / Continuous
Dynamic Constrasts	Repetitive / Periodic
Repetitive Clusters	Contrasting / Scattered
Hypnotic Reiterations	Hypnotic / Enveloping
A Plastic and Structural Arrangement Of Sound	Sculptural / Spatial

### 3 Results

The questionnaire is carried out both via web-based and direct approaches. The Internet setting gives the possibility to the participant to complete the survey in his/her own private environment, allowing him/her to listen to the music in a calm context and to repeat the audio samples, if desired. The direct survey, otherwise, consents to modulate the examination and offer more explanations. After a separated analysis of each approach, the results of both proceedings turned out to be comparable and were joined for a global evaluation.

- There is mutual correspondence among musical preferences, familiarity with the audio samples and the questionnaire evaluation, thus indicating that besides this work extend across various genres of contemporary music is still contemplated as a limited and isolated branch of today's music.

- Regarding the sorting task (PE1), the main criteria classification are based on recognized instrumentations and styles (Fig.1). This indicates that even if audio samples consist of short fragments (ca. 1 min each) of the original composition and the selection is randomly ordered, the major tendency is to categorize pieces based on participants' past experience than based on transitory sensations. Even so, a minor tendency to base the assessment on sample's musical character is present: some of the criteria indicated by non-professional participants appears slightly more descriptive of aural sensations (e.g. "oniric", "cinematic"), even if they include many intuitive descriptions of the sound material (e.g. "Here I perceived sounds more melodic and clear, even if they are complex and structured") and genres' statements (e.g. "historic, experimentation of modern music; [...] symphonic contemporary music...").

The sorting task (PE1), when globally considered, includes cases in which the categorization is instinctive and the sorting criteria are more vague. Certain associations (i.e. samples #2-#3, #8-#9, Fig. 2) are evidence that a perceived similarity between extracts is more about samples' musical evolution than instrumentation.

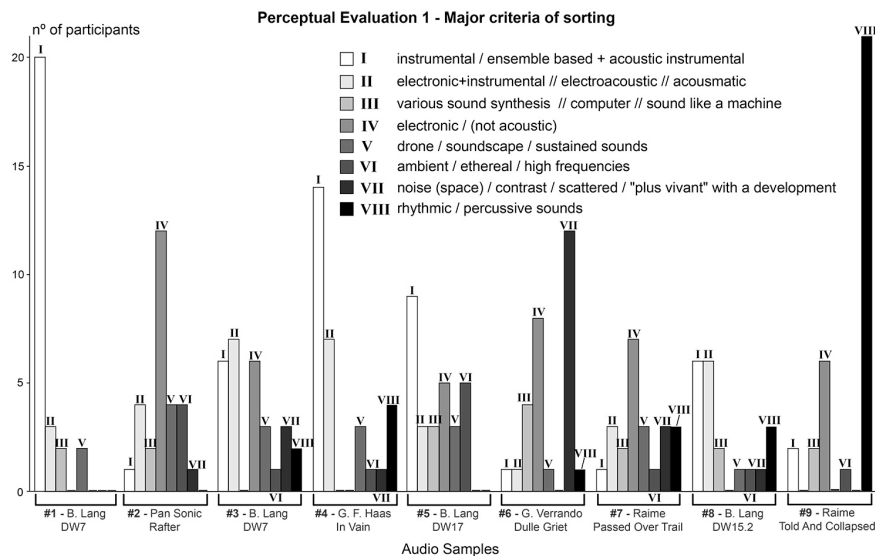


Fig. 1. Major sorting criteria (I–VIII) for audio samples (1–9) used in the Perceptual Evaluation #1.

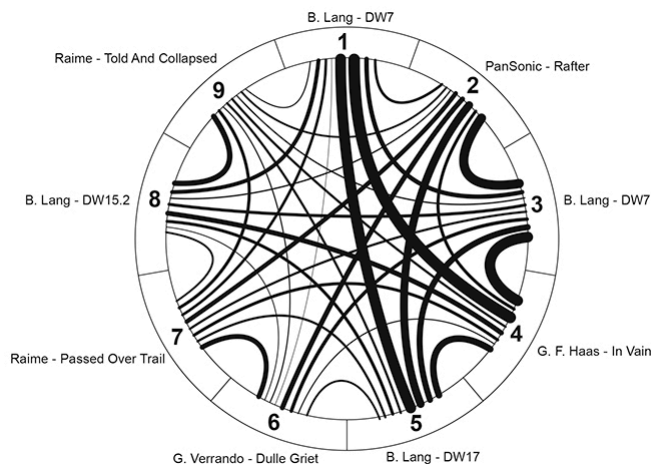


Fig. 2. Sorting for groups of two samples: the thicker is the connecting line the higher number of participants associates the respective pieces.

More general observations confirm the idea that a significant experience in this field of music enables trained participants to identify the complexity of audio samples, becoming evident in their flexible descriptions and multiple classifications while untrained participant tend to group the samples progressively with a reduced number of multiple sorting.

- PE2 shows that selected structural descriptors are uniformly distributed in case of most of the samples: this indicates that the sonic elements of the pieces that have been identified during a previous analysis [2], and from which the descriptors come from

(Table I), are mainly recognized by the participants. Comparing the results within trained participants (*i.e.* both musicians and student of music) some global trends can be highlighted: (i) when only experienced listeners are considered, the responses are less dispersed. This tendency can be explained by the fact that musicians have the ability to identify more easily a few primal musical attributes of a piece than other listeners. However, this trend is not confirmed for those samples, which are characterized by just two or three primal characteristics that are easily recognized by all participants. In these cases, trained listeners are able to enrich the description of these samples providing answers that contain more choices. (ii) When we consider professional participants, there is a progressive reduction of the descriptor “*hypnotic / enveloping*” in all samples. This result indicates that adjectives that belong to a large and flexible semantic area and go beyond the pure aural description, such as *hypnotic*, may be more comprehensible also for not-experienced participants. Therefore, when an audio extract exhibits characteristics such as the repetition of musical elements or the presence of continuous and regular profiles, trained participants are able to select these features within the list of adjectives (being descriptors “*static / continuous*” or “*repetitive / periodic*”, respectively, Table I); whereas no-trained listeners associate these elements to the effect that they produce (*i.e.* *hypnotic*). (iii) The descriptor “*sculptural / spatial*” appears to be a preferred choice among musicians. The adjective *sculptural* is not easily associated to a musical piece: the metaphorical link between an adjective that belongs to the visual domain and a sonic manifestation is difficult. The interpretation of a piece of music as *sculptural* implies a capacity to differentiate virtual levels of sound that constitute a spatially structured environment. This ability is inevitably related to the familiarity with these genres of music.

• More in general, trained listeners show a greater ability (i) to distinguish styles; (ii) to identify the nature of different sounds; (iii) to deal with semantic descriptors of different spheres of sense other than hearing. Finally, it seems to be more demanding to express verbally own musical decisions (PE1, sorting task) than operate with given designations (PE2, list of descriptors).

## 4 Final Remarks

This investigation prompts some interesting reflections: there is still a sort of virtual barrier that isolate the world of exploratory music, and the study highlights the difficulties that inexperienced listeners encounter when approaching such as diverse material of sounds; even so, the response of unskilled participants is positive, informative, less organized and more related to sporadic sensations than to elaborated thoughts. In contrast, experienced listeners are inclined to assume an analytic stance, finding some difficulties in setting free their appreciation.

PE2 provides useful information about the specificity of the descriptor: its intelligibility, accessibility and its potential when connected to the field of contemporary experimental music (*e.g.* how an adjective works, where and how it should be applied...). Untrained listeners handle better generic descriptors and those that relate with the effect of music, while trained ones prefer functional descriptors than concern with intrinsic qualities.

The cross-genres categorization (PE1) underlines that the major sorting criterion is

based on the recognized instrumentation and style; secondary participants consider the atmosphere and character of a piece. This corroborates the hypothesis that a common perspective among distant genres could exist if this second criterion is not just a minor aspect but holds a important role. In fact, the sorting criteria that emerge in the PEI suggest the presence of two distinct properties of sound: on the one hand, certain sound qualities recall instrumentations, define representational motifs and typically consist of timbric elements that give the listener the capacity to distinguish an electronic piece from an acoustic one. On the other hand, some characteristics of sound concern with the nature of the piece, the effect of the sound and the sonic evolution. These features usually enable the listener to go beyond the style and to perceive the aural character of a piece. A correct distinction of these aspects within a piece could be extremely useful in the design of future studies. The latter should then (i) investigate longer audio samples, in order to favour a sort of musical enchantment that short extracts inhibit; (ii) focus on the aural effect of the music, asking and declaring purposes and objectives; and (iii) account for a more profound depiction of the nature of the piece, setting specific questions up.

Talking about our perception of experimental music without being neither too technical nor too trivial is a problem that grips researchers and involves educational, artistic and cultural platforms. This work, indicating which musical aspects draw more attention and which generate difficulties, lays the basis for the preparation of informative and didactic tools for students and listeners in this field. Comparative approaches welcome feedback for improvements and with this study the somehow innovative concept of approaching music genres starting from their common sonic characteristics intends to activate points of convergence among different communities of scholars, musicians and audiences.

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