Diegetic Affordances and Affect in Electronic Music

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ABSTRACT

In this paper, we investigate the role affect plays in electronic music listening. By referring to a listening experiment conducted over the course of three years, we explore the relation between affect and diegetic affordances (i.e. those of the spatiotemporal universes created by electronic music). We will compare existing perspectives on affect with the psychologist James Gibson's model of affordances in the context of an electronic music practice. We will conclude that both the sounds themselves and the diegetic affordances of these sounds may elicit affective reactions, and that further study into the relation between diegetic, affordance, and affect may contribute to a better understanding of what we hear in electronic music.

1. INTRODUCTION

In contemporary music studies, affect seems to play an increasingly important role. This concept enables the articulation of the experiences of the listeners and artists alike. In this paper, we explore how affect "works" in electronic music, and how it is intrinsically related to affordances of an electronic music experience. More specifically, we will discuss the manners in which so-called diegetic affordances may evoke affects with listeners.

Listeners of electronic music may derive diegeses (spatiotemporal universes referred to by narratives) from the poietic trace left by the composer. In semantic consistency with these diegeses, listeners populate the landscapes of their imaginations with appropriate objects, situated in various configurations based on cognitive or perceptual cues. As they do so, they also experience this environment with implied affordances true to the objects of their imagination, and affects attached to these diegetic possibilities.

First, we will outline a listening experiment, the results of which will be used to further our discussion. We will then define affects and affordances, and how these can be applied in the articulation of musical experience. We will explore the similarities between these two concepts to construct a framework that can be used to articulate artistic experiences. In doing so, we will suggest that the diegetic affordances of electronic music may evoke affective responses with listeners. Finally, based on the listener feedback gained from the experiment, we will demonstrate how this framework can be useful when discussing features of electronic music that are corporeally relevant for the listener.

2. OVERVIEW OF THE EXPERIMENT

Between May 2012 and July 2014, 60 participants from 13 different nationalities took part in a listening experiment that investigates the cognition of electronic music. 23 participants were female while 37 were male. The average age of the participants was 28.78. Ages ranged from 21 to 61. 22 participants identified themselves as having no musical background. Amongst the remaining 38 participants were musicians, music hobbyists, composers, and students of sound engineering and sonic arts.

The experiment aimed to explore how fixed works of electronic music operate on perceptual, cognitive and affective levels. The design of the experiment was aimed at extracting both contextual and in-the-moment impressions while offering a natural listening experience. The design involved: 1) an initial listening section, where the participants were asked to listen to a complete work of electronic music without any instructions pertaining to the experiment, 2) a general-impressions task, where the participants were allowed to reflect upon their experience in writing without any form or time constraints, 3) a real-time input exercise, where the participants were acquainted with a composer-based system by which they could submit descriptors in real time while hearing an audio material, and 4) a real-time free association task, where the participants listened to the same piece they heard earlier while at the same time noting down their reactions to the passage from one experiential state of the body to another [11]. Emotion on the other hand is personal according to Massumi: “Emotion is qualified intensity, the conventional, consensual point of insertion of invariants pertaining to the visual domain, his concept of affordance is inflected and semiotically formed, into narrativizable action-reaction circuits, into function and meaning” [12]. Based on Massumi’s interpretation, we have previously proposed the concept of a sonic stroke [13]. A sonic stroke is an acoustic phenomenon that induces musical affect upon impacting the listener’s body. A consequence of this impact is emotion, which emerges once the affect is reflected upon (i.e. a sonic stroke is registered as a musical gesture).

3. AFFECT IN MUSIC

3.1 Interpretations of Affect

The affective appraisal of music comprises successive stages that utilize different but interconnected perceptual resources. A particular moment in a spectrum is the experience of affect, which has been studied within a variety of domains ranging from virtual reality [4] and painting [5] to politics [6] and sports [7]. This concept is not only adopted by a large array of disciplines but also subjected to a variety of interpretations. On the far end of the spectrum, Lim et al. [8] and Shouse [9] point to uses of affect as a syn- onym for emotion. While this approach begs the question of why affect would need to be demarcated as a separate concept, it nevertheless provides an insight regarding the context within which the concept is situated.

The use of affect in philosophy dates back to Spinoza’s Ethics. Spinoza identifies affect as an affect of the body by which “the body’s power of acting is increased or diminished” [10]. In his introduction to Deleuze and Guattari’s A Thousand Plateaus, the philosopher Brian Massumi offers a related description of affect as a “prepersonal intensity” that is “affect-in-the-surface, given that it is flat, rigid and sufficiently extended, and that its surface is hard-wired and are connected with the early stages of auditory processing. Sounds that are sudden, loud, dissonant, or that those feature fast temporal patterns signal the brain step away from its engaging features and induce arousal. This arousal reflects the impact of auditory sen- sations in the form of “music as sound in the most basic sense” [18].

Due to its attachment to the early stages of auditory pro- cessing, brain stem reflex is highly correlated with human physiology and the so-called universals (i.e. the low-level structural properties) of musical experience. A functional coherence between affect and the brain stem reflex is high- lighted by their intrinsic reliance on the spectrotomental and dynamic properties of musical sound. While affect represents the corporeal segment of the affective appraisal of music, it cannot be dissociated from an ensuing emo- tion. This is mainly due to the aforementioned interplay between the mechanisms underlying music cognition. The musicologist Marc Leman points to seminal neurosci- entific studies, such as those by Antonio Damasio, Marc Jean- nard and Vincent Meelberg. These works have examined the Cartesian view of “mind and matter” as separate entities; it is understood that the so-called subjective world of mental representations stems from our embodied interactions with the physical environment [19].

4. AFFORDANCES

An approach to perception that is commonly facilitated in musical research [20, 21, 22] is the model of affordances developed by the psychologist James Gibson. Gibson’s research on ecological perception stemmed from his experi- ments in aviation during the World War II. Focusing mainly on an active observer’s perception of its environment, Gib- son postulated that the invariant features of visual space represent pivotal information for perception. Invariants are features of an object that persist as the point of observation changes [23]. While most items in Gibson’s taxonomy of invariance submit to the same principle, his concept of afford- ances has been applied to other modalities of perception including hearing.

A concept that is closely related to objects in an environment, by virtue of their invariant features, afford action possibilities rela- tive to the perceiving organism. For instance, a terrestrial surface, given that it is flat, rigid and sufficiently extended, affords for a human being the possibility to walk on it [23]. His main motivation to propose this seemingly straightforward idea is to refute the prevailing models of percep- tion, which assume that a separate perceiver is required, and therefore the perceiver must extract a meaning out of sen- sorial stimuli by imposing mental structures upon disorga- nized information. Gibson suggests that there are certain kinds of structured information that are available prior to percep- tion in the form of invariants. The nature of these invariants is relative to the complexity of the perceiving animal [24]. In other words, an object will have different affordances in one or a combination of various forms, including list of words, list of sentences, prose and drawings. The vast majority of the descriptors submitted in the real-time free association task were single words or two-word noun phrases. A participant’s prior experience with electronic music did not significantly impact the semantic qualities (e.g. representational versus abstractness) or the num- ber of the descriptors submitted by that participant. Tech- nological listening, where a listener recognizes the tech- nique behind a work (i.e. there was no predetermination of the responses by sonic arts students.

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In their article, Percept, Affect, and Concept, Deluze and Guattari elegantly describe "how the plane of the material affects an animal, and vice versa, on the composition of the sensations themselves to the point of being part of them or indiscernible from them" [27]. Affect, as we would like to think of it, and interpret it is another aspect attached to these diegetic possibilities. As Gibson explains:

"The beholder [of a film] gets perception, knowledge, imagination, and pleasure at second hand. He even gets rewarded and punished at second hand. A very intense empathy is aroused in the film viewer, an awareness of being in the place and situation depicted. But this awareness is dual. The beholder is helpless to intervene. He or she can find out nothing for himself. He feels himself moving around and looking around in a certain fashion, attending now to this and now to that, but at the will of the film maker. He has visual kinesthesis and visual self-awareness, but it is passive, not active." [23]

Accordingly, the listener of electronic music experiences passive aural kinesthesis. An inexperienced participant, who listened to Digese, narrated a highly visual story of her general impressions:

"Glass/metal ping pong balls are constantly being dropped on the floor as we walk through an empty store with bare feet; we leave this room and go out in a jungle, moving through the grass only to pass through casading rooms; we arrive in another salon.

While many of the objects in her narrative also appear in descriptions provided by other participants, details like "walking with bare feet" and "moving stealthily" are indicative of the participant's allusive experience of the diegetic environments of her imagination.

6. THE AFFORDANCES OF IMAGINED SOUND SOURCES IN ELECTRONIC MUSIC

The concept of diegetic affordances can be useful when describing the 

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Music listening is a complex activity in which affect plays a crucial role. As our discussion of listening to electronic music has revealed, both the sounds themselves and the diegetic affordances of these sounds may elicit affective reactions. It is the latter kind of affective reaction, in particular, that has a decisive influence on the manner in which electronic music may be interpreted by listeners. In the experiment results, we observed that diegetic affordances guide the listeners to higher-level semantic associations, which are inherently informed their affective interpretation of a piece. As a consequence, we believe that further study into the relation between diegesis, affordance, and affect may contribute to a better understanding of what we hear in electronic music.

7. CONCLUSIONS

Music listening is a complex activity in which affect plays a crucial role. As our discussion of listening to electronic music has revealed, both the sounds themselves and the diegetic affordances of these sounds may elicit affective reactions. It is the latter kind of affective reaction, in particular, that has a decisive influence on the manner in which electronic music may be interpreted by listeners. In the experiment results, we observed that diegetic affordances guide the listeners to higher-level semantic associations, which are inherently informed their affective interpretation of a piece. As a consequence, we believe that further study into the relation between diegesis, affordance, and affect may contribute to a better understanding of what we hear in electronic music.

8. REFERENCES


