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Live Listening

How do I listen, and what do I listen for? This paper discusses decision-making when improvising in sound based music.[1] In essence, I discuss listening from a phenomenological point of view, and a basic tenet is intentionality as Brentano defines it: a mental state directed towards an object. Theories by Merleau-Ponty and Pierre Schaeffer are important here; in particular the latter's well-known concepts sonic objects and reduced listening.

Intentional Objects

Merleau-Ponty's object-horizon structure (2002 p.78) states that a perceived object is always seen in relation to a surrounding horizon. When I look at an object I will see it from a certain angle, and it would appears differently seen from another side. To look at an object is to "plunge" into it, which makes it possible to distinguish objects, and their relative position, from each other. The object-horizon structure may also apply to time. Present time is a fixed point in time that depends of all other times to be determined. The now retains the immediate past, as the future will do with present time. These double horizons of *retention* and *protention* (p.80) imply that the now become an identifiable fixed point in objective time. With the terms *object* and *structure*, Schaeffer (1966) defines the perceived relation between object and context. We perceive object and structure by means of identification: each object is part of a context and a single object can in turn be described as a unique structure of constitutional objects, which then can be identified and described in yet smaller units:

> - Every object is perceived as an object only in a context, which includes it.
> - Every structure is perceived only as a structure of objects which composes it.
> - Every object of perception is *at the same time* an OBJECT in so far as it is perceived as a unit locatable in a context, and a STRUCTURE in so far as it is itself composed of several objects (Chion, 1983, p. 56).

Schaeffer calls this relationship *object-structure chain*, and may either go towards the infinitesimal, or inversely, toward the infinitely big.

Sonic Objects

One concept of Schaeffer is the *sonic object*[2], which is a perceptual intentional object that can be recognized, described, and classified with respect to perceived features. Schaeffer's categorization was based upon evolution of pitch and intensity parameters in relation to time and their reciprocal relationships, and uses the two concepts *typology* and *morphology*.

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[1] Such as electroacoustic music and free improvisation.

[2] I have found four different translations of the original Objet sonore into English: *Acoustic objects* by Jaques Poullin (1954); *sonic object* is used by Gather (2003); *sound objects* in Hellström (2003); and *sonorous objects* by Godøy (2006) and in a translation from Schaeffer in Audio Culture (2004). I chose to use sonic objects since it resembles the French original.

Typology categorizes objects based on physical properties of a sound, which in essence are gesture types. *Morphology* describes, in more detail, features of sound objects, down to small timbral and/or textural fluctuations.

In addition to this first sorting, the pitch and harmonic content has to be examined. A class called *mass* defines if the object has a definite, complex, instable or evolutionary pitch. An object of the categories *impulsive, sustained,* or *iterative* might be paired with one with a *mass* of *tonal, complex* or *varied*. Moreover, a suitable object will subsequently be evaluated with respect to its morphological properties such as pitch and/or spectral content, usually referred to as timbral features when fluctuations are small, and as textural features when variations are big. The morphological parameters deal with intrinsic features of a sonic object: *Shape, Mass, Grain, Harmonic timbre,* and *Motion*. Schaeffer introduced the two concepts *context* and *contexture*: context signifies the large-scale context and contexture signifies the intrinsic features of an object (Chion, 1983, p.61). With these terms, the sonic object became central, with the large-scale context on the one side and faster sub-features on the other. The top-down nature of these concepts enables exploration from overall shape down to fine details of sound objects. Since Schaffer's taxonomy contains more than 50000 different combinations[3], it is not appropriate for improvisation. However, taken as an inspiration, and as a way to understand how an improviser is listening during the course of improvisation Schaeffer's ideas are valuable.

Reduced Listening

Schaeffer distinguish between ordinary listening and repeated listening. The former is divided into the four categories listening, hearing, attending and understanding.[4] Reduced listening is achieved by repeated listening, which enables the listener to focus on the intrinsic features of a sound, disconnected from its context. Reduced listening is a tool for investigation and for shifting listening attention intentionally, from the contextual to the inherent features of sound. Criticism of reduced listening points out the difficulty of ignoring the contextual associations of a sound. Smalley (1997) points out certain problems with reduced listening: after one has perceived very fine intrinsic audible features in a sound, it may become very difficult to regain a normal listening mode, with all references to the outside world are in place. Low-level investigation, such as focusing entirely on the background at the cost of the foreground, tends to magnify details of minor importance. When practicing a musical instrument, one practices reduced listening.

Listening in Live Situations

Being a musician in play, how do I listen? In Merleau-Ponty's terms, I plunge into an intentional object and let other aspects of the space rest, whereas the double horizons of time, *retention* and *protention*, defines the now and makes up for decision-making. Intentionally, I direct my attention toward certain qualities, an object that display itself, but I am still aware of the surrounding landscape, the horizon where it all takes place, which in fact defines the intentional object. In a performance situation there is not much time for structural sound analysis. Rather I listen and react instantly and instinctively with my body to the audible surrounding. I consciously oscillate between *reduced listening* and *ordinary listening*. I also shift my listening intention between my own playing, and let the surrounding be the horizon, while at other times I become the horizon as an accompanist and my listening intention is

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[3] Manning (2004) states that Schaeffer's taxonomy: "provides for some 54,000 different combinations of sonic characteristics, a daunting indication of the scale of the task facing any prospective morphologist" (p.36).

[4] I assume this is a well-known theory, which needs no further presentation here.

directed to some one else's playing. Sometimes inherent sonic features, at other times the semantics of perceived sonic output constitute the basis of the listening intention. In the case where a sonic metaphor is detected, like wind or water, most of the effort is spent on inherent sonic qualities, which is of most use if it seems important to maintain the metaphor. However, I can also listen consciously to certain qualities, notably rhythmic patterns that may catch my interest. First I try to analysis it, and then decide whether I should hook up with it or let it go. I believe that I compare the immediate aural image with my memorized personal library of sonic images. I may recognize a pattern, and based on previously learned behavior I do something meaningful with it. What first catches my interest is the character of perceived gestures and tessitura, with a focus on changes in density and pitch over time. Here Schaeffer's typology is of value. Whether a perceived gesture contains a pulse, is groove based or irregular is also important. I also notice harmonicity, whether a perceived sound is pitched or noisy. The following list is made with the aim of clarifying important dimensions of perceived sounds during improvisation. The order of the items does not necessarily correspond to analysis order; rather, analysis in real time deals with many qualities simultaneously. For example, one can analyze and define a sound as being simultaneously pitched, irregular in pulse, of mid density, and going from low to high pitch. Here follows a subjective list of listening criteria:

- Tessitura: perceived frequency register: low-high, broad-narrow.
- Gestures: pitch movement: upward, downward, or constant; density/intensity: increasing, decreasing or constant; pitch and density evolution: upward and retarding, or upward and increasing.
- Pulse: regular-irregular; stylistic references.
- Timbre/Texture: pitch-noise; dark-light; stable-unstable.
- Tonal identity: tonal-atonal; stylistic references.
- Timbral identity: sonic metaphors, wind, water, friction, metallic, wood etc.

A number of concepts that derive from Schaeffer may be discerned. When practicing live-sampling an important aspect of the musique concrète practice comes to use, that is to arbitrarily chose and cut out a sonic object of suitable length from a sound stream, taking natural discontinuities into account according to Schaeffer's *stress-articulation* principle*,* and making the selection. I argue that during performances I analyze sounds according to the *typology* and *morphology* qualities as defined above. In other words, I practice musique concrète in real time. All this is done in accord with the Schaefferian terminology, if not explicitly and verbally articulated as such.

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