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Unsound Sound

On the Ontology of Sound in the Digital Age

MARTIN KNAKKERGAARD

ABSTRACT

This article discusses the change in premise that digitally produced sound brings about and how digital technologies more generally have changed our relationship to the musical artifact, not simply in degree but in kind. It demonstrates how our acoustical conceptions are thoroughly challenged by the digital production of sound and, by questioning the ontological basis for digital sound, turns our understanding of the core term *substance* upside down.

The fact that the Digital Audio Workstation (DAW) often plays a key role in the creation of today's musical works makes it relevant to compare the composer's approach to creative works with that of the sculptor; as the composer, by means of the DAW, can work with ideas directly in their final materialization—sound. While it certainly is possible to work on the basis of sketches that are retained in notation and perhaps developed in conjunction with a traditional musical instrument, the DAW leads to a historically unique situation in which the musical artifact itself is modeled as a sounding material, a finished product, paradoxically in constant change.

Sound has thus become the composer's textural material in the same way that clay and soapstone are for the sculptor. However, the composer's palette includes much more wide-ranging possibilities than those the sculptor enjoys, possibilities that come with the digital format.

The fact that digital material is digital implies that it can be processed to an extent that far exceeds the possibilities of physical material, and this greater malleability derives from the virtual materiality of the digital format. Natural sound, conversely, has a materiality that is nothing but pressure differences in air excited by events tied to the laws of physics. Furthermore, the digital can be read at will because sound and music are no longer reproduced but reconstructed. Or constructed. For we can read binary tables

as “anything,” without regard to how and by what they are formed.

These implications challenge the substantiality of the digital material; for what is this otherworldly form in which the material occurs, that makes it possible to readily evade the laws of physics, and what is its impact when we, in our creative pursuit of certain aesthetic goals, are working with materials that are not there, not even temporarily? [1]

Negroponte's basic description of the difference between analog and digital as a transition from atoms to bits is, in its almost trivializing innocence, quite tantalizing [2]. But it really means that any characteristics associated with “things” in their atomic constitution will inevitably lapse in the (digitization) process because they concern the thing's physicality and thus its “being” in the world. The digital bit is not in the world in the true sense. Bits can only appear in some form of representation and are organized in arrays that consist solely of the simplest possible difference: something or nothing.

To music, digitization has much more to do with the kind of abstract representation that musical notation stands for than with actual sound. As the material is not material in the strict sense it, like notation, is subject to other limitations than those prevailing in the physical world.

However, the unification of abstract representation and concrete manifestation that the DAW provides triggers questions about provenance and process that have never before been made meaningful: What is this “new” materiality that we are dealing with, and how does it appear and feed back on the process?

The technological elements of music have always been evident. It is hard to imagine music that is neither based nor dependent on units, systems, instruments, etc., all affecting the formation and realization of musical artifacts. With digital technology, these elements acquire completely new roles, as they now act as implied representations and are no longer present in any real sense; they only become present when converted to atoms. It is then difficult to determine how these elements affect musical composition and to

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figure out what causes what in the making of today's musical artifacts; we shall nevertheless try to uncover the workings implied, starting with Heidegger's effort to "understand" technology [3].

CAUSA

Heidegger explains that technology falls under the Greek concept of *technē*, "the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts . . . it is something poetic" [4], and as such he seeks to address any kind of technique, regardless of manifestation. He initially discusses Aristotle's fourfold concept of causality, i.e. the description of what contributes to a given result and makes it turn out—and appear to us—as it does. Although Heidegger questions "causality" and, reflecting upon "responsibility" and "indebtedness," introduces "to occasion" (*Ver-Anlassen*) [5], thus emphasizing the element of process, he nevertheless maintains the terms—*causa materialis*, *causa formalis*, *causa efficiens* and *causa finalis*—and exemplifies them through the observation of a silver cup, indicating how the nature of silver, as *causa materialis*, is a determinant of the cup, as is its intended form, *causa formalis*, and the silver-smith, who shapes the mold, *causa efficiens*, and finally the intention of the cup, its application and use, *causa finalis*. In the context of sounding musical artifacts, we can understand audible sound as *causa materialis*; tones, style, musical instruments, recording equipment, etc., as *causa formalis*; the creative activity as *causa efficiens*; and genre, performance, production, use, etc., as *causa finalis*.

Where Aristotle holds *causa finalis* as the most important, Heidegger claims that the accent today is instead on *causa efficiens*. It is the process itself, understood as the "bringing forward," that takes place through the unfolding of technology and is significant; thus, the real purpose is the action, not its fruit [6]. It is therefore not a question of for what use and purpose an action takes place but rather the question of "to occasion," the action itself as change-inducing activity [7].

Between *causa efficiens* and *causa finalis*, a bringing-forward occurs whereby the artist, using specific materials and certain aimed-at forms, brings forth something that is—or hitherto has been—hidden. Brought into what Heidegger calls "un-hiddenness," it is uncovered and technology is understood as one of the ways of uncovering "the real" or "truth" [8].

Thus, technology is an uncovering of what is not yet present, something that is created as a house, a garden, a piece of music. The uncovering that prevails in technology challenges nature in such a way that what is not yet uncovered is made available as what Heidegger calls "standing reserve" (*Bestand*) that does not stand out to us as an object [9].

Heidegger sees humans as belonging to the standing reserve, but humanity is not only part of it, since, when "driving technology forward, [it also] takes part in the ordering as one of the ways of uncovering" [10]. Thus, the ordering is accentuated, and so this order is co-shaping our concept and understanding of what is uncovered and ordered. This is a very crucial—and, in our digital age, highly relevant—point

emphasizing the implicit scheme of uncovering and thus the formatting that the exercise of any technique applies to what is uncovered and made available.

ENFRAMING

Heidegger sees this ordering, this implicit formatting, as an imperative that he describes as "enframing" [11]: "The challenging claim . . . we call *das Ge-stell*, the en-framing" [12]. The enframing, however, is not in itself "technical," as "rods and pistons and chassis" [13]; these manifest technologies, the hardware, Heidegger calls "montage" or "assembly," while the enframing is the system or format revealed through the exercise of the technique, and is thus the way in which something is made available. The "challenged" becomes accessible in a certain way and specific form that are determined by the way the technique makes nature available.

Applying this thinking to the "being" of scales, rhythms, instruments, recording equipment, etc., is to call to mind "assembly," as each is a concrete technical "entity" or constituent, which "corresponds to the challenge of the enframing, but never forms this let alone causes it" [14]; while the enframing is similar to the implicit systems by which musical organizations are manifested, thus "revealing the real as standing reserve," as music pieces.

Seeking enframing in the digital age confronts the paradox that the tools and techniques of the entities of the assembly in play are, in fact, not present as actual entities or specific tools such as tones and potentiometers. They are only "present" as skeuomorphic symbols and metaphors, and so are without substance. This implies that the uncovering taking place is no uncovering at all, certainly not in Heidegger's sense, since the standing reserve, that which seems to stand out, is not present. There is no presence or "here-being" in the digital domain; the digital does not provide access to an uncovering of nature or "truth." The digital assembly only discloses a particular stage of other techniques that are called upon and it cannot, unlike the latter, be directly related to reality. As the digital is without substance or matter, the standing reserve it may cause is no challenge, just a sham, origin-less reprise: "It is no longer a question of imitation, nor duplication, not even parody. It is a question of substituting the signs of the real for the real" [15].

To illustrate how this affects musical activities when viewed from a Heideggerian perspective, it is necessary to look at some of the "presenting and producing" [16], the uncovering, that 1900s electrical appliances have caused.

DIGITIZATION

From the first acoustic recording techniques through to early electronic recording and production, one can trace an increasing prioritization of *causa efficiens*. Changes in *causa formalis*, such as radio transmission and the phonograph, feed back to changes in *causa efficiens*, such as the sculpting of a "soundscape" for the new media. Digitization changes the conditions of "responsibility" and "indebtedness" even more radically. With *causa finalis* as a kind of dynamic horizon, the "music maker" focuses intensively on *causa efficiens*

with the idea of mastering the “shaping” in its totality, to a historically unprecedented degree.

However, to what degree is one the master of things, and what is one really mastering? Inside the digital workshop, tasks are solved in a radically different way than outside. The tool and the material in the computer are present in the same formula and at the same level and so, for this reason, there will be shifts between *causa materialis* and *causa efficiens* that make it difficult to determine who and what accomplish what. Hence, it is important to keep in mind that “There is no invariant border between program and data” [17], implying that the material, *causa materialis*, fundamentally appears as an element of the tool and vice versa. Consequently, the question of what processes what is unclear, because the “tool” is one with the data being processed in terms of location, format and modality.

In principle, *causa materialis* and *causa formalis* have therefore disappeared. They are embedded in the body of the digital processing such that their presence, their “indebtedness,” is purely representative and metaphoric. Whether they are expressions of an external performance that has been digitized or whether they appear as part of the digital’s own “standing reserve” is irrelevant: They are stored in numerical tables that are subject to any digital form of manipulation and are out of reach of other forms. In practice, it is difficult to distinguish between the “assembly” and the “enframing.” It is only through a sympathetic, but misleading, reflection that the artifact allows itself to be “seen” with regard to determining factors.

As the digital has no substance, the processes that are *apparently* carried out are not *effectively* carried out. By inserting formatting layers that metaphorically appear as well-known practices and processes previously handled by electrical appliances, a confused causality occurs, in which *causa materialis*, *causa formalis* and, not least, *causa efficiens* are “sublimated” and dissolve into numerical operations in the digital depths.

The technological elements that co-shape part of the artistic process are fictional, as digital technology can be programmed to [co-]shape in any way whatsoever without ever being or becoming a part of the artifact. As such, the musical artifact stands outside the digital, as it is transformed into sound as an emergent phenomenon, and its materiality “cannot be specified in advance, as though it existed ontologically as a discrete entity” [18]. The assembly is manifested in enframing form, but is it the real as standing reserve the enframing uncovers? Hardly, as the possible “un-covering” seems petrified in the metaphorical tables that define and delimit actions in the digital domain.

CONCLUDING REMARKS

It is tempting to see digital technology as just another medium. However, this is misleading, as digital technology is in fact no medium, either in content or form. Digital technology is a fundamental condition, an intangible counter-universe, and the “working” it exercises is designed and fictional. When something appears to be remediated [19],

this only indicates that the digital meets its counterpart, the user, on seemingly familiar ground.

When one recalls how it was nearly impossible previously to produce glitch-free tape loops or simply seamless loops in early digital programs and compares these with today’s instantly created loops, one has a very good picture of how unrealistic—parallel—technology really is. And that it furthermore is nondestructive, by virtue of the DAW’s practically limitless undo options [20], merely underlines how nothing any longer is what it seems to be. It has no real or final shape, and the material—*causa materialis*—has simply ceased to be a real co-shaping factor.

There is no talk of causality in the Aristotelian sense; the causality is a planned and fixed, shaped illusion. The digital does not mediate anything but [re-]constructs something; it builds a self-contained, substance-less reality that acts in the world as a parallel universe.

Heidegger’s almost-metaphysical and expectant way to require the technique has little significance when it comes to digital technology. The creation that the composer, musician and producer put forward takes place as a process by which simulations of already existing elements are combined within fixed systemic principles. Even though these principles are consciously chosen, they are still arbitrary and are system-external to the digital domain. The digital’s own terms are volatile and unstable. Sound generation, synthesis, samples, etc., are all mimetic assemblies within a hermetic, and thus basically unattainable, system. It has nothing really to do with reality and reveals nothing but the already uncovered.

Electric music technology’s metaphorical presence in the digital domain describes a technological double bond, as the principles of this technology act as an “enframing” with which it is possible to make assemblies that appear to take place within a real ontological system. But the enframing is also volatile and subject to digital technology’s treacherous nonbeing. The enframing’s basic constitutive principles are just emulations, simulacra [21] that, without notice, can be replaced by others.

The systemic determination that electronic music and audio technology represent through their presence as representations is, for the time being, protected by the digital’s self-sustaining simulation. But for how long and why? The presence of these technologies in the digital world is as anachronistic as “the steak that doesn’t exist” in the movie *The Matrix* [22], where “Ignorance is bliss.”

In a curiously awkward way, digital technology ultimately reintroduces *causa finalis* and simultaneously reduces the other three *causa* to fictions. Work is now clearly focused on the artifact’s final stage as the aesthetic goal, almost devoid of any poetic wreckage. The mimetic is in the browsing practice that characterizes our age’s *causa efficiens* completely entrusted to the digital domain; it memorizes and reproduces the stylistic relics that are the *causa materialis*—which in turn appear dominant on the present’s aesthetic horizons. Consequently, Cassirer’s claim that “the difference between technical and artistic creation . . . emerges if we consider

the kind of ‘objectification’ that is actual in the artist and in the technician,” seems prone to fail in the age of digital technology [23].

Sound art can look like a solution, a way around—as did Hölderlin’s poetry for Heidegger [24]—but it exhibits in

no way the standing reserve of technology as a challenging claim. On the contrary, rather; it represents a given relation by which man himself becomes a part of its standing reserve, in noisy ignorance of the unsoundness of the sounds he makes.

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