Hegel, Heidegger and Borgmann’s
Substantive Implications for Music and Technology

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Abstract
Illuminated by studies in philosophy of technology, music, entangled with technology, becomes explicated and defined. Philosophers, Georg Hegel, Martin Heidegger, and Albert Borgmann allow us a closer understanding of technology in Western civilization and its relationship to the artistic world. The impact of one on the other has been profound in its formative scope, yet the problems engendered are tacit and, therefore, rendered invisible. Technology is not just that the use computers in everyday musical practices, but, it is also a way of organizing ourselves, and understanding our relationships with one another. In the following discourse, modern technological problems, and their relationships to music, are unmasked.

1 Introduction
Philosophy of technology examines the impact of technology on human existence. This paper will consider music and technology in light of Georg Hegel, Martin Heidegger and Albert Borgmann’s philosophical perspectives on technology. In the twenty-first century, although music technology has the potential for alienation and dissection, technology can also facilitate growth through constitutive self-examination and critique. Towards this end, I will probe the essence of technology, and the hazards inherent in a technologically laden musical practice.

2 The Essence of Technology
To comprehend philosophy of technology, we begin with an understanding of technology itself. Substantivist philosopher, Martin Heidegger asks, “Suppose that technology were no mere means (Heidegger, 1962)?” Heidegger describes modern technology as a ‘revealing’ that ‘brings forth’ a challenge to nature to supply energy which can be independently extracted, stored, and transmitted (Heidegger, 1962). In this description we can see adumbrated, for example, the nuclear energy plant, as opposed to the traditional technology of the windmill. In music we can contrast the energy that is harnessed and released by the guitar player (as the string is plucked, the potential energy is immediately released as sonic energy), with the computer musician, who transforms acoustic energy into electrical energy which can be stored indefinitely and transmitted at will. Nature, acoustic energy, is no longer a transitory phenomena, but becomes subservient to the will of the computer musician. A guitarist feels that sound is shaped but that there are always uncontrolled elements, while the computer musician may have all parameters of creation in hand.

Technology is a core part of the construction of Western civilization and is more than a way of thinking, disposition, or inventiveness. Technology is a mode of “self-consciousness, a mode of seeing ourselves and, hence, of letting ourselves enter into the world” (Beckman, 2000). Heidegger believed that the question concerning technology should be considered with a sense of urgency and that the danger confronting us is that this mode of self-consciousness will overwhelm all others. The danger, for Heidegger, lay in our belief that technology is something we can control versus a power that is able to define our practice, ideals, and ideologies.

To avoid the dangers presented by technology, requires us to see it in its essence, not just its everyday use.

2.1 Heidegger and Technology
Heidegger, warned that the danger in technology was that it produced a technological way of thinking, relating to ourselves and the world. This technological way of thinking involves looking at everything as a problem to be solved and objects to be used for a purpose. This produces what Heidegger
called 'standing-reserves'; things that are standing in reserve for us to use.

Substantivism tells us that "technology reduces everything to functions and raw materials" (Feenberg, 1999), with "efficiency, goal oriented practices replacing practices which embody a human meaning" (Feenberg, 1999). Heidegger and Borgmann deplored the social consequences of technology, and believed that there is only one essence of technology and it is responsible for chief problems of modern civilization (Feenberg, 1999).

Heidegger believed that "the modern world has technological form in something like the medieval world had a religious form" (Feenberg, 1999), and that the danger in technology is that we have a technological understanding of being that presupposes that we see any circumstance as a problem to be solved. This understanding of being is only one of many choices to which we limit ourselves.

Heidegger's standing-reserve is a nested concept; As we order materials around us as standing-reserves, we also become standing reserves at a higher level of organization. We see ourselves and objects in terms of the function we fill and as "potential resources to the dispositions of others" (Beckman, 2000).

Heidegger believed that the artist was able to reveal our essence. Heidegger states: "Setting up a world and setting forth the earth, the [art-work] is the fighting of the battle in which the unconcealedness of beings as a whole, or truth, is won" (Heidegger, 1971). Heidegger is saying that the art-work is capable of showing us ourselves, by what he terms a 'home-coming.' That is, Heidegger believed that when we produce or view art that is created with this consciousness, it takes us towards ourselves instead of away, as technology is innately prone to do.

This ability to bring us home, to understand our essence, is, according to Heidegger, the responsibility of art. Musically, we can invoke this ability through the critique of our culture, the willingness to subvert technology to our own ends, and by responding first to interior requisites.

2.2 Hegel's Master Slave Relationship

The total control over sonic materials made possible by the use of computers, has far reaching effects for the musician reminiscent of Hegel's master-slave relationship. Hegel believed that a self-consciousness developed only in the presence of, and acknowledged by, another self-consciousness. In the case of a master-slave relationship, this doesn't happen because of two circumstances: the master doesn't recognize the slave as another self-consciousness and the slave intercedes on the part of the master with materials of the world, thus preventing the master from encountering the materials (other self-consciousnesses), him or herself, and further preventing opportunities for development as a self-consciousness (Hegel, 1807, 1967). Thus, we can regard our technological instruments as only tools, and our slaves, and limit our own development. Or, we can come to regard technology, as Kenneth Gaburo did, "as if it were human in order to maintain its uniqueness" (Gaburo, 1989).

George Lewis has approached this issue by including in Voyager, his interactive, "virtual improvising orchestra," the computer improviser's 'ability' to surprise the human improviser. The computer records the human performance, and responds by augmenting, disagreeing, contrasting, or by making random choices. The computer is functioning as a player, not "an instrument to be controlled by the performer" (Lewis, 2001).

2.3 Borgmann's Arbitrary Desires

With music and technology, as the individual accumulates more and more extensive means of creation and performance, a dialectic is created. On the one hand, the computer musician is also performer and studio artist. He or she composes, produces, performs, and records his or her own music, yet has less direct touch with the manifest physicality of playing an acoustic instrument, performing with other musicians, and interacting with an audience. On the other side, the musician has even greater involvement with his or her musical materials. With an inordinate degree of control, the computer composer, objectifies the subject materials, the sonic artifacts, to Albert Borgmann's "point of arbitrary desires" (Dreyfus and Spinosa, 2001), as any sonic event can be incessantly manipulated.

Borgmann believed that modern technology could be identified by its "rigidity and control, [which] overcame the resistance of nature and succeeded in fabricating impressive structures such as railroad bridges as well as a host of standard durable devices" (Dreyfus and Spinosa, 2001). This evolved into postmodern technology which Borgmann characterized as "flexible and adaptive, [and]
produce... a diverse array of quality goods such as high-tech athletic shoes designed specifically for each particular athletic activity” (Dreyfus and Spinosa, 2001). In music technology this can be equated with the shift from bulky synthesizers towards software-based tools and also in the proliferation of dedicated outboard gear. This is also reflected in the developments in entertainment, from spectacle media, such as vinyl records and CDs, to the interactive modes of CD-ROMs and software gaming.

2.4 Focal Practices

Borgmann also identified technology as replacing customs “that call for and focus nurturing, craftsmanly or praising practices, [with]... devices that offer a more and more transparent or commodious way of satisfying a desire. Thus the wood-burning fireplace as the foyer or focus of family activity is replaced by the stove and then by the furnace” (Dreyfus, 2001). The visible becomes hidden; just as the family gathering around the piano to sing, was replaced by the home stereo system, and then the Walkman.

2.5 Alienation and Domination

Karl Marx and Theodor Adorno believed that technology was alienating. “Its manner of operation isolates and disempowers the worker; it obliges the worker to perform systematic and repetitive operations; the operator regulates and structures his or her activity in conformity with the requirements of the technology which that activity then begins to resemble” (Dixon, 1997). With music technology, the process is the same; the expressive gestures of acoustic instrumental techniques, become compressed and minimized in the operation of a computer.

A shift in practice occurs when changed resources begin to determine end products and means dominate ends. This can be mitigated through a heightened awareness of the means and the problems that are generated. One problem, for example, is the lack of expressivity in the performance of electroacoustic music, an issue that is yet to be satisfactorily resolved. That is, we have an expressive body that can be drawn upon in the performance of electroacoustic music and is interrupted by the intellectual process required in computer manipulation.

3 Gesture and Communication

While performers of computer music have little tactile and gestural feedback, they do get social and sonic feedback. Musicians form relationships during rehearsals, get input from the group, take an active, creative role in making music, and get the spectator’s responses. The audience fulfills a similar, though perhaps, less active role.

The audience gets visual, aural, and non-verbal stimuli from the performers. The visual cues are multi-faceted; sonic stimulus joined with a performer’s body posture, attitude and movement. Of these visual cues, movement is the only one that is severely attenuated. But, this is a significant lack.

Some viable solutions have been to map computer choices away from the mouse and keyboard onto a three dimensional space and gestural controllers. But adding enhanced physicality takes considerable planning and motivation on the part of the computer musician and an ease of expression through movement, much akin to dance.

Gesture is much more than the physical act. It signifies and produces a gamut of non-verbal, temporal, spatial, and emotional expressions. As we sit at our computer keyboard, we type, click and point, with miniscule motions. The resultant musical effect is gesturally disproportionate and unmotivated, far removed from using the lungs and body in committed, physical ways to produce commensurate consequences. Changing this situation requires designing electronic instruments that inspire mastery in performers, and music in composers.

3.1 Non-verbal Communication

Tamas Ungvary and Roel Vertegaal believe that electronic instruments should include physical hardship in their design in order to communicate non-verbal information, an important part of the transmission of musical ideas. They believe that “passionate states of emotion correlate with patterns of muscular tension and relaxation [which occur]... in many forms of non-verbal expression, from facial expressions, sighs, body position, gestures, paralinguistic speech, to touching one another” (Ungvary and Vertegaal, 200). They state that the use of non-verbal, sensory-motor mechanisms are essential in the production of effective musical expression. Therefore, when we are performing
electronic music, if we neglect to engage our physical forms, we are, by default, closing off a vital avenue for communication.

4 Conclusions

That the use of technology in music produces new goals is no surprise. When we have computer programs with extreme flexibility such as Max/msp or Pure Data, we are no longer limited by the constraints of the natural world. Furthermore, with open-ended programs that can become our slave and can carry out our sonic dreams, we are left, as Borgmann states, using technology to fulfill our desires. Venturing beyond this, is Heidegger’s idea of an ‘opening’ or ‘challenging-forth,’ exhorting us not to be contented with fulfilling one’s desires; We can come to focal practices and make ‘things thing.’ According to Heidegger, this is a coming together of a community, when all is in attunement and there is a heightened sense of kinship and respect for all participants.

The very existence of technological possibilities shape and mold our artistic labors. Philosophers of technology points out problems inherent in technology, and the propensity for unconscious acceptance of technologically facilitated ends as the prime ones. We are encouraged to measure the impact of our technological practices on the production of community and in establishing and maintaining focal practices. There are no definitive solutions to technology’s problems, but, in formulating a discourse, we are establishing a site for things to be seen, the true definition of discourse.

Heidegger is telling us to examine ourselves and our relationship to other individuals. The problem isn’t that we all aren’t artists. Rather, it is that we don’t listen to our intuitive perceptions, for ourselves and our community. An artistic sense of purpose, could bring to every task, a heightened awareness of our being.

Part of the solution to the problems inherent in technology, is to challenge ourselves and our assumptions. With technology in music, we have increased control over the musical object and capabilities for constant transformations. If this were the only product of musical technology, then we would have already become part of Heidegger’s standing reserve. We can allow technology to reconstruct our view of music while maintaining our relationship to the community. In doing so, we become transformed subjects, focal participants and homecoming artists.

References


