Is there life after MIDI?

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1 How MIDI changes music

MIDI is nothing but a pair of wires (although for some reason the connector has five pins); the bandwidth is a modest thirty thousand bits per second; we're forbidden to run it more than 30 feet. Strangely, this modest technology has split the computer music community down the middle.

On one side is the 19-inch rack-mountable synth crowd. For the RMS crowd, middle C equals 60 and program #1 is GRAND PIANO. MIDI is the glue holding the rig together, carrying not only the keyboard signal to the computer but also allowing the computer to control all the rack-mount units by pretending itself to be a keyboard played by some fast, many-armed monster.

The RMS crowd believes itself in heaven. A single MIDI soldier in a home studio can achieve more notes per second (NPS) than the L.A. Philharmonic and the Mormon Tabernacle Choir combined.

On the other side, which I gravitate toward, stand the purists for whom middle C equals $440 \cdot 2^{-9/12} \approx 261.62$, not counting possible variations due to fluctuations in temperature. Purists are fond of analog tape machines, patchable synthesizers, and software synthesis. I'm typing this note on a fine, purist machine with a list price of $60000. On a good day it can barely outrun a TG77. And alas, there's no GRAND PIANO button. But I can specify *everything.*

In both camps, the word "MIDI" has come to mean "a box which spits out notes, usually in the tempered scale, according to some algorithm which only the designers understand, and they're not wasting time talking about it, they're busy designing next year's model."

Most members of both camps seem to believe that MIDI is less trouble than bottom-up, rigorous computer music. This is not true in the long run. MIDI is easier to get started on, but as soon as the rig expands to a half dozen boxes or more, MIDI becomes a nightmare. At IRCAM we learned this when Michael Jarrell was commissioned to do a piece for a MIDI rig which would therefore be more portable and get more performances than, say, Philippe Manoury's *Pluton* for the monstrous and monolithic (and rigorous) 4X machine. We were deluded. Now, six years later, *Pluton* fits under an airplane seat, whereas Jarrell's *Congruences* doesn't get the performances it deserves because we dread hunting up all that weird obsolete MIDI gear and figuring out all over again how to get it programmed.

2 Was there life before MIDI?

It's hard to imagine now, but fifty years ago essentially all music was performed in real time; there was no other way to do it. Composers knew, too, that music (along with drama and dance) was a special artistic medium, one in which the work was created at the same time as it was consumed, and ceased to exist immediately afterward. Boulez, Cage, and Xenakis revelled in this quality of music, writing scores that required performers or conductors (or a deck of cards) to choose between alternative ways of playing the piece. Boulez goes so far as to claim (of *Eclat*, for instance) that it is only possible to know what the right choices must be as the piece is being played.

It is astonishing that in such a context many composers (the three cited above among them) saw something in the idea of electroacoustic music that seemed to justify giving up real time. The fearless and tireless pioneers of electronic music spent hours at their tape machines, and then later at their computers, making music in silence. They must have felt desperate.

One can imagine why they might have felt that way. Tonalism—classical tonalism at least—looked thoroughly dead. But so did Schoenberg (as Boulez noted.) We're chronically short of new ideas about how to organize those same old twelve tokens played by those same old four instrument groups. If it was getting hard to make new structures out of the old notes, why not look *between* them? Electroacoustic and electronic music seemed to promise that and more—nothing less than total, rigorous control over pitches, rhythms, and even timbres. In MIDI, though, there's nothing between 60 and 61.

We're still in the same bind today as we were fifty years ago. Tonalism is still dead, but a lasting successor has yet to be found. Half of the audience has retreated to B.B.&M. and the rest has defected to pop. Art Music is casting about for a new vocabulary, a common musical language such as we at least imagine existed back in the safe days of tonalism.

This is not to say that instrumental writing is dead or dying—far from it. People are finding all sorts of new things to do without resorting to computers. And there are things to be done with computers that map perfectly well into MIDI boxes, such as computer improvisation. But nonetheless, this would be a great time to throw a revolution, if we could just think of a good revolution to throw.

I think that computer music has a chance to show us a way out of the impasse that Art Music is in. It's possible that a new language can arise using the old repertoire of notes and instruments. But there's also a good chance that the way forward lies in the rigorous-computer-music direction, where we can treat pitch, rhythm, and timbre as continua.

Our overdependence on MIDI gear makes it hard to explore that possibility because it pushes us back into the familiar sonic territory. We are allowing synth manufacturers to shape the way computer music is made. Ten years ago the reverse was true—Chowning was teaching Yamaha to do FM. I like to see it done that way.

Life after MIDI will resemble life before MIDI. Workstations, as well as PC-based solutions, are approaching the point where we can do real-time synthesis in software for an affordable price. That's where the most interesting computer music will be happening. But this time, it will happen in real time.