Recycling Music, Answering Back: Toward an Oral Tradition of Electronic Music

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ABSTRACT
This essay outlines a framework for understanding new musical compositions and performances that utilize pre-existing sound recordings. In attempting to articulate why musicians are increasingly using sound recordings in their creative work, the author calls for and shows examples of new performance tools that enable the dynamic use of pre-recorded music.

Keywords
Call and response, turntablism, DJ tools, musical borrowing, electronically-mediated sound, oral culture

INTRODUCTION
We are only beginning to fathom the impact that sound recording has made on our idea of what music is. The invention has been with us for just over 125 years and we are still in a nascent period, sorting through the changes in our musical experience. The hubristic act of capturing a musical performance, that most ephemeral of expressive phenomena, precipitated a creative problem in the modern mind that calls for new musical tools. "People hear music mostly through recordings, the recording becomes the reference, the template,"[11] says conceptual artist Christian Marclay, when asked what inspired him to begin scratching vinyl LPs in performance during the late 1970s. In a mechanized world where electronically-mediated sound comes to us primarily through speakers and headphones, we need tools that help us breathe humanity back into the process of musical exchange and influence.

MUSIC AS PROCESS IN ORAL TRADITIONS
In the pristine, antediluvian world, music happened locally and was shared by all in the vicinity of the performance. Imperfect memory was the only form of recording, until various written traditions arose, most notably in the early church music of Europe. Even in written traditions (by far the minority), each performance remained unique and unrepeatable. It resided in the memory of both listener and performer like a palimpsest until the next performance, when its existence was re-upped and slightly transformed.

In this model, music is experienced as a process, not as a fixed product. The song, as it stews in the imperfect memory of the listener, has room to breathe and evolve in a fluid process. This fluidity manifests itself both in the moment of performance itself and in the transfer of musical influence from person to person, generation to generation.

In musical performance, many cultures practice some kind of call and response, among the musicians in the group and sometimes among the audience members. The other members of the group influence the performance directly; there is an open invitation to participate. In the heat of the performance moment, the musicians send out the call and the listeners answer back to close the loop and confirm their synchrony with the experience. In the practice of call and response, there is a remarkable immediacy and intimacy between performance group and audience.

As musical performance practices are handed down from person to person in purely oral traditions, this intimacy and immediacy is carried over. The next generation responds to the call of the previous, much like in live performance. The imperfection of memory allows young musicians to re-interpret, putting something of themselves into new performances as they extend the tradition, changing a word or two here or an inflection there, while maintaining the integrity of what was passed on.

There is an organic, human process at play here. Like music itself, the process breathes – there is an ebb and flow between performer and performer, performer and audience, between generation and generation. In this model, music is essentially about breathing together, sharing time in face-to-face experience.

MUSIC AS ARTIFACT IN RECORDED TRADITIONS

Since 1877, when Thomas Edison recorded his own voice singing "Mary Had A Little Lamb," this model of musical experience has shifted. When we first hear a recording of our voice played back to us, we lose innocence. Our idea of memory and self begins to change. In 1969, the visual anthropologist Edmund Carpenter went into the Upper Sepik river valley in Papua New Guinea to encounter some of the last groups of people on the planet who had not yet been exposed to modern electronic media. In a series of controversial experiments, he filmed and recorded them and then filmed them as they watched and heard themselves for the first time. Their response was remarkably consistent – "Once they understood that they could see their soul, their image, their identity outside of themselves, they were startled. Invariably, they would cover their mouth, and sometimes stamp their foot, and then turn away. And then [they would] take the image and look at it again, and hide, and so forth… But all of that passed within weeks. [Soon] people were walking around with images of themselves on their foreheads. And I don't think there's any return to the initial innocence."[14] This watershed moment, marks a major in our notion of musical memory. Ultimately, it changes our practice of musical performance.

Sound recording makes artifacts out of what before were only processes. The imperfection of memory is replaced by a verifiable, fixed record of the performance moment. In a sense, we contain the mercurial spirit of a musical performance in a bottle, where it can be scrutinized, dissected, archived and transmitted for years to come.

If in the idealized, pristine world of oral culture music was shared in an organic and fluid process, sound recordings of music sit in our memory like fixed, non-biodegradable plastics – locked, read-only moments from previous musical experiences we are only indirectly privy to. Like plastics, they pile up in memory landfills that quickly dwarf anyone's capacity to remember. Whereas in oral traditions a single song might occupy one memory slot in the listener's mind (the last version heard), in recorded traditions versions upon versions upon new permutations are stored and retrievable in an overwhelming celebration of media access.

In creating fixed records of musical performances, we interrupt the instinctual process of call and response. We have the illusion we are participating in a musical experience when we listen to a recording, but it is once-removed. Yet this is how many young musicians now learn to play music — in isolation, listening to music through an impersonal speaker, disconnected from the originating experience.

The feedback loop in the process, the natural instinct to answer back to the call, becomes disrupted. This is true for responses both in the immediate moment of listening as well as in the subsequent acts of composing and performing new works influenced by the old. In electronically-mediated performances, there is an inequality on the part of the audience, which does not have access to the same electronic medium through which to respond.

In a conversation with jazz musician and composer Roswell Rudd about disco music, cross-cultural ethnomusicologist and folklorist Alan Lomax sheds light on this topic: "I believe the principal difference is that the music that they are trying to imitate is genuine dance music, and in Africa that means that the orchestra is playing *with* the dancers… it's the dancer that supplies the extra excitement… So the dancer is really in command of the music — the music is background for the dancer. But in disco, the whole thing has been reversed, the music is in command of the dancers — it's the music that rules. It is the powerful center that dominates the throng, whereas in Africa…the musicians would be responding to some dancers close by and actually working out the problems back and forth with them."

To which Roswell Rudd responded, "The problem with disco is that it is all taped — you play the music like you play a jukebox. You turn it on, you turn it up, and it goes. There's no give and take, it's just a one-way message from the speaker cones….The interaction [between dancer and musician] is not there." [4]

FIRST ANSWERS BACK

About 100 years after the first recorded sound, as oceans of recorded time burgeoned in archives busting at that seams, two developments — one grassroots, the other in the lab — marked the arrival of a new direction in musical performance. The first was scratching, or using vinyl LP records as musical instruments in live performance, which began in the mid 1970s. The second was the invention of the digital sampler by Australian engineers in 1979. These developments came out of a growing urgency and demand for tools and techniques that enable listeners to answer back.

Scratching

While the idea of making music by recycling the music of others had existed for some time (for example, in experimental works like John Cage's "Radio Music" [1956] and Karlheinz Stockhausen's "Telemusik" [1966]), the practice came into its own in the 1970s through the cultural movement that eventually came to be known as hip-hop. DJs, who supplied dance music for parties, developed techniques that went beyond artful selection and sequenced playback. By using two variable speed turntables connected by a mixer, DJ began blending recording songs in seamless continuity. Blending and mixing gave way to scratching, or backspinning a record in rhythm. This gave DJs a way to put more of their own musical selves into the playback, featuring their

rhythmic skills. Grand Wizard Theodore (aka Theodore Livingston) is attributed with inventing scratching in 1975. Similar practices emerged concurrently in the New York art world around the same time in the work of conceptual artist Christian Marclay.

Grand Wizard Theodore is also attributed with inventing the needle-drop, where the DJ drops the needle on a spinning turntable precisely where he wants playback to begin. "Not only does a DJ have to know the music on the record," says seminal DJ Grandmixer DXT, "a DJ must also know exactly where the rhythm is on the record. Developing DJ skills requires hours of practice and listening." [9]

In fact, it was Grandmixer DXT who introduced scratching to a mass audience via the his performance on Herbie Hancock's "Rockit" on the 1984 Grammy telecast. Over the next two decades, DJs would cite this performance as pivotal in the their decision to become turntablists.

Figure 1. Grandmixer DXT, who introduced scratching to a mass audience at the 1984 Grammy Awards.

Year 2000 marked the first time in the US that turntables outsold guitars.[3] "The turntable is a musical instrument as long as you see it as a musical instrument," says DJ Rob Swift. "You're dealing with notes…measures, timing, rhythm. You have different tools, but the outcome is the same — music." [13]

In many ways, these turntablists are the earliest musical recyclers, contending with a world where most of the music we hear is recorded music. With brilliant resourcefulness, they have showed us a way to infuse humanity back into the tireless stream of predictable recorded playback – a way of thawing out the frozen performance moments that occupy our CD collections. They also achieve David Wessel and Matt Wright's ideal for new interfaces for musical expression, that of "low entry fee with no ceiling on virtuosity." [15] While it is relatively easy to get started in the arts of the DJ, lately we have been seeing conservatory-like virtuosity coming out of this field.

Sampling

In 1979, Peter Vogel and Kim Ryrie developed the Fairlight Computer Music Instrument (CMI), the world's first digital sampler. It came out of an effort to create an improved digital synthesizer, and the original intent was not to use it to replay existing recordings. The Fairchild CMI was shipped with a bank of samples the manufacturers thought would cover all eventual uses of the instrument. It soon became clear the instrument wanted to be an open system, rather than rely on pre-sets.

Legend has it that an employee's dog bark at Fairlight was the first sound to be sampled and used in a melodic fashion. Pop musicians Stevie Wonder and Peter Gabriel were among the first customers to purchase the instrument, at a price of over $50,000 USD, with Gabriel's "Shock the Monkey" being one of the earliest popular songs to incorporate samples [8]. It took until 1986, with the launch of Ensoniq's "Mirage," for samplers to become inexpensive enough to be widely used.

Figure 2. The Fairlight CMI (1979)

If recorded sound creates fixed musical experiences that sit in our memory like non-biodegradable plastics, then the digital sampler is a kind of music recycling machine that breaks down, digests and processes these memories for reuse. This points the way to a new form of give and take in creative influence. The sampler has been a first step in re-establishing the process of call and response, familiar from oral traditions, in the all-electronic medium.

A NEW CALL AND RESPONSE

Since the early days of scratching and sampling, new tools and practices continue to emerge that allow listeners to process recorded sound and feed it back in expressive ways. Software packages like Recycle, Rebirth, Ableton's Live, and Max/MSP provide superior control to the musician utilizing pre-existing recordings. Tools like Stanton's Final Scratch and the EJ MIDI Turntable allow turntablists to easily apply their techniques to digital media files.

Once behind the scene, music producers are recognized as creative artists of the highest order alongside singers and instrumentalists. DJs, who order, reorder and transform pre-recorded tracks in myriad ways are celebrated for their primary creativity. "Return of the DJ," first released in 1996, unapologetically and successfully put the music manipulator in the foreground. All of this is evidence of appreciation for musicians who start out from the position of the music consumer — who start out from the listener's perspective — and then show us ways of creatively answering back.

TOWARD AN ORAL TRADITION OF ELECTRONIC MUSIC

I think we are in a period of restoring fluidity to the musical transformative process – of making music more process-oriented again and less artifact-oriented. Where the give and take of musical influence was momentarily disrupted as we shifted into the electronically-mediated world, new tools and techniques are being invented to give the audience a channel of response. What we gain is a new give and take that is distributable and addressable to audiences around the globe.

Walter Ong, in *Orality and Literacy: The Technologizing of the Word*, investigates the effect that the written word has had on our way of thinking about words. Much of what he finds is applicable to the comparison of non-recorded and recorded cultures. "The condition of words in a text is quite different from their condition in spoken discourse," he says, The word in its natural, oral habitat is a part of a real, existential present...Yet words are alone in a text."[12]. This is true of music; its condition is quite different in its natural, oral habitat. Music is alone in a recording.

The experience of listening to recorded music is a solitary one. While a group of listeners may be united with each other, they are separated from the performance. Music by its nature, prior to recording, was communal, inclusive of audience and performers. Recorded music gives us the sense that an experience happened 'over there' somewhere, and you are now "reading" it, or re-experiencing it. This experience once-removed pulls us away from the immediacy of direct, shared experience. Where instinctually we might have once engaged in call and response, we only hear the call. Our response falls on deaf ears. No one is there to listen.

Edmund Carpenter commented on this phenomenon of disconnected listening in his 1972 book, *Oh, What A Blow That Phantom Gave Me*. "The young regard the press & TV, in fact all media, the way they regard LP records: as separate worlds. They don't relate recorded music back to performance. That music exists *now*, with them in it. It's complete, no mere shadow of some distant original. And it's doubtful, in any case, if there ever was, in any conventional sense, an original performance, especially where audience involvement becomes part of the performance." [2]

Paradoxically, Ong also notes that "electronic technology has brought us into the age of 'secondary orality.' This new orality has striking resemblances to the old in its participatory mystique, its fostering of a communal sense, its concentration on the present moment…. But it is essentially a more deliberate and self-conscious orality.

> *Like primary orality, secondary orality has generated a strong group sense, for listening to spoken works forms hearers into a group, a true audience, just as reading written or printed texts turns individuals in on themselves. But secondary orality has generated a sense for groups immeasurably larger than those of primary oral culture…*
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> *Moreover, where primary orality promotes spontaneity because the analytic reflectiveness implemented by writing in unavailable, secondary orality promotes spontaneity because through analytic reflection we have decided that spontaneity is a good thing.* [12]

What is lacking from Ong's secondary orality is the feedback loop, the call and response that is intrinsic to primary orality. Only when feedback becomes more fluid and spontaneous, using more sophisticated tools along edge-to-edge channels, will we reclaim some of the solidarity enjoyed in oral traditions.

These feedback needs to evolve beyond the standard post-modern solution of ironic borrowing, juxtaposition and witty Dadaist collage into more integrated, pluralistic styles – compositions of many voices and many styles coexisting, with a place for the new voice of the composer/next listener always left open.

Eventually, tools for calling back through the electronic medium want to enable relationships as intuitive and dynamic as that of a choir singing in a room together. Lately, following on the musical recycling trends started in the 1970s, these feedback tools are emerging.

EXEMPLARY PROJECTS FROM THE NIME PROGRAM AT NYU

Since spring of 2002, I have been teaching a "New Interfaces for Musical Expression" class at New York University's graduate Interactive Telecommunications Program (ITP). In this program, new ideas abound for performance interfaces that allow musicians to creatively sample and manipulate recorded sound. It is a regular topic in our classroom discussions and many of my students build prototypes that enable expressive use of audio recordings. Here are three examples of experimental tools that approach this goal in very different ways.

Takuro Mizuta Lippit's "16 pad joystick controller"

Takuro Mizuta Lippit, a second-year graduate student at ITP, says that "the DJ starts as a listener, maybe

even more than a musician does. The DJ listens to music more from an audience standpoint." He has created the "16padjoystickcontroller" for the turntablist to make real time samples and manipulate them in live performance. He developed two iterations of the controller and is working on the third; the first iteration was demonstrated at NIME03 in Montreal.

A footswitch allows the DJ to capture samples while working the turntables. A joystick is used to control loop points. An array of 16 pads is used to select samples once they have been captured. The physical interface is largely influenced by the waveform~ object in Max/MSP – essentially, Lippit has developed physical controllers for the parameters of the waveform~ object

Figure 2. Takuro Mizuta Lippit's "16padjoystick controller" gives a turntablist "extra hands" for live performance.

The design grew from the limited ability a typical DJ has to sequence and layer multiple samples. Teams of up to four turntablists have formed to achieve this effect; Lippit's instrument allows a solo performer to achieve this same effect. "DJs always say 'If I only had a third or fourth hand… If I only had another finger, I could do…' This allows me to get that effect." In performance, Lippit tries to call out the special qualities of the vinyl and turntable more than focusing on only the sound recording; he will emphasize the noise of the cartridge, the noise of the connectors as well as the sounds from the record. He sees the LP turntable as on the way out, as digital turntable controllers and other techniques for scratching move in. "As more and more DJs move to digital technology, the turntable is no longer needed as a playback device. The only real reason for using vinyl and a turntable anymore is to look at what makes them fundamentally unique."

Mark Argo's "Slidepipe"

Mark Argo, also a second-year at ITP, has created an musical interface that allows him "to get some of the feeling of a hoedown, to put some jamboree-ness into the electronic world, to give electronic music a bit of soul — so people know that music is happening in the moment."

The design of the Slidepipe grows out of the metaphor of a timeline. "Anything that is sample-based or event based revolves around a timeline, be it music, video, a robotic sequence, an animation. All timelines have an overall in-point and out-point as well as mark-ins and mark-outs. The Slidepipe takes this metaphor and makes it physical."

Figure 1. Mark Argo demonstrates the Slidepipe at NIME03 in Montreal. He designed a second iteration of the instrument in fall '03 with Eric Singer at NYU.

The Slidepipe is made up of three horizontal bars. Each bar represents a timeline. The ends of each bar represent the in and out points. Two paddles slide along each bar, each representing a mark-in and a mark-out. Samples are loaded onto each pipe and then manipulated. Ropes at the end of each pipe allow the performer to set audio effects, volume, panning, etc. The physicalization of the abstract audio sample makes for a much more visceral audience experience than watching the same functions performed during a laptop performance.

The Slidepipe is capable of creating sound sources on the fly, sampling in the moment from the performance environment. The performer can also sing into the instrument, loading a voice sample onto a pipe to be manipulated. This open feature allows for a more responsive, improvisatory and spontaneous performances that emphasize that "music is happening right now, right here."

Michael Luck Schneider's "AM Synth"

ITP alumni Michael Luck Schneider created the AM Synth as a way of sampling and manipulating live radio. The interface is a small, unassuming box that sits on a standard radio. It appears to the audience that the performer is simply playing the radio.

The AM Synth allows him to capture up to three buffers of radio sample. "It works with live radio that is happening right here, right now. I tune through the dial and if there's something I like, I assign it to one of the three channels and it grabs a four-second

sample." The volume and speed of each buffer can be adjusted using sliders on the interface. The most compelling control is provided by two infrared range sensors that point out from each end of the AM Synth. By moving his hands in space, "grabbing" the sample in the air, the performer can slide both the in-point and out-point of the 4-second looping sample.

Figure 1. Michael Luck Schneider 'sculpting' radio samples with the AM Synth..

"One day I thought, wouldn't it be cool if you grab something off the radio and sculpt it with your hands." Like the Slidepipe, this is a strategy for physicalizing the sample, giving it a palpable presence that the audience can sense. It takes the abstract process of audio sampling and gives it form, showing the audience what the performer is doing with the sample.

CONCLUSION

The recording of music has altered our expectations for musical experience. While it affords us new possibilities for the preservation, transmission, distribution and transformation of music, it endangers other essential aspects — intimacy, immediacy, the human breath-like quality of musical performance. There is work to be done in creating methods that ensure these endangered qualities remain part of the computer-mediated electronic music traditions to come.

There is a rich area to explore in rediscovering the organic qualities of oral traditions in the electronic format. These few examples begin to show the ways such exploration might take us. They indicate how tools for answering back to the call are a fertile direction to take expressive interfaces for live performance.

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