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“Dynamic Archiving”

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Archival challenges have been present in electroacoustic music since it first became apparent that the various storage media of electroacoustic music have a tendency to decay. With the introduction of the technologies of digitally stored audio and the prospect of unlimited, lossless copying, we begin to entertain the possibility that all recorded music can retain its present quality indefinitely, at the cost of the initial depredation of conversion from analog to digital representation. (This audio degradation is unfortunately especially egregious in current lossy audio formats such as MP3 and Ogg Vorbis, though we will surely move away from lossy compression in the future, as network bandwidth and storage continues its inevitable march towards better performance and lower price). For works recorded on analogue equipment, there is still a potential loss of quality on conversion to digital audio, though this is not nearly as damaging as the process of compressing full-bandwidth digital audio by an order of magnitude as is currently common for MP3 encoding standards.Works composed in and for the digital medium can avoid the digitization and compression problems altogether.

The nature of archiving of electroacoustic music is itself being transformed through the agency of rapidly decreasing costs of mass storage, rapidly increasing accessibility of broadband Internet made even more ubiquitous through WiFi, and its manifestation through the fusion of social networks such as Myspace, social media networks such as YouTube, search engines such as Google, widely distributed Internet self-publishing and netlabel publishing of electroacoustic music, and Internet radio, into a kind of social-networking, intelligently searchable Internet radio station of which Lastfm appears to be a first approximation. This emerging environment favors dynamic archiving, in which public visibility is no longer a zero-sum game, as has been the case in the traditional music distribution model found in physical CD stores, and indeed in the winner-take-all model of musical genius in Western classical music history. Chris Anderson describes commercial aspects of this phenomenon as the Long Tail. “You can find everything out there on the Long Tail. There's the back catalog, older albums still fondly remembered by longtime fans or rediscovered by new ones. There are live tracks, B-sides, remixes, even (gasp) covers. There are niches by the thousands, genre within genre within genre: Imagine an entire Tower Records devoted to '80s hair bands or ambient dub.” (Anderson 2004).

We are now experiencing overlapping archival processes in the form of traditional, fixed-location archives (historical collections and white gloves), digital archives, and most recently archiving as an emergent process of information exchange, whether at the gross level of listeners trading their favorite mp3 files or a more process-oriented appropriation of digital music into new digital music, or other forms of commentary. I'll refer to this process as "dynamic archiving." As Julio D’Escriván and Paul Jackson demonstrated in their EMS 2008 paper *Applied Plunderphonia: Tagging electronic music with samples* (D’Escriván and Jackson 2008), plunderphones can serve as hyperlinks between musical works in a semantic tagging process. Their analytic model branches connections from a single work to many others pieces, but other plunderphonic topologies are easily imagined. I would suggest that a decentralized network of plunderphonic hyperlinks has emergent archival properties. As Ken Fields points out in *Cooperative Research and Performance on E-Art Grids* (Fields 2008), in actor networks, connections are performed repeatedly. That is to say, dynamic archiving is an ongoing process. Another implication I draw from D’Escriván and Jackson’s work is that, in addition to the traditional binary interpretation in which intellectual property (IP) appropriation is viewed as either a conflict between thieves and the police, or as an act of civil disobedience against an obsolete IP enforcement paradigm, appropriation can now also be viewed more operationally as an indispensable network connections process that adds not just knowledge but increased archival accessibility.

Plunderphones are a particular kind of quotation which is a subset of appropriation generally. An important plunderphone that took on the role of dynamic archiving is heard in Radiohead's sampling of Paul Lansky's 1973 composition "Mild und Leise" for their song "Idioteque." (Radiohead 2000) "Mild und Leise" is not a well-known work, even among computer music aficionados who may be quite familiar with Lansky's voice-based computer music such as his "Six Fantasies on a Poem of Thomas Campion" and "Small Talk."

Radiohead's sampling of "Mild und Leise" brought the work to the attention of a very different audience than usually listens to computer music, as well as to computer musicians who were interested in the sampling aesthetic. Lansky wisely took advantage of the situation by putting "Mild und Leise" on his website for free download (Lansky 2000). Equally notable is the game that Radiohead does *not* play in "Idioteque". Not only was the Lansky sample certain to be unfamiliar to almost the entire Radiohead audience, the excerpt does not particularly sound like "sample" but is fully integrated into the texture of the spmg. If one did not know "Mild und Leise" it would not be at all obvious than any appropriation through sampling was taking place. This is in contrast to the more common use of samples in popular music, particularly in techno music, where even if one does not recognize the source of a sample, it is immediately apparent that the sample is a "foreign body", often short vocal clip imported for its expressive and associational characteristics.

Ricardo Dal Farra in his paper *From Technology to Artistic Creation and Back. Between sound and music in early electroacoustic compositions* presents his Latin American Electroacoustic Music Collection. This is a beautifully presented digital archive with free downloads of hundreds of complete works, programme notes on the works, and composer interviews. The main limitation to this project, as Dal Farra observed, is that when the money ran out, the archiving process was put on hold. In a more dynamic process, this archive might be taken over as an open-source project, so that ongoing development of the work is not limited by the vagaries of a single funding source.

Another issue we may need to deal with is what I call "total archiving". It is now feasible to archive and make available the entire work of every living electroacoustic composer. In my rough estimate, we would require no more than a terabyte of static memory to archive the complete works of an electroacoustic composer, assuming a prolific one who produces around 100 CDs worth of music over the course of a creative lifespan. We could go up one more order of magnitude in order to preserve all the audio source materials, source code, and assorted marginalia to say, 10 terabytes per composer. This is completely feasible even now, and will only become more so in the future. Increased broadband may finally render the MP3 format obsolete in favor of full bandwidth audio streaming, somewhat comparable to the present, long-overdue demise of MIDI, possibly to be replaced by Open Sound Control. Simon Emmerson pointed out to me in a private discussion at EMS 2008 that one result of total archiving is that you wind up with total noise. I agree and would add that the introduction of noise to pattern recognition systems, whether human or automated intelligent agents, leads to an unstable situation, which the pattern recognition system attempts resolve (Lyon 2008). This instability is an inherent feature of total archiving and acts as a stimulus for ongoing dynamic archiving processes. The presence of lots of noise on the Internet is precisely what motivates so many independent agents to create connections amongst the ever-expanding number of available musical nodes (MP3 files, music software, Internet labels, audio blogs and so forth). By contrast, there is very little motivation to develop further system-based connections among nodes in a categorization regime in which noise has mainly been eliminated, such as traditional library catalogues reliant on rigidly formatted records with fields for author, title and subject area, but not, say, for extreme use of ring modulation.

In conclusion, dynamic archiving presents an avenue for unlimited preservation and dissemination of any music that is put into fixed form. Fixed media electroacoustic music is by its nature ideally suited to benefit from dynamic archiving processes. Live electroacoustic music is also well suited to dynamic archiving, limited only by the extent to which a recording of a given performance is deemed worth preserving. But this caveat applies to all forms of performed music. And it is notable that there has been no shortage of artistically valuable recordings of performances in what is perhaps the most significant form of improvised music developed in the 20th century – jazz.

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