

## Watkinson Chapter #1: Informed Skeptic Analysis

As I was reading through the first chapter in Watkinson's text, I came upon one statement which seemed to take on a new meaning for me considering all that I have learned about digital audio in the past semester. This statement was introduced under his subheading "1.4 Why Digital" on page 7. Watkinson's point was that "The quality of reproduction of a well-engineered digital audio system is independent of the medium and depends only on the quality of the conversion process."

This statement is, of course, completely true (far be it from the great John Watkinson to introduce untruths in his text!). However, two obstacles to digital audio are implied in this quote. The first phrase that includes a subtext is "a well-engineered digital audio system." The real world truth is that not all digital systems are well-engineered. In theory, digital audio should be completely irrespective of the medium. Dropouts or burst errors on compact discs or digital audio tape should be correctable through error encoding algorithms. Not all errors, however, can be recovered. If somebody completely incinerates a compact disc, for example, I would bet any compact disc player would have a hard time correcting those errors. In other words, there is a limit to the error correcting powers of any medium and of any error correction methods. If the amount of errors fall under the threshold of the systems power, the digital audio data can be preserved.

Watkinson himself has pointed out that many digital audio systems are poorly designed. The notion of many people that digital cable quality can affect the sound quality of the transmitted signal is a basic point against his statement. Obviously, as Watkinson argues, a digital cable (which is the "medium" of transmission) should not affect signal quality and therefore exposes a poorly engineered digital system. The weak link in this chain is probably tied to the converters themselves. Again, in this situation, the quality of digital audio is limited by converter design. Although this idea is implied in Watkinson's initial statement, too many novices, including myself when I first read it, misinterpreted this axiom to mean, "All digital systems are free from any loss of quality." This, of course, is untrue, because many digital audio systems are not designed well enough to take advantage of the potential of digital audio's nature of being irrespective of the medium.

The final idea with which I wrestled while reading this chapter again was the concept of "Past + Innovation = Future." This concept itself is a little obtuse to my mind. The first question that pops into my head was "where is the Present in this equation?" I suppose the answer is that the present must equal innovation. In other words, innovations today, when combined with all we have learned from the past, will add to a new and different future. In the field of digital audio, examples of such an equation can be found everywhere. The use of heads and magnetic tape to encode digital signals is an appropriation of older technology to implement new techniques. VCR technology, of course, was the foundation upon which is based all of the rotary-head recorders that now proliferate in the semi-professional market. Even sampling theory itself dates back to the work of Shannon and Nyquist. When these past theories were combined with the innovation to encode audio signals in a digital format, the future of digital audio was born. This equation is almost a tautology, however, similar

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to Darwin's "Survival of the Fittest", in the sense that if the future is defined only by what appears after innovation, then the future will always be the past plus innovation. The equation has really not elucidated anything new. It is a form of circular reasoning in this sense and for me has little meaning. In other words, the statement does not shed light on the more important subject of what types of innovation are necessary for the future.

**N.B. My article abstract for this week was prematurely turned in last week. I suppose I was ahead of the game.**