

# Scandalous Notes: A Musicologist Discusses New Developments in Music Technology That Challenge Copyright Attorneys and Expert Witnesses

By Judith Greenberg Finell

Since the millennium, many changes have occurred in the way that music is created, produced, performed, and circulated. These developments have been occurring at lightning speed, and do not appear to be slowing down. The results have challenged copyright attorneys, along with the musicologists who provide them with expert witness and consulting services.

Before 1980, there was a wide gulf among composers, performers, and technologists, with the exception of a relatively small number of experimental fringe musicians who had both electronic and musical expertise. Over time, these boundaries have blurred, and today many mainstream musicians have considerable expertise in electronics, technology, and recording engineering. Further, the advent of digital music and the rapid expansion of the Internet have given musicians unbridled access to the material of others and, consequently, the opportunity to incorporate this prior material into their own compositions—with or without permission to do so.

## New Music Technology Increases the Opportunities for Infringement

While there are still many composers who write with pencil and paper, collaborating in traditional ways with other musicians and lyricists, many genres of popular music, such as rap music, are now constructed as a collage blending pre-existing material with new original material. This change is due in part to the pervasive use of technology that can reproduce music data in exact copies. Music—from recording studio to mixing and editing to final medium (be it any variant of a CD, DVD, or a compressed audio format downloadable via the Internet)—is almost always now completely digital from start to finish. The convenience and ease with which such data can be copied and shared has opened new possibilities for collaboration, but has also increased the temptation to appropriate musical material in illegal ways.

Uncovering such misappropriation, and proving (or disproving) it, poses new forensic challenges for attorneys and musicologists. One brazen example is the Joyce Hatto CD hoax.<sup>1</sup> This is a case in which fraudulent recordings misattributed to the pianist Joyce Hatto were passed off by her record producer husband William Barrington-Coupe as having been performances of hers, when, in fact, they were not. Rather, these were performances by other musicians to whom no credit was given.

Such a hoax could not have existed—nor likely have been detected—were it not for the easy access to digital recordings, recording studio software, and the Internet. Modern software allowed Mr. Barrington-Coupe to alter and seamlessly modify other artists' recordings, and, consequently, to deceive the public by attributing them to Ms. Hatto. One of the techniques used, by Mr. Barrington-Coupe's own admission, was time-stretching (where a segment of audio can be digitally stretched or shrunk to fit a certain length of time, with the option of maintaining the same pitch).

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## Composers' Expanded Toolboxes Demand New Forensic Techniques

Increasingly powerful tools are at the disposal of modern composers, and the process of composition has changed as a result. Today's computer with sequencer and DAW (digital audio workstation) software makes it easy to create works by inserting musical sounds and layers. The result is that any sound can now be captured, modified, and incorporated into any type of musical work. For example, the recorded sound of a gong can be transformed into an extended high-pitched squeak. This capability raises many new copyright and performing rights questions.

Synthesizer technology has evolved to the point that a symphony orchestra can be simulated with a very high level of realism.<sup>2</sup> This capability is likely to result in new legal issues as well, especially since music-interpretation data can now be copied just like any other form of data.

Digital processing has allowed for improvements in the "vocal elimination" technique (the deletion or removal of the vocal sounds from a recording). This ability can enable the user to disguise the misappropriation of an instrumental accompaniment section, for example,

by eliminating the more obviously recognizable vocalist and lyrics from an earlier recording. A hypothetical case might occur when two recordings—Song A (the earlier recording) and Song B (the later one)—bear a strong resemblance to one another. Song B sounds like it contains the exact recorded instrumental performance also heard on Song A, minus the vocalist and lyrics. However, Song B was recorded at a faster speed and at a slightly elevated key as compared with Song A. There are also numerous performance idiosyncrasies shared on both recordings that further arouse suspicion. For example, specific instrumental techniques including precise strumming and bowing methods appear to be identical between them. By using time-stretching techniques, the musicologist could substantiate the view that the creators of Song B have taken verbatim, then modified, Song A's performance.

Other forms of music technology have also begun to stimulate legal concerns as well. For example, electronic musical sounds have evolved greatly. While initially, composers utilizing electronic synthesizers attempted to replicate acoustic instruments (such as using synthesized violin sounds rather than "live" acoustic violins), the electronic musical palette has so grown as to embrace newly invented sounds that refer to nothing else in particular. These new sounds are sometimes so distinctive that their misappropriation can provide an important "musical fingerprint" in detecting whether one song was copied from another. In other cases, however, the new sounds are so modified as to render their original sources unrecognizable. In this circumstance, questions of ownership and originality emerge.

### **New Access Considerations Due to the Digital Revolution**

The musical developments have also had an impact on access issues. In essence, music has become borderless. Today, using the Internet, an unsigned band in a far corner of the world can circulate a song throughout the universe with the click of a mouse. This band can now upload its own songs on to Web sites such as MySpace.com, without the benefit of a record label with a traditional distribution arm. In turn, any amateur or professional musician with a computer can, then, capture and utilize the band's works—either with or without its permission—virtually anywhere in the world. Consequently, the ways in which access can be claimed and the burden to prove it have definitely changed.

### **Musicologists' Forensic Tools Adjust to the New Musical Reality**

Several cases have occurred when popular songs are found to contain misappropriated musical segments from obscure locations and unknown artists. I have seen

cases in which the resemblance is sometimes instantly recognizable. The similarity can be so obvious that it is as if the excerpt had been lifted from the pre-existing recording and dropped right into the second one unchanged. However, it can be difficult to verify objectively merely with human ears whether or not a segment of music is indeed a verbatim copy of another, rather than an independently reproduced performance. To resolve this problem, I would turn to spectrogram analysis.

A sound spectrogram is a visual representation of an acoustic sound signal. The visual result of a spectrogram is affected by many parameters; but in essence, the idea is to separate the given signal's component frequencies and amplitudes. The analysis is used in analyzing linguistics, voice prints, and, for example, identifying animals and insects by the sounds they make. By utilizing this method of analysis, it is possible to see identifying features of sound, including the strength of overtones and the rate of change in sound over time. This tool would enable the musicologist to surmise that the sound segment mentioned above had been copied and was not an independently reproduced performance.

### **Have Music Copyright Infringement Criteria Changed?**

These new developments in the way that music is constructed and circulated suggest that some of the traditional copyright infringement criteria might need to be adjusted at times in order to address the new compositional processes. This adjustment is already reflected in: 1) the way in which it is sometimes necessary to review music that sounds similar, 2) the tools used to detect some similarities and differences, 3) considerations as to access, and 4) the questions asked of the creators of the musical works at issue.

In the end, the same questions still do apply. For example, in a hypothetical case in which Song A was composed before Song B, which bears a resemblance to it, an attorney would still ask the musicologist such questions as:

1. Are Songs A and B substantially similar?
2. Are Songs A and B strikingly similar?
3. If either of the above is so, was the material that Songs A and B have in common original with Song A?
4. If not, what may have been the source for the material found in both Songs A and B?
5. If the songs are similar, is the material that they have in common essential to either or both? If so, what proportion of both songs does the similar material occupy?

Depending on the nature of the similarities that the musicologist hears (or does not hear), additional questions could be addressed to the creators of Songs A and/or B, such as:

1. Were digital samples used in creating either song?
2. What other forms of technology were used in composing and producing the work?
3. Was Song B commissioned by a client (such as an advertising agency or film studio) who provided Song A as a model of the music that was wanted (this model is referred to as a "temp track")?
4. Did the composer of Song B utilize any third-party source materials to produce the sounds on the recording, such as a music library of pre-recorded sounds or tracks of instrumental materials?
5. Did the composer of Song B collaborate on his work, and, if so, were any of the collaborators involved in the production and creation of Song A?

In summary, today's new musical landscape offers a bounty of limitless possibilities that enrich and enhance

the creative process. However, along with this expanded composer's palette, many new risks, vulnerabilities, and concerns confront copyright attorneys, clients, and the musicologists who consult with them.

#### Endnotes

1. See Alan Riding, "Pianist's Widower Admits Fraud in Recordings Issued as His Wife's," *The New York Times*, February 27, 2007.
2. See Jacob Hale Russell and John Jurgensen, "Fugue for Man & Machine," *The Wall Street Journal Online*, May 5, 2007.

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