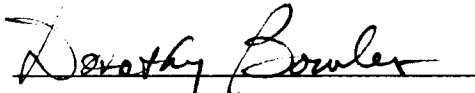
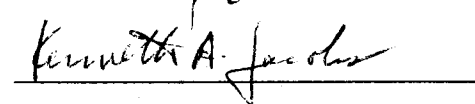


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A DESCRIPTIVE STUDY OF SELECT MUSIC AND RECORDING INDUSTRY
ATTITUDES TOWARD DIGITAL SAMPLING TECHNOLOGY

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Denise M. Parker

May 1990

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DEDICATION

This thesis is lovingly dedicated to my mother, Hanne Middleton, who has always stressed that there are no goals too high for grasp or dreams beyond reach and whose life has inspired and strengthened me more than she will ever know.

ACKNOWLEDGMENTS

I wish to express my gratitude to all who have contributed to this study and made its completion possible.

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ABSTRACT

The purpose of this study was to document the attitudes of select music and recording industry professionals toward digital sampling, a controversial new recording technique that merges the instrumental performance of electronic music keyboards (synthesizers) with the principles of digital audio reproduction. The study also included brief discussions of the historical development of digital sampling, the process of sampling, current uses and suggested effects of sampling and applicable principles of U.S. copyright law. In the summary, the researcher attempted to identify some problems posed by current industry conditions accompanying the use of digital sampling, as well as to propose some solutions to these problems.

Personal and telephone interviews were conducted with thirteen music and recording industry professionals from the Nashville area. Nashville was chosen as the location for study, as it is one of the top three cities of record production in the United States. Emphasis was placed on the artistic, economic, ethical and legal implications of digital sampling for both industries and society.

The data gathered from the interviews was analyzed and compared with information contained in the review of literature. The study indicated that samplers are powerfully creative yet problematic tools for music composition and production, possessing varied artistic and economic strengths and weaknesses. The literature and the interviews also revealed that industry professionals held varied opinions regarding ethical issues raised by digital sampling, although the Nashville professionals interviewed generally held more favorable attitudes toward

the technique than those cited in the literature. Both sources further indicated that certain samples or uses could be actionable under U.S. intellectual property laws; however, specifics as to the legalities of sampling remained unclear. Finally, although the majority of professionals cited in both sources favored the development of definite guidelines or controls to prevent certain sampler uses and they proposed various solutions for the problems raised by sampling, the professionals expressed no consensus regarding the practicality or effectiveness of any of these remedies.

The researcher identified three potential problems accompanying current industry use of digital sampling: (1) No rules or guidelines govern sampling and/or its uses; (2) legal questions exist as to what may or may not be considered allowable uses, and (3) sampling may exert a negative effect on the employment of certain industry personnel, although the extent of this impact is unclear. The literature indicated that music/recording industry use of sampling displaces certain live performers; however, the Nashville professionals interviewed failed to indicate any such sampler-induced adversity.

The researcher concluded that rules concerning sampling are necessary to reduce industry uncertainty as to what is acceptable and unacceptable sampling behavior and that these guidelines are likely to develop from pending judicial decisions concerning this new technology. Additional investigation is necessary concerning the effects of sampling on the music and recording industries. Research regarding solutions to the problems raised by digital sampling is also needed.

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CHAPTER I

INTRODUCTION

Almost every modern American industry has been forced in recent years to react to technological advancement. This notion particularly applies to the music and recording industries, which have had to respond to several twentieth century innovations. One such development, the automation of music, or use of machines for music performance, has increasingly displaced live musicians during the last 60 years (Glaser, 1988). The "talkies" of the 1920s eliminated vaudeville. Phonograph records replaced live orchestras on radio. DJs with sound systems began replacing live dance bands at parties and in nightclubs. Recently, tape recorded music has ousted live orchestras as accompaniment for ballet performances.

In addition, current popular music recordings have developed a noticeably "mechanical" sound as session producers embrace new electronic equipment, such as synthesizers and microcomputers, while employing fewer "live" musicians. The newer devices are also capable of digital sampling, a technique that enables them to record, analyze and playback convincing simulations of virtually any sound (McGiverin, 1987). Music industry use of digital sampling has increased since the late 1980s, and samplers are gaining acceptance as standard equipment in the modern recording studio. As creation and manufacture of these devices improve, affordable professional-quality samplers are becoming available to the masses. Accompanying the growing popularity of sampling technology, however, are questions concerning its artistic, economic, ethical and

legal implications for the music and recording industries, as well as society.

Background

This background traces several areas associated with digital sampling that must be considered in order to properly understand the present controversy surrounding this new technology. First, the historical development of digital sampling is briefly outlined. Next, the process of digital sampling (i.e., how it works) is explained. Finally, current applications of sampling are described and the effects of such uses on industry and society are suggested. Industry reactions to musical sampling uses are also presented.

History of Digital Sampling

Although many events have influenced the development of current digital sampling technology, such a detailed recounting is beyond the scope of this thesis. Most simply, digital samplers may be described as hybrids of modern synthesizer instruments and digital recording principles. Following, then, are some highlights of the evolution of modern synthesizers.

Many researchers suggest the modern synthesizer owes its origin to early experimentation with sound storage through recording devices (Rhea, 1972; Ernst, 1977; Mumma, 1975). "The means for recording sound dates back to Thomas Alva Edison who patented the phonograph in 1877" (McGill, 1985, p. 1). Near the end of the nineteenth century, Danish scientist Vlademar Poulsen developed the Telegraphone, a revolutionary steel-wire

recorder that "marked the beginning of [the] electromagnetic recording technique" (p. 2). By 1935, magnetically coated paper-base tape had developed in Germany. Three years later, "an innovative recording system," the Magnetophon, was introduced at the Berlin Radio Fair (Camras, 1985, p. 52). Subsequent refinements in quality heightened the proliferation of both recording equipment and magnetic tape after the second world war:

Factors contributing to the pre-eminence of magnetic recording are: portability and compactness of equipment; its freedom from dependence on laboratory processing; immediate playback; cost of the recording stock plus the ability to reuse tape; ease of storage; wide dynamic range; low distortion; and excellent sound reproducing qualities. (Tremaine, 1969, p. 753)

Optical recording instruments capable of capturing and reproducing sound were also developed during the early twentieth century (Schrader, 1982). These awkward instruments simulated recorded wave forms through optical recordings on glass or film, and were used prior to World War II to create several Russian film soundtracks.

Such technological advancements in sound reproduction and storage paved the way for initial experimentation in electronic music. After World War II, composers began manipulating magnetic tape by splicing, altering record and/or playback speeds and superpositioning sounds ("overdubbing"). Such magnetic tape manipulation developed into an art form known as "music concrete" (Fryer, 1986a). The first music concrete pieces utilized only acoustic sounds (e.g., voices, piano, footsteps). As electronic music production developed in Europe, however, electronically generated sounds were used in compositions as well (Ernst, 1977).

Consequently, tape-driven musical instruments gained popularity. In Paris, the Phonogen, "a true sampling machine with keyboard control and

high sound quality," was developed (Moog, 1985, p. 76). One of the Phonogen's successors, the Chamberlain, was widely used by West Coast musicians during the '60s and '70s. Another complex, tape-driven successor of the Phonogen, the Mellotron, became an "indispensable staple of the rock keyboard arsenal" (p. 76).

The Mellotron was a large and cumbersome electronic keyboard instrument that contained a separate audio tape loop playback system for each key. . . . Unfortunately, the Mellotron was rather temperamental and unreliable, and was plagued with problems of tape hiss, pitch instability, and mechanical failure. But the tremendous power of its sound and the economy of using it--rather than a string section, flautist, or choir--led to its use by many different artists in the studio and in concert (Kaiser, 1986, p. 104)

Meanwhile, as optical recording technology was applied during the early 1950s, commercial performance instruments such as the Baldwin optical organ were invented.

The Baldwin piano company introduced an electronic organ containing several rotating glass disks, on which were recorded, on circular tracks, the waveforms of actual organ pipes. There was a light source on one side of the disk and photoelectric detectors on the other side. When you pressed a key, you moved a shutter that allowed the light to pass through the disk at one of the tracks. . . . As it turns out, Baldwin's optical organ never made the big time, primarily because the disks had to be made to incredible accuracy in order for the tones to be free of wow and flutter. It was a mechanical nightmare--big, super-precision spinning disks with dozens upon dozens of flexible linkages going to the keys. (Moog, 1985, p. 76)

In 1962, the Mattel Optigan and Orchestron, performance instruments that functioned similarly to the Baldwin optical organ, were developed. However, overwhelming financial, manufacturing and marketing difficulties surrounding these instruments soon "passed [them] into history" (p. 76).

Although electronically produced sound was not utilized in music concrete compositions until the 1950s, its origin may be traced to the turn of the century. In 1885, Ernst Lorenz patented the "Elektrisches

Musikinstrument," one of the first electronic instruments to translate electrical vibrations into sound (Schrader, 1982). Fourteen years later, English physicist William Duddell "demonstrated the transmission of sound by means of carbon arc lamps, and performed these 'singing arcs' by means of oscillating circuits controlled to form a keyboard" (Mumma, 1975, p. 287). Duddell's singing arcs were significant in that they transformed electronic music listening from a strictly individualistic experience into one that could involve groups of people. (Up until this time, the most common method of listening to electronically produced music was by telephone receiver; loudspeakers were not widely available for use before 1926.) In 1902, Thaddeus Cahill developed the Telharmonium, a large--it filled thirty boxcars--and expensive electronic musical instrument performed via telephone. In 1920, Russian Leon Termen introduced the Theremin, an instrument that generated sound by means of a "vacuum-tube beat-frequency oscillator" (p. 289). Other live electronic music instruments invented during the 1920s include the Spharophon, Dynamophone, Ondes Martenot and Trautonium:

The "Trautonium" was unusual because of its use of subtractive synthesis for sound production; it is still used in Germany in modified versions. The "Ondes Martenot," introduced in Paris in 1928, became the most widely known. Some of these instruments employed a moving-coil loudspeaker, and were thus freed from the use of telephone audition in traditional concert situations. The electronic music instruments of the '20s were not necessarily considered commercially feasible for mass production by their inventors--this despite the public enthusiasm, particularly in the late '20s, for the new products of affluence: radios, electrical recordings, appliances and automobiles. (p. 289)

In 1929, Laurens Hammond introduced a successful compact and practical version of Cahill's Telharmonium--the Hammond Organ (Schrader, 1982). That same year, Frenchmen A. Givelet and E. E. Coupleux developed "a

precursor to the modern synthesizer and computer" (Ernst, 1977, p. xxxiii). Their complex machine employed four oscillators or sound generators that were controlled by punched paper rolls much like those of a player piano. A similar device was introduced in 1955 by Harry Olsen and Herbert Belar, the RCA Mark I synthesizer. A later model, the Mark II, further resembled modern computers in that it operated on a binary number system. By the late 1950s, computers were increasingly being used as aids to musical composition and sound generation.

In the early 1960s, invention of electronic music devices proliferated, primarily among American and European engineers. Donald Buchla developed the "Electronic Music Box," a voltage-controlled instrument used primarily in studio composition; Italian engineer Paolo Ketoff introduced a portable, real-time performance instrument called the Syn-Ket (Schrader, 1982). During the mid-'60s, Dr. Robert Moog created the first universally accepted analog (continuous voltage) instrument, the Moog Synthesizer (Powell, 1986). The Moog was used primarily as a electronic production tool to create sounds that could not be produced otherwise. It was also a bulky, expensive instrument that was usually restricted to the laboratory environment. However, commercially marketed Moog synthesizers gained popularity among rock musicians during the 1970s. Within a few years, a variety of portable synthesizers were available from such manufacturers as ARP, Oberheim, Roland and Korg.

Another important contribution to electronic music took place while the Moog was being developed; Dr. Max Matthews experimented with digital sound reproduction through "sampling," the recording and binary coding of sounds at regular intervals (Powell, 1986). His research involved a

general-purpose computer equipped with a digital-to-analog converter, and operated under the same sound reproduction principles as present compact disk technology. As with Moog, the size and cost of Matthews' equipment limited its use to the laboratory setting. In 1976, however, the "first commercially distributed digital synthesizer," the Synclavier, was introduced (Schrader, 1982, p. 143). Not long afterward, several other digital systems appeared, including the Fairlight Computer Music Instrument, Con Brio ADS 200 Digital Music Synthesizer, Crumar General Development System and Alpha Syntauri Electronic Music System.

Current synthesizers are much easier to use than previous devices, and are more compact and relatively inexpensive--although prices do vary. In 1986, keyboards with built-in digital samplers ranged in price from less than \$100 for Casio's SK-1 micro-keyboard, to more than \$300,000 for a top-of-the-line, studio quality Synclavier Digital Music System (Dupler, 1986a). Now, many CD-quality samplers cost "only a few thousand dollars" (Snowden, 1989a, p. 62). Sampling units without their own keyboards are also available and can be wired "to any MIDI-equipped keyboard of the user's choice" (Dupler, 1986a, p. 74). (MIDI, or Musical Instrument Digital Interface, is the universal language used for transmitting musical data between computers and synthesizers.) A variety of drum machines capable of digital sampling is also on the market.

The Process of Digital Sampling

To understand the process of digital sampling, a working knowledge of the basic principles of sound generation is necessary.

In essence, sound results from pressure fluctuations in the air. A vibrating source (e.g., a guitar string) physically disturbs the air molecules surrounding it, creating a wave that transfers acoustic energy to some receiver (e.g., the human eardrum). Such a sound wave could be represented visually by a graph of its pressure fluctuations plotted through time. This representation of pressure variations is known as a wave form. A sound that is perceived as having a definite pitch (i.e., highness or lowness) exhibits a wave form with an almost regular pattern of pressure variation. The rate of these repeating variations is called the frequency of the wave form and is measured in Hertz (Hz). Humans are capable of hearing sounds that range from 20 Hz to 20,000 Hz (also known as 20 kHz).

The acoustical energy of sound waves can also be converted into electrical signals through devices called transducers. A microphone is a transducer--it converts mechanical energy (sound waves) into electrical signals (voltages). These voltages constantly change in synchrony with each vibration of the acoustical wave. Because these changes occur in sympathy with each sound vibration, the electrical signal is called an analog (continuous) signal.

Digital computers, however, are unable to read analog signals; sound waves must be converted into numbers (binary digits) before these machines can understand them. Hence, analog-to-digital (A/D) converters, which translate voltages into numbers, and digital-to-analog (D/A) converters, which translate digits back into voltages, are necessary if signals are to be exchanged between transducers and computers. Because the analog voltage representing an acoustical signal changes

continuously, its binary value also changes with each instant of time. Hence, voltages are measured (sampled) at equal time intervals and recorded as bits in the computer's memory. The resulting digital signal differs from its analog counterpart in that it is not a continuous wave form--only specific values for discrete intervals of time are being represented.

It may seem that audible gaps in the digital signal would result if anything less than an infinite number of samples is taken. Yet, according to Nyquist's sampling theorem, complete fidelity to an analog signal is possible if one's chosen sampling rate (the number of samples per second) is faster than twice the highest frequency contained in the analog signal (Dodge & Jerse, 1985). To accurately reproduce most musical sounds, a minimum sampling rate of 44,000 samples per second is necessary. Most digital samplers employ a sampling rate of 44.1 kHz--the same rate as compact discs.

Any sound--live or recorded--may be sampled. Once stored in digital form, a sound may be manipulated further. For example, its pitch, timing or timbre may be modified (Snowden, 1989b). Likewise, recorded material may be digitally analyzed by numerically coding the basic characteristics of any number of desired sounds. Hence, existing sounds may be "remixed," complete background tracks deleted, or new instruments added electronically. Any or all of this stored information could later be triggered by depressing certain notes on a keyboard, striking a drum head, or plucking a guitar string. During playback, it would even be possible to transplant any of the original sounds (altered or unaltered) into new musical contexts (i.e., songs or recordings). In short, such

extensive electronic processing might so mask a sound that its origin would be difficult to identify (McGiverin, 1987).

Uses and Effects of Digital Sampling

Sampled sounds are used in the music and recording industries in numerous ways. Three primary uses of digital sampling include: (1) to copy and transplant the sounds of commercially successful recordings, (2) to replace the labor costs of several acoustic musicians with a single synthesizer operator and receive nearly-equivalent sound quality for less money, and (3) to expand a growing black market of sample libraries used in place of live musicians--especially those session players in greatest demand (McGiverin, 1987).

To copy/transplant successful sounds. Freddie Bastone, a record producer/remixer associated with such acts as Nu Shooz, Judas Priest and Raw, uses digital sampling to copy the sounds of successful recordings. For example, he recently featured samples of Buddy Rich drum sounds and kick drum sounds from a Led Zeppelin [sic] album on two projects (Dupler, 1986b). Sound samples of commercially successful recordings are regular fare in many of the songs gracing contemporary pop and rap music charts. Rap group De La Soul's acclaimed Three Feet High and Rising album contains numerous recognizable "sonic snippets," including portions of Steely Dan's "Peg," TV game show themes, "rhythm and hard rock guitar licks" by James Brown, and the "Chopsticks" song (Snowden, 1989a, p. 61). "Time To Get Ill" by the Beastie Boys also features samples of several previously recorded works, including Creedence Clearwater Revival's "Down on the Corner," Billy Preston's "Nothing From Nothing," Led Zepellin's

[sic] "Custard Pie" and the "Mr. Ed" and "Green Acres" TV show themes (Gordon & Sanders, 1989a).

To reduce session costs. Growing numbers of budget-conscious record producers utilize samples to reduce session costs. The annual wages paid by U.S. and Canadian record companies to union musicians has been declining in recent years, reflecting in part the increased use of synthesizers in place of live musicians (Horowitz, 1986). "In the past, if I wanted to do a TV spot for a company, I hired a 30-piece orchestra Now I'll hire two people who each bring in a stack of equipment," describes one New York jingle composer/producer (Gordon, 1987, p. 10). Music industry displacement of acoustic musicians by machines is also well illustrated in the following:

Michael Comins, a 53-year-old New York violinist, worked in symphonies and operas, culminating with the New York Philharmonic. Then he became a studio musician instead, and continued working in major studios for 20 years. Now that lucrative and enjoyable profession has declined. "You start being called for less work," related Comins who is a founder and chief executive officer of the Recording Musicians Association. "Then you may be listening to the television and notice that a tune you did the last time you were in a studio is now an electronic track." (p. 11)

To expand black market. Digital samplers are also being used to increase a growing black market of sample libraries used in lieu of live musicians--especially those performers with distinct and interesting acoustical sounds. Phil Collins, Jeff Porcaro and Steve Gadd are three well-known drummers whose sounds have appeared in such black market libraries (DeCurtis, 1986). Other successful session players are increasingly finding samples of their own sounds competing against them and appearing on records for which they will never be paid. Consider, for example, the case of David Earl Johnson. Apparently, Johnson and

musician/composer Jan Hammer swapped favors in the studio while Hammer was writing the theme music to "Miami Vice." Johnson later claimed Hammer prominently featured unauthorized samples of his congas and other unique African drums in Hammer's recording of the immensely popular and successful theme. Johnson was neither paid nor credited by Hammer for use of the drum samples. Commented Johnson, "If your work is used you should get paid. He's [Hammer] got me and my best sounds for life, and there's no compensation" (Dupler, 1986b, p. 74). After reviewing the case, the New York chapter of the American Federation of Musicians "declined to rule on the matter, which was quietly dropped" (Jones & Dupler, 1987, p. 107).

Other uses. Digitally sampled sounds are being used with computer programs to identify pitches and subsequently transcribe them into conventional music notation (Yavelow, 1986). Samplers are increasingly being used in the compositional domain to score original works. Many composers use samplers to create, as well as imitate and perform classes of sounds. "It really is like a color palette--it enables you not only a broad selection of sound but the ability to combine textures and gestures into one single stroke," says composer Steve Horelick (Zimmerman, 1989a, p. 105). Recording studios use samplers to aid such editing and production techniques as punch-ins, voice-overs and crossfades (Owsinski, 1989). Samplers are similarly being used to synchronize and edit TV and film soundtracks (Zimmerman, 1989b). Many live performances utilize samplers to "reproduce the 'studio tracks'" and trigger sets of sounds (Owsinski, 1989, p. 35). There are countless non-musical applications of samplers, and these include voice recognition and reproduction (e.g.,

teaching correct pronunciation), industrial uses, such as sampling heartbeats, and broadcast applications of the devices to replace cartridge tape machines (Yavelow, 1986; Owsinski, 1989).

Current musical uses of digital sampling technology have garnered mixed reactions from music and recording industry professionals. Many considered samples to be damaging to the economic interests of acoustic artists and musicians--especially when used in lieu of live performers. One AFM official said, "Sampling has substantially reduced the employment of musicians. . . . If there are no jobs for people to work in while they're perfecting their art, they'll give it up, go elsewhere" (Zimmerman, 1989a, p. 102). "Excessive digital sampling on records will do powerful harm to the music business," warned British record producer Pete Waterman (Jones & Dupler, 1987, p. 107). Forecasted one industry observer, "These devices are so adept at stealing others' sounds--even styles and human voices--that composers soon will have at their disposal unlimited electronic 'sidemen' stored in computer chips" (Thompson, Wolff & Cook, 1987, p. 116).

Others countered that samples neither truly recapture nor replace live musicians; samples merely redistribute the work, creating new job categories within the industry while displacing old ones (Zimmerman, 1989a). Furthermore, one record company executive contended, some samples (e.g., James Brown screams) actually benefit certain artists by rekindling interest in their products and, thus, enhancing their careers (Gordon & Sanders, 1989a).

Some regarded samplers as boons to modern music, eliminating previous barriers to composition and performance through their

versatility and affordability to the masses. "People in their homes are scoring TV and commercials and making handsome livings at it," asserted one sampler manufacturer (Zimmerman, 1989a, p. 102). Artistically, sampling "gives us a whole world of new and expressive sounds" said composer/synthesist Brian Banks (Tully, 1987, p. 181). Added another composer/jingle writer, "[It] gives me something that I otherwise wouldn't have--the talent to play any instrument imaginable" (Bateman, 1988, p. 14). Others argued that such a proclivity toward do-it-yourself, one-man bands impairs creativity: "The fewer people involved, the fewer great ones you'll have" (Zimmerman, 1989a, p. 102).

Some viewed sampling as an essential element of musical composition and style, particularly in the rap music genre (Gordon & Sanders, 1989a; Snowden 1989a). They argued that rap requires such "cultural interaction of ideas to keep fresh and topical" (Stop thief! 1987, p. 39). In fact, one label executive deemed sampling "the lifeblood of hip-hop since it began" (Bateman, 1988, p. 15). Sampling pays musical homage to previous recordings, giving them new dimensions and meanings, rappers said (Snowden, 1989a). One might liken such sampling uses to literary quotations, they refer to, rather than steal from, original compositions (Oswald, 1988).

Others contended that such sampling, although debatably creative, constitutes thievery (Grabel, 1988). They characterized such uses as unethical, perhaps even illegal. "Ethically," said sound programmer/synthesist Brian Bell, "I feel that any original work is the property of the author, whether it is a poem, a photograph, a melody, or a sound file" (Alvaro, 1986, p. 10). According to music attorney M.

William Krasilovsky, sampling epitomized "technology trying to squeeze into copyright law where it does not fit. . . . A single recognizable note by a performer, when sampled, should also be protected" (Music Trades, 1987, p. 106).

Still others disagreed, asserting, "the sound sources are out there" and available for public use (Dupler, 1986b, p. 74). "If you add it to your own sound and it's not clearly the same thing, then you're not doing anything too bad," suggested Canadian producer David Bendeth (Bateman, 1988, p. 15). Explained producer Hank Schocklee,

"There's a difference between sampling and plagiarizing. . . . If you take a horn hit or kick drum and reprogram it, that's sampling. If you take eight or [even] two bars without permission, that's plagiarizing." (Newman, 1989, p. 24)

Added one composer/keyboardist, "while imitation of melody can invoke litigation, anyone's style is up for grabs" (Oswald, 1988, p. 20).

Many sound owners felt they could better accept sampling if they were asked permission beforehand concerning certain uses, credited on resultant recordings, and remunerated for their services. "Right now, it's all very negotiated and very negotiable terrain," admitted an Island Records executive (Snowden 1989a, p. 72). Contended one manufacturer, "Using any sample for anything other than personal, non-performance, not-for-profit purposes should require the permission of the sound owner" (Alvaro, 1986, p. 10). Guitarist Leo Nocentelli believed musicians should also be paid for sampling:

"[Y]ou're supposed to get paid for it. . . . The most you get now is, 'I heard your song . . . on an album,' and a pat on the back. I don't want just a pat on the back--pat me on the back and stick some dollars in my back pocket or something." (Snowden, 1989a, p. 72)

"Maybe the union should have a special designation for a 'sampling date' as well as a 'jingle date,'" suggested producer Arif Mardin (Dupler, 1986b, p. 74).

Thus far, the musicians union has neither specified payment rates for digitally sampled performances, nor taken an official position regarding musical use of this new technology (McGiverin, 1987). No industry standards exist for obtaining authorization or determining compensation for samples of live or recorded works.

Consequently, much of the reaction toward digital sampling has focused on legal issues raised by its use. Several musicians have turned to U.S. copyright and other laws for protection from allegedly damaging or illegal sampling. Disputes concerning use of this new technology have flurried.

In late 1987, Island Records filed an infringement suit against Plateau Records concerning the latter's use of the phrase "pump up the volume," which was featured on the former label's recording, "I Know You Got Soul" (Rosenbluth, 1987). Island alleged that Plateau's release, "My Love is Guaranteed," contained unauthorized samples of the vocal performance of the four-word phrase. However, "the issue was never resolved [in court] because the suit was settled" (Soocher, 1989, p. 26).

The first sampling suit expected to "set some legal precedents for future uses of the technique" was filed against the Beastie Boys in 1987 by Jimmy Castor (Snowden, 1989a, p. 61). The suit, which has not yet come to trial, concerns samples of the phrase "Yo, Leroy!" and some drum beats from Castor's '70s song, "The Return of Leroy (Part I)." The samples were featured in the Beastie Boys' cut, "Hold It, Now Hit It."

Castor's suit alleges copyright infringement, unfair competition and "failure to correctly attribute ownership of a song" (Soocher, 1989, p. 26). Castor is seeking a permanent injunction against further manufacture and sale of the Beastie Boys' recording and a minimum of \$250,000 in damages, plus profits.

Similarly, the Turtles, a '60s supergroup, filed suit in July 1989 against rap group De La Soul, claiming a 12-second, four-bar section of their recording, "You Showed Me," was manipulated (looped) to form the 66-second musical background of the rappers' hit, "Transmitting Live From Mars" (Snowden, 1989a).

In an effort to protect his rights and discourage possibly illegal uses of his works, Rykodisc USA artist Frank Zappa has requested that the following warning appear on all of his releases: "All rights reserved. Unauthorized reproduction/sampling is a violation of applicable laws and subject to criminal prosecution" (Torchia, 1987, p. 64). In the meantime, although many legal experts believe digital sampling may violate the statutory rights of certain musicians and/or copyright owners, the issue remains unclear.

CHAPTER II

EXPLANATION OF THE STUDY

Statement of the Problem

Digital samplers are electronic instruments that may analyze, record, manipulate and playback digitized simulations of virtually any sound. They have grown in popularity among professionals in the music and recording industries and have become increasingly affordable to members of the general public. However, current uses of these controversial devices are raising complex questions for both industries and society. How should samplers be used? Are current uses ethical? Are they legal? What artistic and economic implications does sampling pose for industry and society? Should sampling be controlled in any way? Should songwriters and artists be protected against certain sampling uses? Who should reap the economic benefits of sampling live musicians? Of sampling pre-recorded works? Who is the owner of a sample? For that matter, who owns a sound? Can individual sounds be owned?

Other authors have examined the controversy surrounding digital sampling through interviews with industry professionals who are knowledgeable about this new technology (see generally: Berman, 1989; Gordon & Sanders, 1989a, 1989b, 1989c, 1989d; Bateman, 1988; Pareles, 1986). Experts representing various industry professions have been interviewed--attorneys, label executives, performers, producers, songwriters, synthesizer manufacturers--and four main areas of concern

raised by current uses of digital sampling technology have been identified: artistic, economic, ethical and legal.

Accordingly, this study attempted to document the attitudes of select Nashville-area music and recording industry professionals toward digital sampling, its uses and implications for industry and society. The professionals chosen held a range of music and recording industry occupations that were most directly associated with sampling technology. Emphasis was placed on the artistic, economic, ethical and legal implications of digital sampling.

Significance of the Study

Although popular literature concerning digital sampling is abundant, little scholarly research that examines the implications of this new technology has been conducted. In addition, no systematic academic research concerning the attitudes of diverse music and recording industry professionals toward digital sampling was found in the literature. Nor was research found that assessed the opinions of Nashville-area professionals concerning sampling.

Such an assessment of the implications of digital sampling and of the views of those persons most knowledgeable about this technology is necessary for thorough understanding of the controversy at hand. Only with such understanding may the conflicts posed by sampling--and other new technologies--be satisfactorily resolved.

Accordingly, this study bears significance for music and recording industry professionals. Greater understanding of the uses and implications of digital sampling may benefit professionals from both

industries, and may serve to improve inter-industry cooperation as similar technologies develop and flourish.

This study is equally important for lay citizens, who should be aware of the issues affecting performers and authors today. Resolution of these issues ultimately affects every individual, altering the type and quality of intellectual property available for public use and enjoyment.

This study also bears historical import. Digital sampling is a by-product of the technological era currently reshaping industry and society. Emerging technologies like sampling "generate a whole range of new social, economic and cultural opportunities" (OTA, 1986, p. 8). How technological change affects industry and society, as well as how these groups respond to such change, should be of interest to academicians.

In addition, digital sampling, like other new developments, introduces a host of legal complications. More specifically, sampling exemplifies a technological area for which U.S. copyright legislation may be ill-suited. In fact, resolution of the legal issues surrounding digital sampling may reshape the present intellectual property system. Hence, because the sampling controversy concerns the notion of American law accommodating technological change, this study may also be of interest to legal scholars.

Methodology

A descriptive study is one that "attempts to picture or document current conditions or attitudes, that is, describe what exists at the moment" (Wimmer & Dominick, 1987, p. 102). One method of documenting the current industry environment regarding digital sampling is by interview.

There are several advantages to the interview methodology. First, it is the most flexible means of obtaining information. Interviews allow freedom for questioning in depth, as well as answering in detail. The interviewer is able to restructure or clarify questions, probe subjects, and follow up on unclear responses. Hence interviews are appropriate for gathering information concerning a respondent's feelings or attitudes. Interviews are further useful as a pilot technique, demonstrating areas where additional research is needed. They may employ open-ended questions, allowing for responses that the researcher might have originally overlooked if a different question format (e.g., multiple choice) was used, as well as suggesting possible relationships between other answers or variables. Interviews also permit the researcher to develop a rapport with each respondent. Other advantages of interviews include their ability to control the identity of respondents and achieve good response rates (Wimmer & Dominick, 1987).

However, limitations are inherent to this research design, and these include its inappropriateness for the gathering of quantitative data, lack of external validity, possible interviewer bias, and poor sample characteristics (samples may be unrepresentative). Yet, interviews may suggest hypotheses for further research. For purposes of this study, then, the virtues of this research method outweigh its limits.

In-depth personal and telephone interviews with Nashville-area music and recording industry professionals formed the focus of this study. Nashville was chosen as the location for study because it is one of the top three cities of record production in the United States (New York and Los Angeles are the others). The individuals interviewed represented the following music and recording industry professions:

1. copyright/entertainment attorney
2. music business scholar
3. music publisher
4. musical instrument/equipment retailer
5. musician
6. record company executive
7. record producer
8. recording engineer
9. songwriter

Because they typify those people who are most affected by current uses of digital sampling and who may affect future uses of it, these professionals' views concerning the artistic, economic, ethical and legal implications of sampling are important. Surely their field experiences, if not their occupations alone, have forced these experts to formulate opinions concerning this new technology.

Through the interviews the researcher explored the following:

1. the professionals' overall attitudes toward digital sampling and its uses;
2. their experiences with sampling--how they've used it and/or been affected by its use;

3. the advantages/benefits or disadvantages/drawbacks they associate with digital sampling;
4. their general assessment of the current environment (e.g., the impact of sampling on the music and recording industries);
5. their suggestions for solutions to possible problems raised by digital sampling.

The information gathered from the interviews was analyzed and compared with information contained in the review of literature. In the summary, the researcher attempted to identify some problems posed by current industry conditions accompanying the use of digital sampling and to suggest some solutions to these problems.

CHAPTER III

DISCUSSION OF COPYRIGHT LAW

Much of the controversy surrounding digital sampling technology has focused on legal issues raised by its use. Many legal theories have been used to analyze digital sampling issues, although examinations of sampling under current intellectual property (i.e., copyright) law dominate such analyses. Accordingly, a presentation of the historical and fundamental principles of U.S. copyright law follows. Some implications of new technologies such as sampling on future intellectual property policy are also discussed.

History of Copyright

Present American copyright law concerning artistic and literary property has roots dating back to 16th century England. In 1566, the Stationer's Company, a monopolistic group of publishers in London, was created by royal decree to control the dissemination of information. Every published work had to be registered under the name of a member stationer, who claimed all exclusive printing and publishing rights to the works. Eventually this ban was lifted, and as the number of independent publishers increased, plagiarism and piracy grew.

Consequently, authors and printers turned to Parliament for protection and the first copyright law, the Statute of Anne, was passed in 1710. In fact, the Statute of Anne expressly identified authors as proprietors of copyright, entitled to "a term of exclusivity for benefitting [sic] from their works" (Glassman, 1978, p. 13).

After the American Revolution, statutes were enacted in all American colonies (except Delaware) to grant greater protection to authors. Yet these statutes' power was restricted to the confines of each state, and it soon became apparent that national copyright legislation was needed.

Hence, in 1790, Congress enacted its first copyright law, protecting maps, books and charts for a 14-year term with an optional renewal term of an additional 14 years. (Article I, section 8 of the U.S. Constitution grants Congress the power to pass copyright legislation "to promote the Progress of Science and Useful Arts.") Eventually, this statute was revised and the Copyright Act of 1909 became the operable law of the land.

The latest revision of U.S. copyright to date, the Copyright Act of 1976, is found in Title 17 of the United States Code. The Act took effect on January 1, 1978 and arose in part to accommodate authors' demands for increased protection in light of rapid technological change. Although much of the substance of the 1909 Act remains in the Copyright Act of 1976, the new statute differs significantly from previous ones in that it provides: (1) a single federal system of protection for all copyrightable works, published or unpublished; (2) a single, more lengthy term of copyright duration; (3) stronger, more clarified exclusive rights for all copyright owners; (4) extended protection for copyright owners of sound recordings, although a sound recording performance right was specifically denied, and (5) a fair use limitation on exclusive rights (Latman, Gorman & Ginsburg, 1985; Baskerville, 1985).

Principles of Copyright

In its simplest sense, copyright literally means both the "right to copy" and the "right to control" (Glassman, 1978). Legally, a copyright is a special form of personal intellectual property that "is incapable of possession except as it is embodied in a tangible article such as a manuscript, book, record, or film" (Latman et al., 1985, p. 11). The primary purpose of copyright law (as revealed by the Constitution) is to create an environment such that learning and culture may flourish and benefit the public welfare. Granting artists and writers exclusive rights to their works for limited times is one means of fulfilling this purpose. A similar yet secondary goal of copyright is to remunerate authors for their contributions to society, encouraging them to further create works that may benefit the public.

According to the Copyright Act of 1976 (hereafter referred to as the "Copyright Act" or "the Act"), copyright subsists in original works of authorship that are "fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device" (Copyright Act, 1976, Section 101). ("Un-fixed" works--improvisation, unrecorded performances--are protected by state laws or "common law" copyright rather than federal statute.) Categories of works that are eligible for copyright protection include (1) literary works, (2) musical works (and accompanying words), (3) dramatic works (and accompanying music), (4) pantomimes and choreography, (5) pictorial, graphic and sculptural works, (6) motion pictures and audio-visual works, and (7) sound recordings.

Neither novelty nor aesthetic merit is required for a work to be copyrightable, and the statute does not preclude two authors from independently producing identical works. To qualify for copyright protection a work simply must be (1) tangible, (2) original (i.e., not plagiarized), and (3) creative (this concerns the author's way of expressing the work). Furthermore, copyright does not "extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in [a] work" (Copyright Act, 1976, Section 102). In short, copyright does not protect mere ideas, although an author's expression of those ideas may be protected.

Generally, the creator of a work is considered its author and copyright owner for purposes of the statute. Copyright subsists in such a work for the lifetime of the author plus an additional fifty years after his death. However, in the case of a work made for hire, an employer or other person for whom the work was prepared is considered its author and copyright owner. A work made for hire may be defined as "a work prepared by an employee within the scope of his or her employment," or a specially commissioned work of a certain kind (e.g., compilations, instructional texts) for which the parties have agreed in writing that it is to be considered a work for hire (Copyright Act, 1976, Section 101). The term of protection for works made for hire endures either 100 years from their date of creation or 75 years from their date of first publication, whichever expires earlier.

Section 108 of the Copyright Act grants five exclusive rights to the owners of a copyright; they may do or authorize others to do any or all

of the following: (1) to reproduce the work in copies or "phonorecords" (the material objects in which sounds are fixed), (2) to distribute the work publicly, (3) to display the work publicly, (4) to perform the work publicly (except sound recordings), and (5) to prepare derivative works based upon the protected work. Revisions, translations, adaptations and musical arrangements are all examples of derivative works. These works are eligible for copyright protection, but only in the new material they bring to an original work of authorship.

[C]reation of a derivative work based on another person's work [does not] entitle the author of the derivative work to a copyright in the underlying work. Moreover, if the earlier work is still covered by copyright, the second author must generally secure the first author's permission in order to obtain protection for the new matter in the derivative work. (Latman et al., 1985, p. 29)

Section 114 of the Act sets forth the exclusive rights of copyright owners of sound recordings. Since the passage of Public Law 92-140 in 1971, which was incorporated into the 1976 Act, sound recordings created on or after 1972 have been eligible for copyright protection. (Pre-1972 works are protectable under state law until the year 2047.)

The term "sound recordings" refers to the class of works consisting of an aggregation of musical, spoken, or other sounds that have been fixed in tangible form (e.g., records, tapes, disks). However, it is the aggregation of sounds and not the form of fixation that comprises the protectable element of a sound recording. In other words, sound recordings "as copyrightable subject matter are distinguished from 'phonorecords,' the latter being physical objects in which sounds are fixed" (Shemel & Krasilovsky, 1985, p. 5). Sound recordings are further differentiated from any underlying works (e.g., musical compositions) embodied in a phonorecord.

The copyrightable elements in a sound recording will usually, though not always, involve "authorship" both on the part of the performers whose performance is captured and on the part of the record producer responsible for setting up the recording session, capturing and electronically processing the sounds, and compiling and editing them to make the final sound recording. There may, however, be cases where the record producer's contribution is so minimal that the performance is the only copyrightable element in the work, and there may be cases . . . where only the record producer's contribution is copyrightable. (Latman et al., 1985, p. 75)

Unlike other copyright owners, the copyright owner of a sound recording has limited exclusive rights: (1) to reproduce or duplicate the actual sounds fixed in the recording (although other authors are allowed to independently imitate or mimic these sounds, as in sound-alike recordings), (2) to distribute the work publicly, (3) to publicly display phonorecords of the work, and (4) to prepare derivative works based on the actual sounds fixed on the sound recording. Notice that a performance right was specifically denied. Consequently, whereas copyright owners of musical works (songwriters) may license the performance of their works and receive royalties from broadcasters for resulting air play, the copyright owners of sound recordings (i.e., producers, performers), absent any rights in the musical compositions, are not entitled to performance royalties. The musicians union (AFM) and vocalists union (AFTRA) have lobbied strongly for such a performance right, as has the Recording Industry Association of America (RIAA), a trade organization. However, Congressional support "continues to lack sufficient strength to pass such a bill" (Baskerville, 1985, p. 91).

The bundle of rights set forth by the Act--reproduction, distribution, display, performance, adaptation--is subject to certain limitations. One limitation on exclusive rights is known as "fair use,"

special uses of copyrighted material that would normally be illegal but are allowed because they particularly benefit the public and do not substantially harm a copyright owner's economic interests. Criticism, commentary, satire, parody and news reporting are examples of such uses. However, the following factors are also considered in determining whether a particular use is a fair one: (1) the purpose and character of the use (commercial v. non-profit educational), (2) the nature of the protected work (informational v. commercial), (3) the amount and substantiality of the portion used in relation to the work as a whole, and (4) the effect of the use on the potential market for or value of the protected work. "A defendant invoking the fair-use defense must establish that the balance of [these] statutory and any additional judicial criteria weighs in his or her favor" (Latman et al., 1985, p. 35). Other limitations on exclusive rights include fair performances (i.e., by teachers during face-to-face instruction), fair reproduction (i.e., by libraries and archives), and fair sound recordings (i.e., by non-profit organizations).

Unauthorized uses of protected works that do not constitute fair use or other legal limitations on exclusive rights are deemed infringement under Section 501 of the Copyright Act. The burden of proof in an infringement suit rests on the plaintiff, who must show ownership of a valid copyright or exclusive right and that copying was performed by the defendant. In absence of direct evidence of copying, plaintiffs may meet the second element of proof by showing both access of the infringer to the original work, and that the infringing work bears at least substantial similarity to the protected work.

Plaintiffs may pursue any or all of the following remedies to infringement under the Act: (1) injunctions, (2) impoundment and/or destruction of the infringing articles, (3) court costs and attorney's fees, and (4) damages, or monetary compensation equivalent to either the copyright owner's actual losses plus the infringer's profits or a separate amount determined by the court. In cases where courts find infringement was committed willfully, statutory damages may be awarded up to \$50,000; awards in cases of innocent infringement may be as little as \$100. Penalties for criminal infringers, those persons found to have willfully infringed copyrights "for purposes of commercial advantage or private financial gain," include a maximum fine of \$25,000, imprisonment for up to one year, or both (Copyright Act, 1976, Section 506). Criminal infringement of the copyright in a sound recording is a felony and is punishable by fines of up to \$250,000 and/or imprisonment up to five years.

Future of Copyright

Current copyright law stands at a crossroads. Technological progress, which prompted Congress to draft the Copyright Act of 1976, is advancing at such a rapid pace that it is likely to "alter significantly how society views intellectual property, the mechanisms employed to protect it, and the value that society places on intellectual properties, both as market goods and as public resources" (Office of Technology Assessment, 1986, p. 20). No doubt, emerging information and communication technologies are already changing the rules of the game, or "ways in which intellectual works are created, produced, marketed, and

distributed" (p. 15). These new technologies share four common characteristics:

1. a trend toward the increasing importance of display and performance for the dissemination of works;
2. widespread consumer ownership of instruments for the use and copying of display and performance;
3. growing doubt or ambiguity about the applicability of copyright control and the unchecked spread of unauthorized uses;
4. a "practical impossibility of enforcing traditional copyright rights by traditional means against uses which are increasingly private, not readily detectable, and yet enormous in scale" (Ladd, 1985, p. 414).

Many artists and writers are raising fundamental questions about the intellectual property system, fearing it already may be unable to adequately protect their interests. Hence, Congress and other groups have begun researching the general impact of increasing technological change on intellectual property policy. Issues raised in the research to date include how present laws should attempt to accommodate change, preserve existing rights, and balance the competing demands of consumers and proprietors.

Some committee members suggested that the definition of intellectual property be broadened and that copyright law be "radically reconstructed" with a sense of the future in mind (Committee on the Judiciary, 1983, p. 29). Others characterized current copyright law as "either outmoded or increasingly unenforceable" (p. 23) and proposed that future legislation be flexible and general, without anticipating any specific changes in response to new technologies.

Former U.S. Register of Copyrights David Ladd suggested that future legislation be drafted broadly enough to encompass new technologies as they emerge, "with any limitations specifically enumerated and defined" (Ladd, 1985, p. 415).

If copyright laws are to master or even survive the onslaught of new technologies, they must be framed in broad terms to relate the various rights of which copyright is composed--reproduction, distribution, display and performance--so as to comprehend later unanticipated uses and to make this purpose an explicit objective of the laws. (p. 416)

Most recently, the Chairman of the Subcommittee on Patents, Copyrights and Trademarks urged Congress to maintain a historical perspective in examining intellectual property policy, so that it might best decide "when it is prudent to let the law take its own course, and when it is necessary to rechannel it through a different path" (Committees on the Judiciary, 1986, p. 2). OTA Project Director D. Linda Garcia also recommended that Congress examine copyright law, not in isolation, but in consideration of the full range of activities and relationships it governs. She suggested that Congress not yet revise existing law, but rather that it establish an institutional mechanism to gather and evaluate information about how the intellectual property system presently operates.

Should Congress revise or amend intellectual property policy, it has been advised to do so slowly. Cautioned one informations industry spokesperson: "When you are legislating on the cutting edge of technology, the all-important thing is to stay behind the blade" (Committee on the Judiciary, 1984, pp. 171-172).

CHAPTER IV

REVIEW OF THE RELATED LITERATURE

For the topic of this study, previous research has been categorized and will be presented as follows: First, artistic and economic effects of electronic technologies (i.e., digital sampling) on music and its related industries are discussed. Next, ethical and legal implications of digital sampling on copyright and other laws are assessed. Finally, possible solutions offered for the problems posed by digital sampling are presented.

Artistic and Economic Effects

Several authors have considered the artistic and economic impact of technology on music and industry. In a New York Times article, Holden (1987) argued that contemporary recordings lack a "sweetness and sense of human proportion" (p. 22) found in the recordings of fifty years ago because of technology's influence on popular music. Holden named convenience as the primary factor "popularizing the computerized rhythms and synthetic textures that now dominate many pop records," and suggested that although technology offers new opportunity for flexibility and creativity, few contemporary composers and producers "have begun to make music that transcends formulas" (p. 22). Holden criticized "the relentless mechanization of pop" as adversely affecting the livelihoods of many musicians, and simultaneously exemplifying "how, once a quicker way of discharging a task is devised, it is put to use, regardless of how well it really works" (p. 22).

In another New York Times article, Rockwell (1986) noted that consumer sales of electronic instruments have increased, and these devices are frequently being used in film scores, television themes, live concerts, and jingles. Rockwell further conveyed the potential of such instruments for supplanting traditional (acoustic) instruments. However, he suggested that electronic devices pose "a less direct threat to conventional musicians and open up radical new compositional possibilities" (p. C19) when used to create novel sounds. Rockwell concluded that "for contemporary . . . commercial and 'serious' [music], acoustic and electronic instruments are likely to coexist" (p. C19).

In a Billboard editorial, Glasel (1988) argued that the increased use of machines for music performance is displacing hundreds of live musicians. Glasel, currently president of the New York chapter of the American Federation of Musicians, acknowledged that advancing technology offers such benefits as convenience, reduced costs and unlimited artistic or creative applications, yet cautioned that "today's economic savings may gravely impoverish our cultural future by reducing the pool of talent from which tomorrow's music will arise" (p. 6).

In an article for Technology Review, Gordon (1987) reported that the employment of sound engineers, technicians and copyists, as well as musicians, is declining because of a growing trend toward automation in music. She cited several musicians who acknowledged that the decision to use machines in place of live performers is "often based on commercial rather than aesthetic grounds"; thus the "culture of music" may suffer in the process (p. 11). Gordon suggested that some musicians are "coping" with the situation by learning to use the new technology themselves.

In an article for Business Week, Thompson, Wolff and Cook (1987) characterized electronic instruments as having "revolutioniz[ed] the way music is played, composed, studied--and enjoyed" (p. 114). They noted that while instruments like samplers have become increasingly affordable and popular, the devices have also aroused controversy among professional musicians. The authors reported that some musicians worry samplers will put them out of work; others fear the devices will artistically hinder music as "the new crop of musicians becomes even more dependent on [them]" (p. 116). However, the authors suggested that most musicians view samplers as powerfully creative tools that will change musical trends and styles.

Several authors have discussed the artistic implications of digital sampling on music production. In an article for Electronic Musician, Tucker (1989) suggested that samplers offer amateur and professional enthusiasts tools for making "unique, individual sounds that [can] add an original flavor to [their] music" (p. 51). Tucker illustrated how through sampling, even ordinary household objects can become instruments--a pill bottle half-filled with M&Ms, when shaken, transforms into a cabasa; a wide, flat wooden board smacked against a couch cushion simulates a kick drum; a glass soda bottle filled with water, when blown across the top, becomes a "breathy" flute.

In another Electronic Musician article, Oppenheimer and Carlberg (1989) reported that samplers may help sounds from the great outdoors appear in contemporary music as well. The authors indicated that although many environmental sounds have not been widely used in modern composition, advances in the quality, compactness and durability of

digital equipment has enhanced the accessibility of such sounds, and enabled them to be recorded and reproduced with incredible accuracy. For example, samples of mountain gorillas, whales, birds and fish were recently featured on two "instrumental" dance singles by the Rykodisc label.

In an article for Mix magazine, Tully (1987) presented sampling's artistic implications, as expressed by "some practitioners of the sampling craft" (p. 49). According to Tully, the practitioners characterized samplers as aids to both sound synthesis and resynthesis in soundtracks and film scores. They stressed that any sampled sounds--human voices, animal noises, billiard balls, doors slamming, refrigerator grates, garden weasels, wine glasses, brake drums--can be shaped, changed and mixed "until they become as musically useful as possible" (p. 51).

In an article for Canadian Composer, Oswald (1988) suggested that samplers are merely tools to facilitate borrowing from other musicians, and that such borrowing "is a fact in creating music, as old, perhaps, as music itself" (p. 18). He acknowledged that the resultant recordings may affect any previous works sampled, although this effect need not necessarily be harmful--the original works may actually gain in popularity and importance through such "recycling." Maintained Oswald: "While imitation may glut a market, transformation can revitalize it" (p. 18).

Similarly, in a Los Angeles Times article, Snowden (1989a) featured the views of industry professionals who argued that, just as recent sampling has benefited many early R&B performers, creative uses of the

technique may give new dimensions to original songs by placing them in different contexts.

Many authors have considered sampling's artistic and economic influence on the music business. In an article for the New York Times, Pareles (1986) cited two important effects of sampling: unparalleled artistic flexibility and decreasing employment of studio and concert musicians.

In a Music Scene article, Bateman (1988) characterized the "panic over samplers . . . [as] a knee-jerk reaction to yet another brave new technological advance that's forever altering the nature of music-making" (p. 15). He described samplers as "fast, precise and endlessly flexible compositional tools" as well as "time, money and labour-saving [sic] devices for composers, producers and engineers" (p. 14).

In an article for International Musician, Weissman (1988) reported that samplers are currently being used in low-budget films and made-for-television movies, yet the devices will eventually "find their way into higher quality television shows and feature films" (p. 17).

(International Musician is an official publication of the American Federation of Musicians.) Weissman suggested that sampling's greatest attraction lies in its potential for "greater experimentation and creative growth" (p. 18) on the part of composers, songwriters and home studio owners. He speculated that, artistically, listeners can "anticipate exciting developments" as composers and artists "combine electronic and acoustic sounds to create a whole new set of musical colors" (p. 18). Economically, songwriters may look forward to great savings as the devices allow for the creation of virtually professional-

sounding demos--even at home. At the same time, Weissman predicted that advanced technologies like sampling will redefine the recording process and threaten the livelihoods of certain studio owners and musicians. He described the sampling of live musicians as representing "a whole other category of 're-use' that has little in common with what was meant when . . . union agreements were devised" (p. 17).

In a New York Law Journal article, Gordon and Sanders (1989a) featured the reactions of a panel of music business professionals to artistic and economic issues raised by digital sampling. The authors reported that opponents of sampling criticized the technique as capitalizing on the public's recognition of original recordings to sell new works--"without compensating the creators" (p. 5). Proponents countered that sampling pays homage to original creations and often enhances or rejuvenates sales of these work and is central to the "evolution" of new music. They also argued that sampling prohibitions "would have a severe chilling effect on the development of new arts and artists" (p. 6).

Zimmerman (1989a) discussed artistic and economic concerns of music and recording industry professionals regarding sampling in an article for Variety. He reported that composers' attitudes toward the creative aspects of sampling were positive, although most individuals seemed to favor the sound quality of live performers over samples. Zimmerman described the musicians union as wary of sampling, ultimately fearing it might displace live performers and impair musical creativity. Synthesizer manufacturers stressed that current samplers cannot yet identically simulate acoustical sounds, although as the technology

advances, the quality of imitation is expected to improve. They argued that "[any] musician worth his salt knows how to use both his own instrument and digital technology" (p. 102), and suggested that samplers may also create new jobs for the industry. Generally, the manufacturers characterized samplers as time and money savers. Zimmerman noted that, for the most part, music producers seemed to side with the manufacturers, although many producers suggested that working with samplers on certain projects can be equally as expensive as hiring live musicians.

In an article for Grammy Magazine, Berman (1989) reported the reaction of a panel of industry experts toward economic issues raised by the use of samples of pre-recorded sounds. The panel reached no consensus concerning the amount of compensation due such samples: Music publishers pushed for the "full statutory copyright fee or mechanical license fee" (p. 11); musicians and producers objected. Berman generally characterized record companies as holding a "centrist" view toward the sampling of pre-recorded works: "Their attitude seemed to be, go ahead and use it after you get permission from us to do so. We will expect the same from you" (p. 11). The issue of sampling live performances was not raised by the panel, and Berman indicated that "no formalized procedure" (p. 31) regarding compensation for such samples exists. Consequently, he suggested that although courtesy may dictate that session players be paid for such sampling, most musicians are not.

To summarize, the literature indicated that digital sampling is an extremely flexible compositional tool with many artistic and economic advantages. Sampling proponents suggested the technique may aid in changing musical styles or trends when utilized by artists/composers to

create innovative sounds. Sampling may also facilitate the borrowing of musical "ideas" of pre-existing recordings, aesthetically benefiting the art of music while economically profiting the authors and performers of the underlying works used. Composers particularly expressed highly favorable attitudes toward sampling, pointing out that the technique allows for almost any sound to be used "musically." Proponents of samplers also characterized the devices as precise, cost-efficient aids to both home and professional studio users.

However, drawbacks to sampling were also revealed in the literature. Sampling's opponents suggested that its greatest disadvantage lies in its potential for displacing live musicians and other industry personnel. Moreover, they pointed out that sampling is a relatively new technology that is yet to be refined; thus, in some instances, using samplers may actually be more expensive than hiring live players. Those opposed to sampling also faulted the technique as being detrimental to the progress of the arts and they suggested that sampling encourages artists/composers to rely heavily on existing musical ideas rather than being innovative. In addition, they contended, musical borrowing through sampling hurts creators while allowing others to profit from their works.

Ethical and Legal Implications

Many authors have examined the ethical and legal impact of emerging electronic technologies on copyright and other laws.

Alvaro (1986) analyzed the reactions of sound programmers to ethical and legal issues raised by digital sampling. Many of these individuals espoused the idea of samples as "shareware," or sounds that should be

available for artists' personal use, suggesting that such a structure positively influences music. Some programmers limited their support to "legal uses[s] of public domain and traded sounds" (p. 10), maintaining that other uses or samples should require the permission of appropriate sound owners. Alvaro described non-synthesists as "horrified at the idea of being surreptitiously sampled and used in someone else's music, although many musicians said they would consent to doing a sampling session if they were paid" (p. 157). Generally, she characterized sampling as "a volatile issue . . . that is not easily resolved," and suggested that most musicians "take stands on both sides [of the issue], some of the time" (p. 10).

Snowden (1989a) featured the reactions of industry professionals to ethical and legal issues raised by digital sampling. He characterized sampling as further complicating the already "cloudy issue of borrowing within pop music" (p. 62). Snowden reported that, whereas critics of sampling acknowledge the technique's creative applications, they oppose the taking of entire phrases from previous recordings for use as foundations for new songs. Those who sample "may have an ownership interest in the total collage they've created, but it doesn't give them any ownership [or rights to] the works that make up the collage," argued one attorney (p. 62). However, Snowden reported that many industry experts suggested it is not unusual for people who sample to "quietly" obtain the necessary clearances from publishers and record labels in advance.

Berman (1989) featured the reactions of industry professionals toward ethical and legal issues raised by use of samples taken from pre-

recorded works. Generally, their reactions were contradictory and inconclusive. Berman suggested that musicians and producers didn't view such sampling as unethical; they surmised that it might even help certain artists' careers. He described record companies and music publishers as skirting the issue and suggested that they may be reluctant to act against non-rostered artists for infringement of label-controlled works, fearing that other copyright owners would sue them if the circumstances were ever reversed. Berman theorized that copyright liability for unauthorized sampling may extend to the producer, recording engineer, recording studio, record company and artist, as well as the composer.

Oswald (1988) praised samplers for offering composers artistic control over their compositions, yet cautioned, "the price of artistic control . . . is legal protection" (p. 18). He stated that: (1) technology has made it easier for musicians to "steal" from each other, (2) there is meaning in even the shortest durations of sound recordings, and (3) there is no minimum length of duration at which sounds become eligible for copyright protection. Oswald suggested that "creativity is a field [and] copyright is the fence" (p. 20); hence, composers avoid confrontations with sound owners by carefully disguising their samples of recordings. However, Oswald maintained that sampling is not theft, and expressed concern that "rigid copyright enforcement would restrict the healthy practice of trading sounds" (p. 20).

In a Billboard article, Dupler (1986b) posed several legal questions to music business professionals regarding industry use of digital samplers: Is sampling theft? Do isolated sounds constitute musical

performance? However, the professionals offered no consensus of opinion regarding these issues.

In an article for the National Law Journal, Soocher (1989) featured reactions of various industry professionals to legal issues raised by digital sampling. Again, no consensus regarding the legality of sampling was offered. Soocher surmised that a sample created from only a small portion of a copyrighted work may still be considered infringement, "if the sample constitutes the 'essence' of the original work" (p. 26). At the same time, he argued that "fair use" may be raised as a defense for sampling. Soocher advocated that, in establishing a fair use defense, the effect of the use on the economic value of the protected work "is the most important element" (p. 26) of the four-part test, and concluded: In cases where the portions sampled are minimal, it may effectively be argued that the probability of the new work exerting a negative impact on the market for the original is marginal at best.

In a Rolling Stone article, DeCurtis focused on questions concerning ownership of individual sounds. He concluded that, whereas copyright laws protect specific performances, it is unclear whether artists' particular sounds are equally protected.

In a Billboard article, Newman (1989) highlighted some legal complications posed by sampling, as discussed by a panel of recording industry professionals at a music seminar in New York. She also concluded that the legal ramifications of sampling remain unclear.

In a California Law Review article, Kent (1988) suggested that legal disputes may arise when digital samplers are used to "[recycle] fragments

of sound, often recorded by other musicians," yet concluded that "the copyright implications of this compositional tool remain ambiguous" (p. 427).

In a New York Times article, Pareles noted that disputes involving digital sampling "may demand new definitions of originality in music" (p. C23).

In a Billboard editorial, Grabel reasoned that, for samples of recorded material, the resultant recording, "though a hybrid of an old sound and a new composition, is arguably an original work" because it borrows a quality of sound from the previous recording--"not an element of musical composition" (p. 9). He admitted that the copyright implications regarding the use of digital sampling technology are yet to be thoroughly tested in court.

In a series of articles for the New York Law Journal, attorneys Gordon and Sanders discussed sampling's legal implications. They argued that "sampling does not present novel issues of copyright law" (1989b, p. 42); rather, the legal framework is already in place to balance "the rights of copyright owners and creators against those who sample" (1989a, p. 5). However, Gordon and Sanders suggested that such laws haven't been widely applied to the sampling issue for a variety of reasons: (1) record companies are reluctant to file suits because of a "marketplace reality that today's plaintiff is often tomorrow's sampler" (1989d, p. 5); (2) litigation is expensive, and (3) most sound owners are unaware any taking has even occurred--most samples are manipulated beyond recognition, and few applications for licenses to sample are actually filed with music publishers and record companies.

In an article for Keyboard magazine, Fryer (1989b) featured the opinions of entertainment attorney and former Broadcast Music Inc. (BMI) officer Elizabeth Granville concerning legal aspects of digital sampling. (BMI is one of three American agencies that grants musical performance licenses and distributes the resultant royalties to affiliated songwriters and publishers.) Granville stated that copyright law "clearly" views the sampling of pre-recorded works for one's personal, private enjoyment as fair use; however, similar sampling for private gain or commercial advantage would require authorization from the copyright owner(s) of both the composition and the sound recording. Granville suggested the law applicable to the sampling of live performances is less clear, although "there may still be a claim from the record company [that artists are] signed to" (p. 120). She stated, "There is no copyrightable minimum for the length of a piece of music" (p. 120), and suggested that unauthorized samples of any duration may constitute infringement-- regardless of whether the sounds taken remain intact or are subsequently altered.

In a Billboard article, Holland & Dupler (1986) presented the opinions of nine attorneys as to whether digital sampling constitutes copyright infringement and violates one or several of the exclusive rights granted under the 1976 Act. The authors discovered that seven of the attorneys were convinced that sampling violates a copyright owner's right to reproduce his work and/or to prepare derivative works based on the original. All of the attorneys, however, differed in speculations about the "outcome of future lawsuits resulting from sampling" (p. 4). Only one lawyer suggested that those individuals victimized by sampling

may find insufficient protection under current copyright laws, and perhaps even require new statutory protection.

In an article for Variety, Terry highlighted the views of a panel of recording industry professionals toward the legalities of digital sampling. One artist/master mixer suggested that advancing technology has antiquated the notion of copyright. His view was countered by an entertainment attorney who contended that, since its inception, "U.S. copyright law has been applied flexibly to changing technologies, and there's no reason why it can't still be used 'to accommodate new rights'" (p. 75). The attorney suggested that those who sample may evoke a variety of defenses, and maintained that courts would be unlikely to find infringement in cases where artists had sampled several sound recordings and fashioned "a new work with no audible resemblance to the originals" (p. 75). Terry described another attorney as "doubtful about the legality of sampling copyrighted works," and unsure of the necessity of such sampling, "when there's plenty of public domain stuff available" (p. 75).

In a New York Law Journal article, attorneys Goldberg and Bernstein (1988) stressed that cases involving digitally sampled plagiarism will hinge on the courts' interpretation of what actually constitutes protected musical expression. Although particular sounds, standard phrases, or musical styles are not generally protectable, "original combination[s] of sounds, notes, phrases, harmonies, or rhythms" may be (p. 2). Consequently, the authors predicted that judges may increasingly rely on sophisticated electronic tests or the testimony of music and computer experts to aid in settling disputes:

Defendants will seek to position themselves as champions of an evolving art form melding the worlds of the composer and the computer, whereas plaintiffs will characterize the accused work as the product of a technologically sophisticated and pernicious form of illegal copying. In parsing the truth from these positions, the courts will necessarily be relying more heavily on experts who are capable of conveying a comprehensible description of the role of digital samplers in computer-assisted musical composition. (p. 2)

In an article for Recording Engineer/Producer attorney Henry Barry (1987) concluded: "Samples are sound recordings that may be infringed . . . [and] may be used to copy and thereby infringe rights in other people's sound recordings" (p. 67). He characterized samples as digital data that do not qualify for protection as computer programs, but may be protectable as sound recordings. Barry speculated that the courts will apply a genesis test for determining whether a block of data is a sound recording. . . . if the data "began life" in the analog world as a pattern of sound waves, the data will be considered a sound recording for copyright purposes. (p. 62)

As far as proving infringement by sampling, Barry maintained, "Where there is literal copying there will be substantial similarity. A bit of electronic alteration will not alter this fact" (p. 62). Barry further suggested that, in cases involving commercial sound recordings, a fair use defense to infringement by sampling may not be successful.

In a Loyola Entertainment Law Journal article, Thom (1988) interpreted digital sampling as violating the Sound Recording Act of 1971, which protects the actual sounds fixed on a phonorecord. (The Sound Recording Act has been incorporated into the 1976 Copyright Act.) He concluded that the sampling of sound recordings constitutes piracy and surmised such appropriation is assisted by (1) a "judicial misperception that a mere trivial recording of a few notes is not a taking" and (2) "contempt or ignorance of piracy [and copyright] laws . . . on the part

of producers and artists in the industry (p. 331). Thom further emphasized that imitation or independent fixation is the only legal means by which new authors may reproduce copyrighted sounds.

In a Columbia Law Review article, McGiverin (1987) analyzed current legal theories under which musicians or sound recording copyright owners may seek control of or payment for samples of their works. He examined whether the digital sampling of pre-recorded works for use in subsequent recordings constitutes infringement of a sound recording copyright owner's right to reproduce, distribute and prepare derivative works of that recording. McGiverin concluded that current copyright law may indeed be construed to prohibit such sampling, where a plaintiff can prove infringement and ward off an opponent's fair use defense.

In an article for DB magazine, Klavens (1987) also reviewed some legal principles applicable to the digital sampling of pre-recorded works. He suggested that whether unauthorized sampling is actionable under copyright law depends on whether: (1) the work copied "is original enough to be protected by copyright" (p. 35), and (2) substantial similarity exists between the first work and the copy. (He ignored the issue of "access"--it may be inferred when the plaintiff's pre-recorded works are widely available to the public by sale.) Klavens suggested that copyrights in musical compositions generally derive originality from "creation of the melody line and lyrics" (p. 35) and do not extend protection to particular sounds or voices. Consequently, he concluded that no infringement would ensue in works utilizing samples of individual sounds from other copyrighted material, as long as no copying of the melody or lyrics could be established in the resultant works. At the

same time, Klavens cautioned that no "finite, quantitative standard" of material that may be legally copied exists, and suggested that, in the absence of such a standard, courts generally apply an "ordinary observer" test:

[R]egardless of any testimony of legal experts as to whether the similarity between two works is sufficient to infer that one was copied from the other, it is still up to a jury (or judge without a jury) to decide whether such copying took too much of the original work. (p. 36)

In conclusion, Klavens advised that manipulating samples "beyond recognition" and not disclosing their sources of origin is the safest way for creators who presently sample to avoid legal action regarding such sampling--although there are no guarantees.

In a Billboard editorial, Bernstein (1987) suggested that a potential plaintiff in a dispute regarding digitally sampled plagiarism must (1) determine that the infringing recording indeed contains sounds sampled from his prior work, (2) analyze "the extent to which the copied sounds constitute protected expression" (p. 9), and (3) consider the probable reactions of average listeners to the two works. He concluded:

The basic elements of music, including an infinite variety of discrete "sounds" that can be sampled, are and should be freely available for use and adaptation by all composers. The fact that digital sampling now enables us to pluck sounds from the air or from other sound recordings does not destroy the public domain nature of the basic ingredients of musical expression. (p. 77)

In an unpublished paper for the University of Tennessee School of Law, student Patricia Bryant (1988) applied copyright principles to the digital sampling controversy and concluded: "As currently interpreted and applied [the law] is inadequate to protect artist/musician creators against digital sampling abuses" (p. 2). Bryant cautioned that without adequate copyright protection, those persons sampled "will be under-

compensated and fear [of sampling] will promote a disincentive to create" (p. 2).

Fleischmann (1988) examined the general impact of digital technology on copyright law in an article for the New England Law Review. He criticized the 1976 Act as inadequate in defining protectable works and establishing the authorship of compilations--problems technologies like digital sampling are likely to exacerbate. Fleischmann suggested that enforcement of existing copyright laws will become increasingly difficult as similar technologies emerge.

Some authors have analyzed how digital sampling may be treated under the laws of other countries. In a Law Quadrangle Notes article, Litman (1988) argued that "sampling strains the provisions made for performers' rights under both [U.S. and Japanese] systems" (p. 43). She generally characterized U.S. legal protection of performances as "murky," suggesting it is unclear how the law might react to cases of unauthorized sampling. She indicated that fixed performances are eligible for copyright protection, but explained that most performers are neither able to claim nor exercise exclusive rights in such works because they are usually created as works made for hire. She further reasoned that, whereas state law protection theoretically exists for unfixed performances, "the right of first fixation has not yet [formally] received protection from state courts" (p. 39). She suggested that authorized samples of live performances may constitute infringement if the resultant sample itself is copyrightable; however, whether such samples are eligible for copyright protection is debatable. Even if protectable, Litman remained unsure whether courts would characterize

such samples as "duplication, rather than mere imitation" (p. 41). She represented the legality of samples taken from sound recordings as equally unclear. Litman suggested that state common law copyright might protect unauthorized samples of live performances, yet cautioned that states may easily withhold such protection as well.

Bateman (1988) reckoned Canadian copyright law as unable to deal with "subterfuge" sampling. He concluded that, absent a judicial decision, it is impossible to predict how Canadian law will respond to use of this new technology.

In a Billboard article, Robertshaw (1988) reported British attorney Richard Bridge's assessment of the legal issues raised by sampling. Bridge identified two distinct categories of sampling: (1) that of a single sound, which is subsequently modified, and (2) "that of an entire phrase lifted intact from its context" (p. 60). He speculated that an entire phrase might be "accepted as a substantial part of a recording" by the British judiciary, although an isolated, single sound would be insubstantial, or "incapable of 'invoking the original work'" (p 60).

Several authors have examined the legality of sampling under other doctrines. McGiverin (1987) analyzed state common law rights of publicity as a source of redress for sampling victims. He concluded that one's recognition value, or interest in the commercial exploitation of his name, likeness, etc., "transcends any given fixation and constitutes a protection of identity" (p. 1744) that may be infringed by digital sampling. In states where publicity rights extend to sound or voice and are not pre-empted by federal law, sampling may constitute infringement

of one's performance and his assurance that such performance will not be appropriated to his detriment.

Litman (1988) indicated that rights of publicity vary from state to state, although most courts acknowledging such rights require that alleged violations concern a discernible taking "of a widely recognized feature of the plaintiff's identity" (p. 39). Litman suggested publicity rights claimants face "significant obstacles to recovery" (p. 41): (1) sampling that appropriates their performances may not be widely recognizable, (2) such sampling may fall under "incidental use" privileges and thus be unactionable, and (3) state causes of action for some sampling may be pre-empted by federal copyright law.

Klavens (1987) concluded that the sampling of a single note:

even if performed in a distinctive style unmistakably associated with that person, does not appear to be covered under any right of publicity laws now written. . . . because the term "likeness" . . . has generally referred only to the "image" of the person. (p. 36)

However, Gordon and Sanders (1989c) suggested that the recent Midler decision, 849 F.2d 460 (9th Cir. 1988), "may have created a strong precedent, at least in the 9th Circuit, that the right of publicity can be used by plaintiffs in sampling cases [to protect] their rights" (p. 6). (In the decision, singer-actress Bette Midler prevailed in a rights-of-publicity tort action against appellees Ford Motor Company and Young & Rubicam for use of a Midler sound-alike in an automobile advertisement.)

Litman (1988) suggested that some performers may find relief from sampling under the federal statutory tort of unfair competition because it is immune to federal pre-emption, and "courts have interpreted it expansively . . . to make otherwise unactionable wrongs actionable" (p. 41). She theorized sampling may constitute unfair competition "when the

defendant has confused or misled the purchasing public about the nature or source of the defendant's goods and services" (p. 39).

Similarly, Gordon and Sanders (1989c) proposed that unfair competition may apply to samples that pose a probability of marketplace confusion or public misconception as to their content or source of origin. They further speculated that unauthorized uses of certain samples may violate written agreements between the musicians or vocalists unions and record companies.

In conclusion, the literature indicated that many industry professionals held bipolar opinions concerning ethical issues raised by digital sampling. Proponents of sampling considered use of the new technology to borrow isolated live or pre-recorded sounds as perfectly permissible; those opposed to sampling perceived such use as theft. Although many industry professionals believed that certain sounds should be freely available for artist/composer use, most of them opposed the unauthorized recording of entire phrases that capture an artist's "signature" vocal or instrumental sounds.

Industry professionals presented in the literature also suggested that certain sampling uses may be actionable under U.S. copyright law, although it remains unclear whether current federal protection extends to an artist's individual pre-recorded sounds. Equally ambiguous is the scope of copyright protection afforded live performances. Accordingly, almost all of the professionals characterized sampling as an area in which technological progress has outpaced current legal development. However, many legal experts maintained that present laws could adequately accommodate sampling disputes and they suggested that case-by-case

analyses of fair use issues would be of primary importance in determining whether or not sampling constituted copyright infringement. Some legal experts theorized that certain sampling uses might be actionable under other legal theories as well.

Solutions

Various methods have been offered for dealing with the problems raised by digital sampling.

Zimmerman (1989a) reported that one synthesizer manufacturer viewed cooperation and continuing education as central to easing artists' concerns about sampling: "We need to work closer with the unions and explain the possibilities--this is what [a sampler] does, this is what it can't do" (p. 105).

Berman (1989) suggested that those who engage in sampling first seek permission from all appropriate copyright owners and thoroughly document such authorization in writing. Newman (1989) reported that the general consensus of one panel of recording industry professionals was to recommend that an artist obtain advance clearances from all involved parties for samples, rather than "getting caught after the record comes out" (p 24).

Soocher (1988) highlighted one label executive's suggestion that those persons who sample utilize "a courtesy credit that would list the underlying work on the packaging of the new recording so the public will know where a sample comes from" (p 26). Oswald (1988) also suggested crediting sample sources in writing, although he admitted this solution

wouldn't address samples heard over the radio or during improvisatory performances.

Several authors have discussed compensation as another remedy for problems posed by digital sampling. Tully (1987) suggested that a payment scale be established "specifically for the sampling contingency" (p. 181). Snowden (1989a) reported that most industry experts recommend the involved parties negotiate payments in advance "on a flexible, case-by-case basis . . . [to] take into account the varying ways samples can be used" (p. 72); however, one label executive suggested that more definite guidelines need to be developed. Soocher (1988) described "compensation based on buyouts of rights and [sales] plateaus" (p. 26) as being favored over royalty payments by most label executives.

Berman (1989) proposed that musicians' contracts be altered to specify compensation rates for sampling, and to prevent the unauthorized use of musical performances in subsequent recording projects. Bateman (1988) also suggested the musicians union devise sampling rates, but maintained that present copyright laws will "deal with situations where sampling becomes infringement" (p. 15).

In a Maclean's article, Giffen (1985) reported that the Canadian AFM may deal with sampling by insisting that operators of samplers be compensated at a rate equivalent to the number of session musicians the device displaces. Giffen noted, however, that this action may exacerbate displacement by encouraging more musicians to use samplers.

Some authors have advocated that the conflict surrounding the use of sampling be resolved by judicial precedent. Thom (1988) urged the courts "to meet the sophistication of digital technology" (p. 336) and

acknowledge all artists' rights to control their recorded performances, by modernizing its perception of piracy and interpretation of the Sound Recording Act of 1971. Bryant (1988) suggested that the judiciary "broaden [its] interpretation of [the] statutory language to include signature sounds and one-note samples in the definition of 'sound recordings'" (p. 32). She concluded that such action would simultaneously qualify samples for classification as derivative works, and thus subject them to compulsory licensing under the statute.

In a Rutgers Law Review article, Duggan (1985) urged that state courts "re-evaluate the scope of the right of publicity" (p. 162) and extend it so as to cover audible likenesses as well as visual ones. In a Billboard editorial, Marks urged that, "as commercial exploitation of a persona expands to encompass name, likeness, voice, and style, judicial and legislative protection must expand as well" (p. 62)

Other authors have also have proposed legislative solutions to the sampling controversy. Torchia (1987) reported that one artist/producer suggested current copyright law "be changed to reflect [this] new technology" (p. 64). The artist/producer further advised that artists put notices on their works claiming copyright protection against unauthorized sampling until such protection is clearly provided. Alvaro (1986) mentioned one sound designer who recommended that fair use provisions and "original content law" (p. 157) prohibiting the copying, editing and subsequent reselling of other's sounds be enacted.

Fleischmann (1988) recommended that: (1) the fair use doctrine be repealed; (2) the definition of copyrightable works be expanded; (3) "moral rights" for authors be enacted; and (4) a central regulatory body,

the Federal Copyright Agency ("FCA"), be formed to examine and solve copyright problems created by emerging technologies (pp. 64-65).

Soocher (1988) reported one attorney's caution that any federal legislation that is drafted to specifically address the sampling issue, "allow [for] the unfettered use" (p. 26) of samples lasting a predetermined length and require compulsory licenses for samples exceeding this duration.

Gordon and Sanders (1989d) analyzed the afore-mentioned remedies to the problems raised by sampling and proposed a solution of their own as well. The authors faulted the idea of a voluntary industry-wide licensing and royalty scheme, suggesting such a system might comprise a "price-fixing" arrangement prohibited under antitrust law. They viewed as equally unsuitable (and sluggish) a legislative amendment outlining a compulsory licensing scheme for sampling. They further suggested it may be years before a judicial decision resolves the sampling issue, as litigants have tended to reach settlement before trial. Consequently, the authors recommended "an ethical approach to the sampling dilemma" (p. 6) through industry guidelines. They suggested that such guidelines be "grounded in fairness and devised not to dictate market conditions and fix prices, but rather to encourage communications and fair dealing between the [involved] parties" (p. 6). The authors proposed that:

1. those persons using samples apply for appropriate licenses for all samples of "recognizable" sources;
2. due consideration be given to sampling requests and, if granted, such requests should be licensed at fair and reasonable rates;

3. those persons using samples respect the rights of performers and sound owners both to be fairly compensated for their services and to refuse licenses;

4. applications be made in writing "without prejudice" and considered accordingly;

5. in all dealings and discussions, the involved parties reflect "mutual respect for the artistic integrity" (p. 6) of each others' works.

In summary, the literature indicated that no industry standards or formalized rules exist for the licensing of performances for sampling. However, many industry professionals favor the development of definite guidelines concerning sampling. In the interim, numerous solutions have been proposed for the problems raised by sampling, including: 1) cooperation and continuing education, 2) credits and warning notices on albums, 3) various compensation schemes, 4) licensing agreements, 5) an industry-wide code of ethics, 6) legislative amendment/revision, and 7) judicial precedent. No industry consensus has been reached regarding the practicality or effectiveness of each of these seven remedies, although most professionals have suggested that a judicial decision regarding sampling is imminent.

Implications for Study

In summary, popular literature concerning digital sampling is abundant. However, little scholarly research that examines the implications of this new technology has been conducted.

Previous authors have identified four main areas of controversy raised by digital sampling and considered each of these areas in

isolation. No scholarly research that simultaneously examines the artistic, economic, ethical and legal implications of digital sampling has been found.

In addition, whereas previous authors have interviewed varied music and recording industry experts, not one of the authors has contrasted the opinions of select professionals who represent each of the occupational categories proposed for study under this project.

These distinctions are important. A broad assessment of both the implications of digital sampling and of the views of industry professionals knowledgeable about this new technology is important if the current controversies surrounding sampling are to be fully understood and adequately resolved.

CHAPTER V

PRESENTATION OF THE RESULTS

This study documented the attitudes of thirteen Nashville-area music and recording industry professionals toward digital sampling technology as indicated through in-depth personal and telephone interviews with the researcher.

Accordingly, this chapter briefly introduces the professionals who participated in the study and presents their responses to interview questions listed in Appendix.

Introduction of Participants

Russell Cox manages the Music Man music store. He sings, plays guitar, drums and keyboards, and has been involved in various bands for twenty years. Cox has been selling musical equipment since 1972, and says his clients include Steve Earle and Steve Winwood, as well as several of Nashville's top songwriters. Cox sells samplers that range in price from \$695 (Ensonic EPS) to \$15,000 (E-mu Emulator III). He also owns a sampler.

Mike Haynes is a trumpet soloist and has been doing sessions in Nashville for six years. He says his "Maynard Ferguson/Doc Severinsen screech trumpet sound" (Telephone interview, 1989) has appeared on albums for Christian artists Amy Grant, Steve Green, Larnelle Harris, Sandi Patti and Michael W. Smith, as well as others. Since 1987, Haynes has been writing songs. He, too, owns a sampler.

Geoffrey Hull is a college professor and chairman of the Recording Industry Management program at Middle Tennessee State University in Murfreesboro, which is located 30 miles southeast of Nashville. Hull has been teaching courses about the music and recording industries--particularly legal issues associated with these industries--for twelve years. He is also an attorney and is licensed to practice in Tennessee and Georgia.

Shane Keister produces and arranges records, and has also performed as a synthesizer "sideman" (player) on sessions. Keister studied sampling and synthesis under a private tutor at the Public Access Studio Synthesis school in New York, and he owns several synthesizers and samplers. He has created music for film and television, and worked in the contemporary Christian, country, dance, pop and R&B genres in Nashville, New York and Los Angeles. Alabama, Glenn Campbell, Joe Cocker, Amy Grant, Dr. Hook, Olivia Newton-John, George Jones, Paul McCartney, Ronnie Millsap, Sandi Patti, Michael W. Smith, Conway Twitty and Tammy Wynette are among the acts with which Keister has been associated.

Wayne Kirkpatrick has been writing songs professionally since 1984, and he owns a sampling keyboard. His cuts have appeared on albums for such artists as Amy Grant, Kenny Rogers, Michael W. Smith, Billy Sprague and Kathy Troccoli. Kirkpatrick also produces, tours, plays guitar and keyboards, and works as a session vocalist.

Jerry Michael has been publishing songs of various musical styles for twelve years and his company has had "cuts" on albums by Shirley Caesar, Cynthia Clawson, Aretha Franklin, Janie Fricke, Kansas, the Four

Tops, Pure Prairie League and the Oak Ridge Boys. Michael is also a songwriter. He entered the music business as an artist, appearing on the Mercury, Smash and Capitol Records labels during the '60s and '70s. Afterwards, Michael started his own theatrical agency and promoted concerts before moving to Nashville in 1978.

Mike Milom is an attorney with Wyatt, Tarrant, Combs, Gilbert and Milom. Milom has been practicing entertainment law for 18 years, and his clients include Alabama, the Bellamy Brothers, Holly Dunn, Brenda Lee, Ricky Skaggs and Hank Williams Jr.

Robert Mulloy is director and dean of the Music Business program at Belmont College in Nashville. Mulloy entered the recording industry as a studio musician (keyboardist), and he has also arranged and written songs. Mulloy now produces various acts and owns a publishing company. He has worked with Cynthia Clawson, David Ford, Larry Gatlin, Steve Green, and the Belmont Reasons, a professional performing group associated with the college.

Jim Ed Norman is a producer and president of the Nashville division of Warner Bros. Records. Norman has been in the music business for almost twenty years, although he says he's only "been making a living at it since 1977" (Telephone interview, 1989). Norman has worked with Glenn Frey, the Forester Sisters, Brenda Lee, Mac McAnally, Michael Martin Murphey, Anne Murray, the Osmond brothers, Southern Pacific, Kenny Rogers, Take 6, Jennifer Warnes, Gene Watson and Hank Williams Jr.

Alan Robertson describes himself as a "writer, salesman, arranger, singer and [keyboard] player" (Telephone interview, 1989) for Hummingbird Productions Inc., a Nashville jingle company. Hummingbird's clients

include Arnold Guthrie, Brenda Lee, Dolly Parton and Mel Tillis.

Robertson has worked on advertising spots for Dodge, Ford, Jeep, Domino's Pizza, Payday candy bars, Rax restaurants and Dr. Seuss. Robertson has been with Hummingbird for twelve of the eighteen years he's spent in the music business. His experiences with sampling have been on the Synclavier, an instrument which he deems "the Rolls Royce of samplers" (Telephone interview, 1989).

Brian Smith is an entertainment attorney with a private practice specializing in intellectual property law. Smith has been practicing law for more than eight years, and his clients include magazine publishers, photographers, software developers, authors, fine artists and video production companies.

Ted Wilson is an arranger and songwriter, but he works primarily as a keyboard programmer for Westpark Sound, "a dedicated MIDI room [studio]" in Nashville (Personal interview, 1989). Wilson has been with Westpark since its inception in 1987, and has worked on jingles, gospel projects and corporate accounts. Wilson also owns several sampling keyboards.

Dan Wujcik is also employed by Westpark Sound, although his studio work primarily focuses on production and engineering. Wujcik has been in the music business since 1986, and he hold a master's in studio writing and production from the University of Miami. Wujcik says Westpark has done jingle work with Nashville arrangers Jeff Brock, John Coates, Hank Martin, Keith Mason and Jeff Steinberg, has created soundtracks for multi-media presentations by Honda and Toyota, and has produced several CDs for such Christian artists as Brent Lamb and Marvin Matthews.

Professionals' Responses to Interview Questions

Definition of Digital Sampling

Although their individual answers varied in complexity and detail, all thirteen of the professionals interviewed defined sampling as a means of recording and manipulating sounds digitally.

Experiences With Digital Sampling

The professionals' experiences with sampling varied.

Cox suggested that sampling devices are primarily used by musicians to take the place of synthesizers or regular keyboard instruments.

The songwriters characterized samplers as integral components of the compositional process. "I use them for strings, drums, bass--for a variety of things. They've been an amazing tool for me and a great help [to my songwriting]" (Haynes, 1989). Haynes mentioned samplers as aids in music arranging as well.

Several of the professionals acknowledged the use of samplers by songwriters to make professional-sounding demonstration tapes at home of songs to be "pitched" (solicited) to music publishers: "I do a lot of song demos. They're not records--they're just to put your song down [on tape] to let people hear it, and to try to get it cut [on a record]. For someone like a songwriter, [sampling's] a very positive thing" (Kirkpatrick, 1989).

Sampling has studio applications as well. Most of the professionals mentioned the use of sampling to "fly" vocals, a technique that enables repeated phrases or choruses to be inserted into a recording without the

vocalists actually singing each "pass"--and possibly making mistakes.

Samples are sometimes used to "fix" individual vocals as well:

I know a guy who finished a country track for a very well-known country singer where he spent I don't know how many days sampling [the singer's] vocal into the Fairlight and then tuning it and flying it back into the 24-track [recorder]. (Wilson, 1989)

Robertson stated that samples can be used to obtain certain effects like digital delay (an echo-type effect). He also said samples are useful in "post-scoring," creating music to go alongside finished video or film.

All of the professionals who indicated that they used samplers on a regular basis suggested that the devices had a direct and positive effect on their professional activities (songwriting, performing, engineering, producing). Most of the professionals admitted they had heard stories of other musicians being adversely affected by sampling; however, they conveyed no similar personal experiences.

The professionals suggested varied sources of sounds for samples: (1) sampling libraries or commercial software (disks) available from the manufacturer of a sampler, (2) commercial CDs or other pre-recorded works, (3) live musicians or other acoustic sounds, and (4) third party programmers. (Third party programmers are synthesizer programmers who create samples and market them to keyboard owners through ads in specialty magazines or music stores.) Of course, samples may also be created "from scratch" by the owner of the sampler.

Noting that no industry standards exist concerning sample usage, all of the professionals characterized the decision to engage in sampling as a personal moral decision. In addition, the producers indicated that various factors influenced their decision to use samples, and that these factors were weighted or balanced accordingly. Interestingly, money

seemed to keep cropping up as--at the very least--an important consideration:

The bottom line is . . . what is it you're trying to accomplish? Most of the time, you'll leave no stone unturned to make it happen. And sometimes that's determined by the least point of resistance--which is usually determined by money. You can't hire Van Halen, and you know somebody's who's got a sampled, digital output who will do [the session] for you "undercover." (Mulloy, 1989)

You evaluate the sound you're trying to create: What role is it going to play in the record? There are certainly times when, if what you want is a string sound . . . [and it is] really meant to operate as a background kind of instrument, there is probably an economic consideration in using a synthesizer because you can halfway recreate the string/orchestral sound, obviously, for a lot less money. However, to the extent that you compromise your record, it's not really a smart move for a producer. If you sit down and your assessment is that you really need to have the lush, rich quality that real strings bring to a project, then you'd be well advised to go ahead and not try to save money in that area. (Norman, 1989)

If [the project's] going to be used as something that's a quality work, then my recommendation is always [use live performers]. It's not going to cost that much more, it is going to take a lot less time, and the results are going to be twice as good if you do it the way it was intended. (Keister, 1989)

Advantages and Disadvantages of Digital Sampling

Artistic advantages associated with sampling. Overall, the professionals noted sampling's greatest artistic advantages to be (1) creativity/flexibility in composing and (2) control in recording.

Sampling offers composers a "whole new world of timbre and sound design" limited only by the musical ability of the player, suggested Robertson. "With sampling, musicians can be home orchestras and no one can tell the difference" (Telephone interview, 1989).

No longer are songwriters and musicians bound by the sounds of traditional instruments. Sampling allows composers "rainy days, thunder,

trains. . . . Anything that can be sampled [is] at [their] disposal to be put into music" (Haynes, 1989). Mulloy suggested such sampling distinguishes professional musicians from amateurs and shows whether they're on music's "cutting edge," versus its "following edge" (Telephone interview, 1989).

Through sampling, musicians can take sounds that normally appear one way and use them "in completely different ways . . . [to] play things that were not playable by those instruments before" (Keister, 1989). Hull illustrated sampling's creative potential with the following:

I heard a recording the other day called "The Drop of a Quarter." What the person had done was simply . . . sampled the sound of a quarter hitting a hard surface, bouncing, and then rolling around, "rrrr-rrr-rrr-rrr," and ultimately going "clunk" and stopping. Then he took the pieces of that sound and created music. For example, the "dink" when it hit the table was sampled, and that little part of the sample was taken and created into different notes at different frequencies. . . . The second thing that was done, was the "rrrr-rrr-rrr-rrr" as it rolled around just about to stop was taken and created into a rhythm track. . . . Then they took the "clunk" when it finally came to rest, and created what would be the equivalent of a bass sound out of that. Different bounces and different things that the coin did were [also] turned into other aspects of the production. So you had this entire production which was made out of the sample of somebody dropping a quarter and taking the pieces of that sample and doing different things with it. Now that's an extremely creative approach to doing something with music . . . (Personal interview, 1989)

Sampling offers composers unlimited sound editing capabilities:

"You can splice [a sound] up, play it backwards . . . higher . . . lower . . . flatter . . . brighter . . . darker. . . . [A sampler] allows you to have complete control over playing it" (Haynes, 1989).

Samplers also provide invaluable control in the professional recording studio. Wujcik stressed that samplers comprise consistent recording mediums that one may return to with assurance. Norman emphasized the devices' capability to reproduce sound absent the hisses

and pops of magnetic tape. He said samplers may aid in capturing "clear, pristine kinds of sounds" (Telephone interview, 1989) that may not have been previously recordable.

Sometimes desired sounds are actually more obtainable through sampling:

We did a project where it was just acoustic guitar and a string section. All of the string [parts were] sampled. . . . We got an arranger who also plays keyboards to come in and play the string parts. It was real aggressive. I don't think we would have gotten the same attitude if we had used a whole string section to do that. (Kirkpatrick, 1989)

Sampling offers unparalleled assistance in the home studio as well; with samplers, one person can program an entire production.

Artistic disadvantages associated with sampling. Robertson cautioned that some musicians/composers may rely so heavily on sampling that it leads to all the ideas for a musical piece coming from one player. He said it is disadvantageous not to have other people around to share ideas with during the composing/recording process. Robertson explained that although too many cooks may spoil the broth, "you need enough cooks to make the broth interesting" (Telephone interview, 1989).

Similarly, Milom suggested that sampling may cause songwriters to borrow other people's musical ideas and rely on other's creativity rather than to independently form something unique and individual. (Milom also posed the flip side to the argument: What is done with a sample once it is taken may be viewed as creative in itself.)

Some professionals expressed concern about sampling's impact on music as an artistic endeavor.

[Sampling] has interesting implications: "If I can't become an artist because I make my own unique sounds, why should I bother to

become an artist?" Then what sort of situation do you get into with progress of the arts and so forth, if the people who have the unique kinds of sounds [and] talents don't really care to [perform] because, as soon as they get out there and become unique and develop their own sounds, [those sounds are] going to be [stolen]. (Hull, 1989)

Added Wilson: "You have to wonder if it's going to discourage people from learning to play instruments" (Personal interview, 1989).

Most of the professionals identified some of sampling's artistic disadvantages as inherent to the sampling process itself. Mulloy indicated that the technology is still relatively new and not yet "refined."

Norman suggested that sampled reproductions are somewhat harsher or harder sounding than analog ones because the devices utilize "bits of information, rather than [providing] the full harmonic spectrum of a note" (Telephone interview, 1989).

Haynes suggested that samplers are "tedious instruments" that require familiarity and experimentation "to get the most out of [them]" (Telephone interview, 1989). Wujcik emphasized that samples are only single "pictures" in time. Hence, Keister suggested that musicians and composers are limited by what is presently capable of being sampled and played back:

Take a guitar, for example. An electric guitar has a variety of sounds that can be obtained from it. . . . If you want to sample a guitar and have it played back by samples, you've got to do about thirty or forty different kinds of samples. Then the problem becomes: how are you going to play all those samples? You've got to have some instrument that will allow you to play [them] in a musical way. That can be a real problem. (Telephone interview, 1989)

Keister surmised that musicians/composers may be limited by their musical skills as well. He suggested that creating a reasonable

facsimile of a drum track, for example, requires one to think like a drummer. Such tracks created by non-drummers are not likely to sound convincing, simply because these musicians lack a drummer's "mental 'chops'" (Telephone interview, 1989).

Consequently, all of the professionals who indicated that they were involved with sampler use on a regular basis suggested that the devices cannot yet identically duplicate the sounds of human performers. "From my orchestrational background and from all the things I've done electronically and instrumentally, I'd say there's just no replacement for a live musician--a good live musician" (Wujcik, 1989).

There are things that bows on strings can play that fingers [on keyboards] cannot play, or that mouths on reeds can play that fingers cannot. There's articulation on every instrument that sampling can never achieve. . . . The idea of constructing something that can actually take the place of an instrument in legitimate recording is absurd. (Keister, 1989)

"Now, they do give the impression of things," said Haynes. "But they're machines, and there's not doubt about it" (Telephone interview, 1989). Explained Robertson: "There's something in the psychoacoustic realm where real players are more pleasing than samples. The sample is a representation of the real, but the real will always charm and allure" (Telephone interview, 1989).

In addition, the professionals suggested that there were also certain "magical," give-and-take, stimulus-response types of interactions which occur between live performers that samples can neither duplicate nor simulate.

However, Haynes maintained that sampling's inability to duplicate "real" sounds is a qualified drawback--if it is even to be considered disadvantageous: "[A sample] doesn't sound like the real thing. If you

want to count that as a disadvantage, that's just [one] point of view. I never intend for it to be [the real thing]. I don't think a lot of people intend for it to be" (Telephone interview, 1989).

Keister suggested a related position might be taken concerning the use of samples in pop music:

What happens . . . is that by the time you've got drums and back beats and electric guitars and vocals, these things all melt into the background. You can't really pick out the individual instruments and say, "Ah, that sounds like a sampled piano," or "Ah, that's not a real cymbal." It all becomes a kind of potpourri of sound behind a vocal. (Telephone interview, 1989)

Economic benefits of sampling. Cox suggested that samplers allow musicians to use the sounds of an unlimited number of instruments, without incurring the expense of separately purchasing these instruments: "One person can have . . . samples of several different popular keyboards--a DX-7, a Roland D-50, a Korg M-1--rather than have each of these keyboards . . . and basically get close to the same sound without putting out as much money" (Telephone interview, 1989).

Wilson emphasized the portability of such samples:

A guitar player can walk in with his guitar controller, or a real guitar with a pitch to MIDI converter on it, and trigger an acoustic guitar sample. That way, he doesn't have to carry around an acoustic guitar--he just carries a little box . . . with acoustic guitar sounds or [other] sounds in it. (Personal interview, 1989)

Hence, many music professionals involved in sampling build extensive personal software libraries containing wide varieties of sounds. Such sample libraries expand the marketability of their users, Wujcik explained, and make good business sense.

Digital samplers also allow songwriters--especially those writers who work out of their homes--access to string quartet or orchestral sounds, for example, absent the expense of hiring "real" players:

Before [samplers], you'd have to hire four string players and someone to write out a chart or score sheet to tell them what to play. With a sampler that already has strings on it, I can sit at the keyboard and play it all myself. So there's a big financial burden that's lifted. (Kirkpatrick, 1989)

Sampler usage may economically benefit recording in the professional studio as well. "There are instances where budget constraints don't allow the hiring of live musicians, which means that you have to either go to sampled [or synthesized] sounds" (Wujcik, 1989).

Sampling in the studio may also save time--which literally translates into money. "The world still rotates around dollars and cents and when it comes down to it, a sampler cuts your dollars and cents in certain situations" (Haynes, 1989). Keister explained that samplers are especially cost efficient when used to "fly" sounds, because "twice the amount of work [may be completed] in half the amount of [recording] time" (Telephone interview, 1989). Added Kirkpatrick: "You can whip out a horn part in a couple of hours on a keyboard, whereas it would take anywhere from four hours to a whole day doing a horn section on a song [with live musicians]--depending on the complications of the song" (Telephone interview, 1989).

Moreover, sampling usage that results in new products for public consumption financially benefits the recording industry.

[T]hose new products have appeal and those new products sell copies, generate airplay and feed the music machine. The record companies make money, the publishing companies make money, the radio stations make money, the artists make money in concert--all of the people that deal with all of those aspects of the industry make money because people like the sounds that they hear. (Hull, 1989)

Legally questionable sampling uses may also "feed" the music business. Explained Mulloy: "If I sample somebody's sound or work and I sell that, then I profit off that" (Telephone interview, 1989).

Economic drawbacks of sampling. Cox regarded expense as one disadvantage associated with digital sampling devices. He suggested that memory is the most costly part of a sampler and said, "It takes more memory for a sampler to have eight sounds than it does for a synthesizer to have two hundred" (Telephone interview, 1989). Cox also noted that without disks, a sampler won't function: "You have a real nice paperweight . . . if you happen to misplace your disk, or don't have one." In addition, suggested Haynes, building a software library of samples can be expensive.

Keister observed that sampler usage may slow down the recording process and sacrifice money: "You have to experiment a bit to find things that do and don't work . . . you're limited to what you can do by the nature of your samples" (Telephone interview, 1989). In some instances, it may even be more expensive to use samples than it is to hire live musicians (Wujcik, 1989). "At times, you simply cannot accomplish what you were setting out to accomplish by using sampled information" (Norman, 1989).

Another drawback of sampling suggested by the professionals was its potentially negative impact on the livelihoods of certain industry personnel. For instance, composing, arranging and engineering can all be done by one individual through sampling; thus, samplers may reduce the demand for separate industry "specialists" (Wilson, 1989). Sampling may also displace musicians, although many of the professionals qualified

which musicians might be victimized by such displacement--and to what extent.

Robertson characterized peripheral musicians, or those not called first to perform on sessions, as most likely to lose their livelihoods while "top-flight" players continue working. "You'll always need the best musicians" (Telephone interview, 1989). He added that the leading musicians combat displacement by embracing new technology. Haynes reinforced this notion by illustrating how drummers have reacted to recent automated competitors (drum machines):

I know drummers who were working sessions and were great players. But what they didn't do, is they didn't make the jump to any kind of synthesis that pertained to their area of the music business. Now those guys aren't working as much. . . .

There are guys that can program and manipulate their sound. They know the sound they want, they know their gear, and they can sit down at the [drum] set and make it sound good. That is a late '80s/early '90s drummer--someone who can . . . cover both bases quickly, proficiently and musically. That's what you have to be in this day and age. . . . You've got to be flexible enough to go with what's now and tomorrow. . . . (Telephone interview, 1989)

Other professionals suggested sample usage might financially harm popular artists or musicians. "If all the things that are uniquely particular to one artist become sampled and available everywhere, then there's less demand for that [artist's services or products]" (Hull, 1989). Accordingly, Haynes turned down a session for which samples of his trumpet performance would be placed in the software library of one major keyboard manufacturer and subsequently be available for use by all who purchased a particular model of sampler. He reasoned that agreeing to do the session would amount to complimentarily offering the unique sounds that he has worked over the years to achieve and that make him marketable: "I don't feel like giving [them] away because it lowers my

value . . . [Trumpet playing's] my speciality" (Telephone interview, 1989).

Mulloy suggested that certain samples of pre-recorded works may harm copyright owners, who are legally entitled "to make a fair economic return" on their creative investments (Telephone interview, 1989).

Smith suggested that public uncertainty as to what samples or uses are legally permissible has negative economic implications as well: "Anytime you inject uncertainty into a business proposition, it costs you. . . . If you have to defend one lawsuit--even if you win--it costs you. . . . It costs you big" (Telephone interview, 1989).

Ethical/Legal Implications of Sampling

All of the professionals considered the use of sample library software, originally synthesized samples, and samples created by third party programmers as completely ethical and legal. "It's a decision that gets made as an extension of the free market system. . . . Most of the time what we're using are tone-generated kinds of sounds, so there's certainly no legal issue" (Norman, 1989). "There are commercially available CDs for sampling where they hire people to come in and play up and down the scale," offered Wilson. "So you can use those and add your own expression to them" (Personal interview, 1989).

As far as an ethical issue in using samples instead of live performers, Norman commented:

The thing that good and, I think, smart producers will do is say, "I'm going to use a synthesizer because that's the sound I want." Then if they want an orchestra, they get an orchestra because that's the sound they want. It's not an issue of trying to use less people

one way or the other; it's that you're trying to do what it is that you think is appropriate for the record. (Telephone interview, 1989)

Explained Haynes:

People have the option of using or not using sampling. . . . You can buy big sampling libraries these days . . . but the people who made those samples . . . were all very aware of what was going on and the musicians probably got paid. I just don't see that [people] are to blame for using [library samples] instead of real musicians. It's a choice--a marketable, technological choice. (Telephone interview, 1989)

Robertson indicated that many sample libraries utilize inferior musicians because superior musicians wouldn't allow themselves to be sampled. However, he maintained: "There are [good] samples to be bought--only techno-lust would make you want better samples" (Telephone interview, 1989).

Most of the professionals suggested that hiring live musicians for sampling sessions was equally ethical and legal--as long as those persons using the samplers were straightforward with the musicians and compensated the players for their services.

If someone wants to pay that kind of money to musicians. . . . First of all, they have to be up front with them, saying, "I'm hiring you for a sampling session." I've never had to do that. A lot of the musicians that I would hire to do that just play so well--I wouldn't even attempt to sample them. There are things that change dramatically with a good musician--little things. So I would have a problem with doing that. I think some musicians are willing to do it, others aren't--it depends upon who you ask. (Wujcik, 1989)

However, Kirkpatrick observed that, because of the nature of the sampling process, it would be extremely difficult to secretly sample "live" players in a studio setting:

You have to get one note at a time--you couldn't just sample a sound while they were playing a song So there has to be cooperation involved on their part. You could sample a certain riff or sequence of notes, but it would be very difficult to fit in any

other song. I don't know if that situation would even come up without anyone ever knowing it. (Telephone interview, 1989)

Still, all of the professionals suggested that surreptitiously sampling the recorded performance of a musician was unethical, and might even raise legal issues.

The only time that I could see any kind of ethical or legal problem would be if you're literally sampling somebody else's work without their permission or knowledge and then perverting that somehow and using that. . . . (Norman, 1989)

They also viewed the unauthorized taking of a performer's recorded "signature" vocal or instrumental sounds as neither ethical nor legal. "You can use an individual sound . . . lift one note out of a horn lick," Wilson proposed. "But if [the sample] actually encompasses something creative on the performers, I think it's illegal" (Personal interview, 1989). "There are some ethical questions which still exist after you carve out those which can be dealt with on a legal basis," suggested Hull. "Just because something is legal doesn't necessarily mean it is ethical The question still exists: You've taken the artistry of someone else and used it for your own means and ends--is that an ethical thing to do?" (Personal interview, 1989)

Haynes said he would be very upset if someone stole his signature sound:

If I did a session and, after I left, they pulled all the tracks down and soloed me up and sampled me for later usage at any time To me that's quite blatant stealing. . . . That's a pretty malicious use. (Telephone interview, 1989)

Robertson observed that with the advent of CDs, the public has access to clean, clear sounds that "breathe" off the disks. He objected to the sampling of CDs, and likened it to pirating sounds that "others

spent years learning how to make" (Telephone interview, 1989). Added Wujcik:

There are a lot of artists who will take a tremendous amount of time to get a recording right, and people will rip them off in one minute--or however long it takes to get a sample from their CDs. I think that's wrong. (Telephone interview, 1989)

"I can see instances where records take a distinctive thing from another record--something that was just originally created within the production of a certain project--and then everybody else rips it off. That's a little cheesy" (Kirkpatrick, 1989).

Haynes also regarded the taking of samples from CDs as theft, although "everybody does it" (Telephone interview, 1989). He emphasized, however, that the amount one is able to "steal" from a CD is marginal:

What you can get off a CD is very little. . . . All you can get off is an occasional kick drum, a snare drum . . . maybe a tom, maybe a funny little sound. But you've got to have a ton of isolation to get anything off a CD. People get hot about pulling sounds off a CD but that's minimal. (Telephone interview, 1989)

Nine of the professionals expressed that individual sounds or cliché phrases (e.g., James' Brown scream) were fair game for sampling. "At some point, ideas must become public domain," Robertson suggested (Telephone interview, 1989).

Still, reasoned Wujcik, artists have the right "to decide to what degree they're going to put their works out [to the public]" (Telephone interview, 1989). Milom suggested that the bottom line question is whether or not sampling is stealing. The problem then becomes whether sample users are ethical enough to ask for permission to sample before doing it (Smith, 1989).

All of the professionals suggested that the legal questions posed by sampling were far from being resolved. The attorneys' answer to whether

sampling constitutes infringement of the rights of copyright owners of compositions/sound recordings appeared to be, "It depends." "I probably tend to come down on the side of believing that sampling, in most instances, is a violation of the rights of the creator of the original sound," said Milom (Telephone interview, 1989). Smith's "gut level" reaction was that "if it was one note [used], and in the end product you could not recognize whose [sound was taken] . . . then you probably don't have a problem" (Telephone interview, 1989).

Hull suggested that sampling may qualify for exemption as "fair use," yet he cautioned that as sample size and significance increases, it is more likely to be deemed infringement (Personal interview, 1989).

If you measure digital sampling by the four factors that are taken into consideration in fair use, it's an ad hoc determination. You can't say that sampling in and of itself is fair use or is not--it depends on each instance, how it's done, and the extent of the copying (Milom, 1989)

Furthermore, "There may be a very valid legal argument that there's not enough authorship in a single note or a single sound to be protected by copyright" (Smith, 1989). Smith also suggested that sampling may be actionable under the general law of unfair competition or rights of publicity statutes.

Impact of Digital Sampling on the Music/Recording Industries

The professionals recognized sampling's potential to displace live performers as its foremost impact on the music/recording industry. "The biggest thing that I see in sampling is hurting musicians--horn players, string players--more than hurting me as a publisher or a writer" (Michael, 1989). "The person who understands synthesis, synthesizers,

MIDI, and the sampling process, can program an entire production," said Mulloy. "Theoretically, what that's saying is that you cut a lot of musicians out of work" (Telephone interview, 1989).

Realistically, however, it may be that this effect is felt more in certain musical genres than in others. "Country music has yet to have any significant encounter with sampling," suggested Milom, "because country music tends to be far more simple and less electronic than pop music today" (Telephone interview, 1989). Explained Keister:

A country record usually is very guitar-oriented, and the backbone of any country record is the feel of the record. To try and manufacture that feel with one or two people is really hard to do. . . . But dance records, R&B--that's where the computers really have the advantage. They can do things that people can't do. . . . They can make every downbeat perfect. (Telephone interview, 1989)

In addition, Keister suggested that sampling's ability to displace live performers may be limited by the nature and application of the sounds taken: "You can't, with one or two people, attain the sound and the performance and the musicality of the forty, fifty, [or] sixty people that you're trying to replace" (Telephone interview, 1989).

Overall, the professionals regarded current industry use of sampling as ethical and widely accepted. They indicated that no industry rules or guidelines exist to govern sampling; hence, they characterized the decisions both to engage in sampling and to subsequently use those samples as personal moral judgments. "At the time a sample gets used," suggested Norman, "you're relying on the person that you're working with who has collected all of these samples to have made appropriate judgments as to where they've gotten their samples" (Telephone interview, 1989).

The professionals further described disputes concerning sampling as exemplifying general music industry resistance to a universal trend toward automation in music:

In three to five years, sampling has become the rage. Fifteen years ago the problem was synthesized strings. There was an instrument called the Mellotron. [It] was . . . a poor man's version of an early string machine. Well, the union didn't know what to do with it because, theoretically, it wasn't a keyboard instrument [and] it wasn't a musician. So now technology has moved and I'm not sure where technology is going. That's what's causing the controversy. (Mulloy, 1989).

Haynes characterized those persons who are opposed to the use of sampling as "trying to stop the flow of technology [and] afraid of the move forward" (Telephone interview, 1989).

It's kind of like when VHS came out. The movie industry freaked . . . and it tried to slow down [the introduction of] VHS. But you can't stop the feet of technology. It moves on . . . it always will. (Telephone interview, 1989)

"Any new technological innovation that allows us to do something we previously were unable to do, is usually good for society," suggested Smith. "Just because it because it raises some troubling legal questions does not mean it's not good" (Telephone interview, 1989).

Accordingly, the professionals deemed sampling as another example of technological development outdating existing law:

Sampling is an example of an area in which technology has outpaced the development of copyright law. Since technology continues to advance at an increasing pace, we're going to continue to see situations in which new technologies raise questions that have not been dealt with before. The only way to deal with that is to assess the situation each time and determine what is an appropriate solution. (Hull, 1989)

Summarized Wujcik: "The digital era brings up a whole new set of problems that the analog era didn't have to deal with. There are a lot

of things people didn't have to think about before, but they have to think about [them] now" (Telephone interview, 1989).

Professionals' Overall Characterization of Digital Sampling

Almost all of the professionals characterized their overall feelings toward digital sampling and its uses as positive because of the artistic and economic advantages associated with this new technology.

Three of the professionals expressed mixed feelings concerning sampling and cautioned that it may be a powerfully creative tool, but only if used correctly.

Future Uses and Effects of Sampling

As far as future uses and effects of sampling on the industry, Kirkpatrick commented: "I think it could probably get out of hand because you could start stealing anyone's originality and exploiting . . . [whoever] happened to be popular at the time" (Telephone interview, 1989).

Hull compared digital sampling to the digitizing of photographs and concluded:

I don't really foresee any kind of a sampling use that would raise any questions that aren't already being raised by the musical sampling uses or the picture sampling uses. In fact, in some ways, the picture uses raise artistic integrity kinds of moral rights questions--more so than the music uses. If you take someone's picture, digitize it and edit something out you don't like, or if we take a picture of the pyramids and . . . we edit out some of the space between the pyramids to make them fit on the cover of a magazine, that raises artistic integrity kinds of questions that the music sampling doesn't raise to that extent. (Personal interview, 1989)

Controlling the Use of Digital Sampling

All of the professionals believed that sampling should somehow be controlled to prevent unauthorized and possibly illegal uses, yet they admitted that establishing a regulatory scheme that is acceptable to all of the parties involved in the controversy would be difficult, if not impossible. In fact, many of the professionals doubted that piracy through sampling could ever be ceased. Cox suggested that people who sample can always manipulate the resultant sounds beyond recognition; thus, how would musicians know whether their sounds had even been taken? (Telephone interview, 1989). Wujcik further proposed that it would become increasingly difficult to enforce sampling violations as sampler prices fall, and more people utilize the technology (Telephone interview, 1989).

Nevertheless, many of the professionals recommended that guidelines concerning sampling be developed. "There needs to be a decision made so people will have certainty as to what they [can] do," said Smith. "The legal system, industry and society need to get answers" (Telephone interview, 1989). "Musicians--horn players, string players, keyboard players, producers--they just need to all get together and decide" (Wilson, 1989).

Norman suggested that industry guidelines will eventually evolve as discussion and understanding of the sampling controversy continues:

There probably will be, at some point, some kind of control on sampling. There will be some kind of stated principle or philosophy or accepted operating procedure with respect to sampling. There will be a line that one can cross over that, if you do, it will be considered that you have done something inappropriate. But I would imagine that it's going to take years . . . of conversation to really try to decide what that line is. . . .

I think it will happen like a lot of things: It will be pushed to every extreme possible and out of that will come some common denominator . . . with respect to how [sampling] should be treated. (Telephone interview, 1989)

Hull agreed that one way to achieve industry self regulation is by continuing the discussion of sampling issues; however, he doubted that a "code of ethics" like those used by the licensing professions (i.e., medicine, law) or similar guidelines would be enacted for musicians, producers and the like (Personal interview, 1989).

The professionals proposed that the adoption of a compulsory licensing and/or compensation scheme for certain kinds of sampling would at least partially resolve the controversy surrounding this new technology. Offered Milom:

There are industry norms and practices that can be applied to allow [sampling] use on a licensed basis. I know that there are record companies who have licensed certain aspects of recordings for digital sampling . . . so that there was some remuneration to the owner of the sound recording for [it]. That, to me, is the best way to deal with it. . . . at least initially. (Telephone interview, 1989)

Hull noted, however, that requiring people to obtain permission beforehand for sampling might be burdensome: "The problem is that a lot of the works that are being created have thirty or forty or fifty different snippets from other works put into them and it would be, in fact, difficult to obtain permission from [the sound owners]" (Personal interview, 1989). In addition, authors who use sampling extensively might find remunerating appropriate sound owners to be prohibitively expensive.

Another licensing method discussed by the professionals was for the musicians union to require (1) that members be paid re-use fees for sampled performances used in subsequent projects, and (2) that members be

directly remunerated for their services on sampling sessions (Hull, 1989). The professionals indicated that such a compensation scheme would address the needs of at least some of the individuals vehemently opposed to the use of sampling; thus, they considered it an acceptable compromise. "It would be fine, for example, if . . . people needed to be compensated more [often]," said Kirkpatrick. "There are [similar] things in songwriting that I think should be compensated for that are not. I think it'd be a little hard to come up with a guideline for it, though" (Telephone interview, 1989). Offered Wilson: "I can go along with union wages because musicians should be compensated for their craft. I don't think they should get full scale--but some kind of scale would be reasonable" (Personal interview, 1989). Added Milom:

[Sampling] is an area where the AFM is going to have to become active. Whether they frankly have the strength now within the industry to do that is an issue that I don't have the answer to. (Telephone interview, 1989)

Smith suggested that, in the legal domain, there are two ways to address the sampling controversy: (1) legislatively and (2) judicially (Telephone interview, 1989).

Most of the professionals objected to having Congress resolve the problems raised by sampling. "I don't believe in legislating moral issues in general," said Wilson. "If musicians are against sampling, then just don't do it" (Personal interview, 1989). Hull also frowned upon a legislative solution: "[If] there's a legislative solution, we're going to have to start all over again interpreting what [the copyright] statute means and how it's meant to apply. Then there's more litigation, more expense and more hassle" (Personal interview, 1989). Added Milom:

Whether or not a legislative approach is necessary or even desirable--I probably tend to believe that it's not. We haven't had very good luck in having Congress deal with copyright . . . [and] technological development. We've always been so far behind the leading edge and we've come up with solutions that are not necessarily good for the long run. I certainly would not be a proponent of having Congress deal with it anytime soon. (Telephone interview, 1989)

Milom further suggested that a legislative amendment exempting sampling as "fair use," for example, might adversely affect the rights of future authors and copyright owners:

My philosophy is that anytime you erode the rights of creators in one area . . . then you have for the long range created a diminished level of protection which will ultimately reduce the level of protection available for all works. (Telephone interview, 1989)

Most of the professionals believed that current laws could probably accommodate sampling:

I think there is sufficient law on the books to deal with the issue. It's just going to be a matter of applying it and deciding how to balance the competing national interest or societal interest in accessibility [to works] with the interest of the [creators]. (Milom, 1989)

In fact, the attorneys suggested that it is simply a matter of time before disputes involving sampling will be resolved judicially:

I suspect that ultimately we'll end up with a Supreme Court decision in a sampling case--probably on a fair use question. It will just be a question of some plaintiff and some defendant wanting to spend enough money to fight it all the way up to the Supreme Court to get the answer, instead of settling it before they get there. (Hull, 1989)

Over a series of cases I think you'll see, just as we have with other types of infringement, norms and standards develop . . . that people can rely upon. Obviously, that's the whole basis of the law--so one can predict the outcome of one's conduct. So sooner or later we're going to get to that point. (Milom, 1989)

Hull further suggested that even if a judicial decision regarding sampling was rendered which deemed certain sampling as infringement, the problem would then shift to one of enforcement:

As a general principle of copyright law, it's the owners of the rights who are the enforcers. . . .

After a while, I suppose, it would become known that there are some [artists] who would sue if you sampled their recordings and others who couldn't care less. (Personal interview, 1989)

Still, concluded Smith, "It's better to get [the legal] answer--even if you don't like the answer. At least you know the rules you have to live under. We can live under whatever scenario--as long as somebody makes the decision" (Telephone interview, 1989).

Summary of Professionals' Responses

In summary, the Nashville professionals interviewed described sampling as a means of recording and manipulating sounds digitally and characterized the technique as a positive, flexible tool for both professional and home studio users.

The professionals' experiences with digital sampling varied. The performers interviewed used samplers as substitutes for keyboard instruments. Songwriters utilized samplers for composing, arranging and recording demonstration tapes. Producers and engineers applied samplers in the studio to "fly" vocals and create sound effects.

The professionals indicated that sampling had a direct and positive impact on their activities. They acknowledged that sampling possessed the potential to displace live performers and other industry personnel; however, they proposed that this negative impact may be felt in some genres (i.e., pop) more than others and may be limited by the type, quality and use of the samples taken. The professionals indicated that no industry guidelines exist for sampling or its uses and characterized

decisions concerning this controversial technique as personal moral judgments.

The professionals reported two major advantages of sampling: (1) flexibility and creativity in composition and (2) accuracy and control in recording. They also suggested that sampling offered economic savings in labor, time and other expenses associated with composition, performance and recording.

Disadvantages of sampling noted by the professionals included its capacity to displace session musicians and other industry personnel and negatively impact the progress of the arts. The professionals also suggested that because sampling was a relatively new, unrefined recording technology, it required exploration and patience by its users. Consequently, they noted that the use of sampling may be more expensive than other recording methods in certain instances.

The professionals viewed sampling as ethical and acceptable when originally synthesized, third party or library samples were utilized. They approved of the sampling of "live" musicians as long as the musicians were paid for their services and informed beforehand that they would be sampled. The professionals also condoned the sampling of insignificant, public domain sounds (whether live or pre-recorded). However, they opposed the taking of "signature" vocal or instrumental sounds or significant portions of pre-recorded works without a sound owner's permission. They acknowledged that the sampling of commercial CDs was widespread but characterized such sampling as unethical, possibly even illegal.

The attorneys interviewed stressed that the legalities of sampling remained unclear. They suggested that sampling may be deemed copyright infringement under some circumstances, although it may not be under others. They also proposed that some sampling may qualify for exemption under the fair use provisions of current copyright law. Furthermore, they speculated that sampling may be actionable under other legal theories such as rights of publicity and unfair competition.

Interestingly, all of the professionals believed that sampling should be controlled to prevent illegal or damaging uses, and they recommended the following solutions to the sampling dilemma: (1) informal industry guidelines (i.e., self regulation), (2) compulsory licensing, (3) compensation systems, (4) legislative amendment and (5) judicial precedent. However, they suggested that industry compromise regarding acceptable or allowable sampling may be difficult to reach. Many of the professionals doubted that sampling could be effectively regulated. Nevertheless, they suggested that judicial decisions were likely to emerge that would provide guidance for sampling uses on a case-by-case basis.

CHAPTER VI

SUMMARY AND SUGGESTIONS

This study documented the attitudes of thirteen Nashville music and recording industry professionals toward digital sampling and its uses. Emphasis was placed on the artistic, economic, ethical and legal implications of this new technology.

In this chapter, the researcher analyzes and compares the data gathered from these interviews with information contained in the review of literature and she attempts to identify some problems posed by current industry conditions accompanying the use of digital sampling, as well as to propose some solutions to these problems. Areas for future research are also suggested.

Comparison of Interview Responses and Literature

The literature and the interviews indicated that digital sampling is a flexible recording technique with endless creative possibilities for the music and recording industries. Both sources revealed that sampling offers composers, performers, producers and engineers unprecedented control in sound synthesis and reproduction. Proponents of sampling said the technique puts the entire world of sound at its user's fingertips--acoustically and economically. The literature indicated that sampling may aesthetically benefit music as an artform by facilitating the borrowing of musical "ideas," while economically benefiting individual artists and composers by rejuvenating the market for their pre-existing works. Proponents of samplers also characterized the devices as precise,

cost-efficient tools with countless applications for professional and home studio users.

However, drawbacks to sampling were also revealed in the interviews and the literature. Both sources suggested that sampling's greatest disadvantage lies in its potential for displacing industry personnel. Critics of sampling questioned its long-term effects on the livelihoods of certain musicians and sound copyright owners, although the Nashville professionals interviewed indicated no direct negative influence of sampling on their activities. The Nashville professionals also indicated that sampling is an unrefined, complex and tedious (i.e., note-by-note) recording technique and they suggested that sample users are limited both by their individual musical abilities and the present capabilities of this new technology. They noted that, in some instances, using samplers may actually be more expensive than hiring live players. Opponents of sampling cited in the literature further faulted the technique as ultimately detrimental to the progress of the arts by encouraging composers/performers to borrow extensively the ideas of others, rather than forming unique, original works themselves. They also contended that musical borrowing through sampling hurts creators while allowing others to profit from their works.

The literature and the interviews revealed that industry professionals held varied opinions regarding ethical issues raised by digital sampling, although the Nashville professionals interviewed generally held more favorable attitudes toward the technique than those cited in the literature. Both sources indicated that industry use of sampling to borrow isolated live or pre-recorded, public domain sounds

was viewed as permissible. Use of original, third party or library programmed samples was considered equally acceptable. The Nashville professionals further condoned the sampling of live performers as long as the musicians were informed beforehand that they would be sampled and were remunerated for their services. Both sources suggested that certain sounds should be freely available for artist/composer use; however, they opposed the taking of "signature" vocal or instrumental sounds or significant portions of pre-recorded works without a sound owner's permission. The Nashville professionals further acknowledged that industry sampling of commercial CDs was widespread yet they characterized such sampling as theft.

Both the literature and the interviews suggested that certain samples and uses (i.e., taking readily recognizable sounds or phrases for use in a new recording) could be actionable under U.S. intellectual property laws, although these sources remained unclear whether current copyright protection extended to individual live or pre-recorded sounds. Legal experts suggested that sampling could be deemed copyright infringement under some circumstances, but not under others. They further proposed that sampling could qualify for exemption under the fair use doctrine of the Copyright Act of 1976. Professionals cited in both the literature and the interviews characterized sampling as an area in which technological progress had outpaced current legal development, although many professionals maintained that existing copyright law could adequately accommodate sampling disputes. Attorneys cited in both sources also theorized that certain sampling uses could be actionable

under other legal doctrines such as rights of publicity and unfair competition.

Finally, both the interviews and the literature indicated that no industry standards or formalized rules exist that presently govern digital sampling. The majority of professionals cited in both sources favored the development of definite guidelines or controls to prevent illegal or damaging sampler uses. Consequently, numerous solutions were proposed by both sources for the problems raised by sampling, including: (1) compensation schemes for sample uses, (2) licensing agreements, (3) informal industry guidelines (i.e., self regulation), (4) legislative amendment/revision and (5) judicial precedent. Professionals cited in the literature also suggested industry cooperation and continuing education, the use of credits and warning notices on albums, and adoption of a formal, industry-wide code of ethics as solutions to the sampling controversy. However, neither the literature nor the interviews revealed any consensus regarding the practicality or effectiveness of any of the afore-mentioned remedies. In fact, the Nashville professionals suggested that industry compromise regarding acceptable or allowable sampling could be difficult to achieve, and many of these professionals further doubted that sampling could actually be effectively regulated. Nevertheless, professionals cited in both the literature and the interviews suggested that judicial decisions regarding sampling were imminent and would provide guidance for its use on a case-by-case basis.

Problems Posed by Current Industry Environment

The researcher recognized three potential problems that accompany current music and recording industry uses of digital sampling, as revealed by the interviews and the literature.

One potential problem is that no universal industry rules exist that define acceptable sampler uses. Such a lack of governance or structure is typical of the recording industry. Theoretically, this laissez-faire system implies that all sounds are essentially "open game" for sample users to record and subsequently use however they see fit. As a practical matter, then, decisions regarding sample usage are primarily personal moral judgments: it is up to each user to decide which sample sources and subsequent uses are acceptable. Because these judgments may vary from one individual to the next, the potential for conflict and disagreement exists. Although this conflict need not necessarily result it is quite likely in the "every man for himself" scenario of sampling where the economic incentives of personal intellectual property are at stake. The professionals cited in both the literature and the interviews recognized this potential problem of sampling and they recommended that guidelines or controls be developed regarding use of this new technology. As one Nashville professional indicated, the recording industry requires certainty as to what sampling behavior will be acceptable or unacceptable. (Historically, the industry doesn't bear a very impressive record of balancing personal moral judgments against economics, as exemplified by the well-publicized payola scandals of the 1960s.)

A second and related problem accompanying current industry uses of sampling involves the notion of technology outpacing the development of

(copyright) law. Through sampling, individuals may pirate the talent and artistry of other musicians and profit off other authors' creative investments. These actions, of course, introduce legal problems beyond the ethical ones mentioned earlier and, as indicated by the professionals themselves, have interesting implications for the future of music as an artistic endeavor. However, as previously noted, the legal implications of sampling under current copyright and other laws remain unclear.

A final, albeit potential, problem raised by industry use of digital sampling is its negative effect on the employment of acoustic musicians. The literature indicated that music/recording industry use of sampling displaces certain live performers; however, the extent of this displacement is unclear. In fact, it may be that sampling merely poses a limited or theoretical threat to industry personnel, rather than a widespread, practical one. The professionals cited in both the literature and the interviews repeatedly emphasized that no true electronic replacement for human players exists. They further suggested that ancillary musicians were most likely to be ousted by samplers while principal players (those musicians first called to perform on recording sessions), especially players who had managed to incorporate sampling into their personal musical repertoire, would remain relatively unaffected.

Moreover, although each of the Nashville professionals interviewed admitted hearing stories about musicians being economically hurt by sampler use, not one of the professionals indicated experiencing any personal adversity because of sampling. Hence, as presently utilized,

sampling may not exert the negative impact on industry employment as originally thought.

However, there may be other reasons for the lack of sampler-induced adversity on the part of the Nashville musicians featured in this project. First, as is typical of the recording industry in general, every professional musician interviewed also held a second, overlapping industry occupation. All of the musicians questioned suggested that they earned their livings both as musicians and songwriters, or musicians and producers, for example. In other words, these professionals' primary source of income was not derived from session work; wages earned from their other industry occupations contributed to their revenue as well. It is quite possible that professional musicians whose sole source of income stemmed from session work might have felt very differently from the musicians interviewed for this project about the uses and effects of digital sampling.

A second reason for the lack of the negative sampler impact suggested by the professionals cited in the literature, pertains to the types of instruments played by the Nashville professionals interviewed. It may very well be that these particular instruments (i.e., guitar, trumpet) do not lend themselves well to simulation by sampling and thus, sampling posed no threat to the livelihoods of these musicians. In addition, many of the players interviewed were keyboardists who seemed more likely both to utilize sampling instrumentally and to financially benefit from that use--rather than being displaced or adversely affected by it.

Another reason for the Nashville musicians' lack of direct adversity caused by sampling may lie in the musical styles in which these professionals predominantly earn their livings. It may be that contemporary Christian, country and other genres are yet to have the "significant encounter" that Nashville professionals Milom and Keister indicated pop music has had with digital sampling.

Similarly, a final reason for sampling's lack of negative influence on the professionals interviewed may be intrinsic to Nashville's musical environment. Keister indicated that while New York appeared to be more sampler and computer oriented, emphasizing the one- or two-person recording process, Nashville remained primarily "rhythm section," or live musician, oriented. Of course, these differences in approach to music recording may be linked to the musical styles produced in each city as well. New York is well known for pop, dance and R&B productions; Nashville is still predominantly viewed as "Country Music, U.S.A." (although an increasing variety of musical styles is being produced in Nashville). Again, the impact of sampling on these genres may be a function of the values of their musical styles. As the professionals previously indicated, country music failed to lend itself to sampling because the values inherent to this genre were ill fit for such digital synthesis. Accordingly, little displacement or relative concern for such displacement was noted by the Nashville professionals in this study. However, pop music, with its computerized sounds and mechanized rhythms, seems a prime candidate for sampling. Hence, it may be that L.A. and/or New York professionals hold very different assessments from their

Nashville colleagues regarding sampling technology, as is suggested by the literature.

Solutions to the Problems Raised by Digital Sampling

The professionals cited in the literature and the interviews demanded controls for the problems posed by digital sampling, although most of the professionals expressed doubt that this technology could be regulated effectively. Indeed, such doubt seems understandable. The industry has been struggling in a lengthy battle against record piracy. Such piracy might well be exacerbated by technologies like digital sampling, which is actually a form of digital recording that allows for even snippets of protected works to be taken surreptitiously and with relative ease. (On the other hand, sampling uses themselves may, like other musical fads, go out of vogue.)

The professionals failed to express any consensus preferring one method of regulation over the others. It is the researcher's belief that industry self regulation (e.g., adopting a code of ethics) would not be the most effective means of addressing unauthorized sampling. No code of ethics is presently utilized in any other area of the industry and no organization exists with the authority to govern such a code for sampling. Regulation of sampling through informal industry rules is equally problematic and it is quite likely that the penalties of such an "honor system" would not be substantial enough to deter would-be pirates from such sampling.

Union-based or individually negotiated compensation schemes seem more reasonable solutions to the sampling controversy. However, a major

obstacle to the adoption such financially-based solutions to the problems raised by digital sampling is achieving universal agreement on (1) what the appropriate rates are that should be paid, (2) for what they should be paid, and (3) to whom they should be paid. As has been noted by the Nashville professionals interviewed, compromises in these areas may be difficult to achieve.

The professionals frowned upon a legislative solution for sampling, such as creating fair use provisions for certain samples and subsequent uses or amending/redrafting existing copyright law. Indeed, the length of time involved for the legislative process, the possible uncertainty raised by the process (i.e., having to reinterpret the statute) and the expense of such action (i.e., future litigation) make revision or amendment of existing law unfavorable solutions for the problems raised by sampling.

Accordingly, most of the professionals cited believed that the sampling controversy would eventually be resolved judicially through court decisions involving this new technology. The researcher is inclined to agree. It may be argued that current copyright or other laws could adequately accommodate sampling. For example, when interpreted broadly, the Copyright Act of 1976 could be construed as extending federal protection to individual sounds or notes; stricter interpretation of the statute might reject such protection. In addition, sampling could be analyzed as fair use under the Act. Because sampling cases are already on the court dockets, it is simply a matter of time before sampling issues will be resolved judicially. This is not to suggest that a judicial decision is necessarily the best solution to the sampling

controversy, although such court action would reduce current industry uncertainty as to where to draw the line between acceptable and unacceptable sampling behavior. For reasons previously noted, however, enforcement of court decisions involving sampled piracy may prove difficult.

Suggestions for Future Research

This study indicated several problem areas suggested by current industry conditions concerning digital sampling and additional investigation of these areas is warranted.

First, more research is needed regarding the effects of sampling on the music and recording industries. Although current literature suggested that sampling exerted a negative impact on the employment of industry personnel, no such impact was noted by the Nashville professionals interviewed for this study. The reasons for this finding are unclear. It may be that sampling's effects are minimal, or its effects may be influenced by occupation, industry location or musical genre. Accordingly, additional investigation is needed. Future researchers could replicate this study and examine how L.A. or New York music professionals assess the impact of digital sampling, for example. The effect of sampling on the music/recording industries could also be compared and contrasted across various musical styles or genres (i.e., pop, rap, country, dance, R&B, etc.).

In addition, further research is needed regarding solutions to the problems raised by digital sampling. Investigators could explore the

views and policies of various industry organizations--AFM, AFTRA, ASCAP, BMI, RIAA--regarding sampling and its uses in an effort to determine appropriate industry action concerning sampling. Additional investigation of the solutions suggested by the professionals and researcher of this study is also needed, as is development of alternative solutions to the problems raised by sampling.

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APPENDIX

INTERVIEW QUESTIONS

1. Describe your job. How long have you been in the music/recording business?
2. Who are some of your clients? Who have you worked for/with?
3. Define "digital sampling."
4. Describe your (clients') experiences with digital sampling technology.
 - a. Have you used it? How? What have you used it for?
 - b. Have you been affected by it? How?
 - c. Where do your samples come from?
 - d. What factors influence your decision of whether or not to use samples?
5. What are the advantages of digital sampling? The disadvantages? Artistically? Economically? Ethically? Legally?
6. Has digital sampling affected the music/recording industry? How?
7. Do you see any problems with current uses of digital sampling? Do you foresee any problems with future uses of it?
8. Do you think the use of digital sampling should be controlled in any way? If YES, what kinds of controls would you suggest?
 - a. Industry self regulation?
 - b. Compensation for sampling sessions? For sampled works?
 - c. A licensing system?
 - d. Legislative amendment?
 - e. Other action?
9. What is your overall feeling concerning digital sampling technology? Concerning its uses? EXPLAIN.

VITA

Denise M. Parker was born Denise Minnette Middleton in Landstuhl, West Germany on July 14, 1964. Ms. Parker was raised in Salina, Kansas, where she attended elementary and secondary schools, graduating from Salina High School South in May 1982. The following August she entered Kansas State University in Manhattan, Kansas, where she studied for four years. Ms. Parker also attended Tennessee State University in Nashville, Tennessee, where she met her future husband, Daniel E. Parker. In May 1988, she graduated cum laude from Middle Tennessee State University in Murfreesboro, Tennessee, with a Bachelor of Science degree in Recording Industry Management.

In August 1988, Ms. Parker entered the Graduate School of the University of Tennessee, Knoxville, and began study toward a Master of Science degree in Communications, with an emphasis in public relations. Following the completion of her coursework in December 1989, she accepted a teaching position in the Recording Industry Management Department of her alma mater, Middle Tennessee State University. She was awarded the degree in May 1990.