CHAPTER SEVEN

MUSIC IN 1s AND 0s

THE ART AND POLITICS OF DIGITAL SAMPLING

A fragment of a drum solo: the thump of the bass, the crack of the snare, the sting of the hi-hat, all combined in a distinctively syncopated pattern. Common sense suggests that this solo was fixed long ago, on the day drummer Clyde Stubblefield recorded it as part of James Brown’s 1970 R&B song “Funky Drummer, Part 1 and 2.” Yet this two-second sequence enjoys a promiscuous, chameleonic existence. Accelerated, equalized to sound muffled and distant, and repeated continuously in Eric B. and Rakim’s “Lyrics of Fury” (1988), it takes on a menacing tone, matching the intensity of the rap. Similarly looped, but slowed slightly and placed underneath a haunting folklike melody, it occupies a completely different sound world on Sinéad O’Connor’s “I Am Stretched on Your Grave” (1990)—that of the Irish lament. It masquerades as a reggae beat in Sublime’s “Scarlet Begonias” (1992) and turns wistful in George Michael’s pop ballad “Waiting for That Day” (1994). In each example, and in scores of others that appropriate Stubblefield, something of the original sound is maintained, yet its meaning changes in every new setting.

The multiple incarnations of Clyde Stubblefield’s “Funky Drummer” arise from the practice of digital sampling, a form of musical borrowing
in which a portion of one recording is incorporated into another. Since the 1980s, musicians of every stripe have embraced the technology. Their work raises a host of questions, from the aesthetic and the technical to the ethical and the legal. How have composers changed their work in response to the possibilities of this technology? Has digital sampling introduced a fundamentally new compositional aesthetic, or is it best understood as an extension of older practices? What is it about the technology and its applications that have exposed the practice to charges of being inartistic, immoral, and illegal? Three case studies will address these questions. The first examines No...lighting, a work by composer Paul Lansky that transforms speech into music. The second explores the complex relationship between two pop songs, one of which, Camille Yarbrough’s “Take Yo’ Praise,” is sampled by the other, Fatboy Slim’s “Praise You.” The final case study focuses on Public Enemy’s “Fight the Power,” whose extravagant sampling serves to enact the group’s political and cultural agendas. But before addressing the complex questions just raised, we must first answer a more straightforward one.

WHAT IS DIGITAL SAMPLING?

Digital sampling is a type of computer synthesis in which sound is rendered into data, data that in turn comprise instructions for reconstructing that sound. Sampling is typically regarded as a type of musical quotation, usually of one pop song by another, but it encompasses the digital incorporation of any prerecorded sound into a new recorded work. The equipment used to create samples varies widely, from traditional-looking keyboards to purpose-built machines dominated by buttons, knobs, and sliders that look nothing like musical instruments, to software used on personal computers. Regardless of the gear, on the simplest level sampling works like a jigsaw puzzle: a sound is cut up into pieces and then put back together to form a digitized “picture” of that sound. When a sound wave is digitized, using what is called an analog-to-digital converter (ADC), it is not reproduced in its entirety; rather, select “samples” of the wave are assigned binary numbers. Each of these numbers represents the amplitude, or height, of a wave at a given point. When a sound is reconstructed, a digital-to-analog converter (DAC) emits voltages corresponding to each of these binary numbers. When all of these various voltages are emitted in a particular order, the result very closely approximates the original. This may seem to be an odd way of reproducing sound—breaking it down and then putting it back together—but in fact it works very well. At present, the standard sampling rate is 44,100 Hz, meaning that every second of sound that is sampled is cut into 44,100 slices; typically, each of these slices is given a sixteen-digit binary number, which allows for extremely fine gradations (2^16, or 65,536) in measuring the amplitude of a wave. Sampling can therefore be fast and fine enough so that the human ear perceives a continuous and faithfully rendered reproduction.

The advantage of digitization is that sound, once rendered into data, can be manipulated in a variety of ways down to the smallest details. Tempo and pitch can be increased or decreased in any increment, and the two can be manipulated independently. (In the predigital age, when the speed of a recording was increased, the pitch rose, and when the record slowed, the pitch fell. Think of the sound of a phonograph switching from 33\(\frac{1}{3}\) to 45 rpm or vice versa.) Sounds can be reversed, cut, looped, and layered; reverb-beration can be added; certain frequencies within a sound can be boosted or deemphasized. Noise can be removed to make an old recording sound pristine, or even added to make a pristine recording sound old, as can often be heard in recent popular music. All of these manipulations can be visited upon any sound, musical or otherwise, and on any length of sound that can be recorded. A sample can be a fraction of a waveform, a single note from an instrument or voice, a rhythm, a melody, a harmony, or an entire work or album. Although sampling, particularly when done well, is far from a simple matter, the possibilities it offers are nearly limitless.

As a form of musical borrowing, the roots of digital sampling reach back more than a millennium. Consider just the Western musical tradition: medieval chants freely incorporated and adapted melodic patterns from earlier chants; dozens of Renaissance masses were based on the melody of the secular song “L’homme armé”; a similar craze raged centuries later when composers such as Berlioz, Liszt, Rachmaninoff, Saint-Saëns, and Ysaïe “sampled” the chant Dies irae (“The Day of Wrath”) in their instrumental works; Bach reworked Vivaldi’s music; more than a century later Gounod returned the favor, adding a new melody to Bach’s Prelude in C Major and calling it Ave Maria; Mahler cannibalized his own earlier vocal

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works in several of his symphonies; Ives quoted George M. Cohan’s “Over There” in his song “Tom Sails Away”; Bartók parodied Shostakovich’s Leningrad Symphony in his Concerto for Orchestra; and so on and on.

Yet isn’t there something fundamentally different between such traditional acts of borrowing and digital sampling? Is it sometimes said that while a quotation is simply a representation of another piece, a sampled passage of music is that music. But that depends on what the meaning of “is” is. Consider a conventional example of musical quotation: in the third movement of Luciano Berio’s Sinfonia, an enormous five-movement work for orchestra and vocalists from 1968, the composer quotes music by Brahms, Debussy, Hindemith, Mahler, Ravel, Schoenberg, and Strauss, among many others. These quotations are notational—that is, Berio reproduces not the sounds themselves, but the instructions for recreating them. The quotations are only complete when performed. Digital sampling also involves symbols—ts and os instead of the various lines, dots, and squiggles of traditional notation. As a standard textbook on computer music explains, “What computers manipulate is not sound itself but representations of sounds.” Therefore, if sampling represents sound, we cannot say that a sampled passage of music is that music.

But if sampling does not differ from traditional musical borrowing in kind, it certainly differs in degree. Consider a hypothetical quotation, in which the score of an otherwise original work notates the two-second “Funky Drummer” solo. At most, only a dozen or so instructions (in the form of various symbols) would be used: several to indicate the parts of the drum kit (bass, snare, tom-tom, hi-hat, etc.), a handful for the duration of each note, and a few for dynamics, accentuation, and meter. But the equivalent digital sample would require nearly a hundred thousand distinct instructions, a level of specificity impossible to notate. With all of these instructions, so much more can be indicated: the sound of a particular drum being hit with a certain amount of force using a specific stick, or the exact number of milliseconds a note enters before or after the beat. Moreover, the sonic aura surrounding the sound can also be captured. By “aura” I mean two things: the reverberation that imparts a sense of space, and the slight but constant ambient noise—a patina, perhaps—that is a by-product of imperfect recording fidelity. Digital sampling offers the possibility of what I would call performative quotation: quotation that recreates all the details of timbre and timing that evoke and identify a unique sound event, whether two seconds of Clyde Stubblefield’s drumming or the slow, unsteady tapping rhythms produced as I type this sentence. In other words, traditional musical quotations typically cite works; samples better perform the works.

The Uncommon Parlance of Paul Lansky

I was sitting on a plane just before takeoff when an announcement came over the loudspeaker. It was no doubt the usual welcome, but for some reason I could not quite understand what the attendant was saying. At first I thought the loudspeaker was faulty, and then I put the difficulty to the noise of the engines. I leaned forward, closed my eyes, and concentrated, yet I still could not make sense of the words. My frustration mounted, but then suddenly I could understand her perfectly. I quickly realized why. Much to my chagrin: I was on a KLM flight to Amsterdam, and it dawned on me that the attendant had given the announcement twice—first in Dutch, and then in English. Dutch, at least to my ears, sounded quite a bit like English. But it did not occur to me that she was speaking a different language. Rather, it seemed as if she were using all the basic and familiar sounds of English, but in a completely unfamiliar (and rather maddening) way.

I am reminded of this incident when I listen to Notjusmoreidlechatter, a 1988 work by composer Paul Lansky. Lansky, a professor of music at Princeton University, creates his music almost exclusively with computers, and the eight-minute Notjusmoreidlechatter is one in a series of works in which he digitally manipulates speech—English speech—to create fantastic musical textures in which semantic meaning is tantalizingly out of reach. Lansky has long been interested in using the computer to transform the everyday into music, or perhaps to extract the music from the everyday. He finds inspiration in unexpected places—conversations, highway traffic, a bustling shopping mall, his own kitchen. Rather than sampling preexisting works (as the other composers discussed in this chapter do), he mines raw sonic material; moreover, these works bear little con-
nection to the world of traditional performance. Lansky is thus presented with a distinct compositional challenge: How does a composer write music that lives only on recordings? That is, how does one write a work that not only must stand up to exact and frequent repetition, but must also create its own self-sufficient world outside the familiar traditional concert venues? Lansky answers these challenges in the form of Notjustmoreidlechatter.

Notjustmoreidlechatter (Track 10 on the accompanying CD) opens with what one might take for the Babel of legend. Countless unintelligible voices—high, low, fast, slow—bombard the listener from every direction. Heard on headphones (perhaps the "natural" venue for such a piece), the voices seem to be inside one's head, bouncing and darting chaotically. In fact, we are hearing only one voice, that of Lansky's wife, Hannah MacKay. MacKay is reading from chapter 25 of Charlotte Brontë's Jane Eyre, in which Jane tells Rochester of her unusual dreams. The subject seems appropriate to the piece, for the disembodied voices have an unreal, otherworldly sound. While MacKay's voice is digitally multiplied, fractured, and transformed so that no single word is long or distinct enough to be understood, it is still possible to pick out recognizable syllables or phonemes. Here Lansky strikes a balance between familiarity and strangeness, in which listeners instinctively "squint" their ears, as Lansky puts it, in an attempt to understand what is being said. (Much as I did when I tried to make sense of Dutch on the KLM flight.) This is a canny compositional strategy, for it not only encourages attentive listening but also addresses the problem of repeatability. Even the most careful scrutiny will not reveal the text, but with every successive hearing the listener cannot help trying to extrapolate meaning from these verbal scraps. Here Lansky exploits the human tendency to fill in missing or unclear information to form whole structures. This is the same tendency that leads listeners to misinterpret indistinct song lyrics, even if the result makes little sense, for nonsense seems always to be more tolerable than uncertainty. (Examples of misheard lyrics are legion: "Excuse me while I kiss this guy," instead of "Excuse me while I kiss the sky"; "The ants are my friends, they're blowin' in the wind," instead of "The answer, my friends . . . ."; and so on.) Play Notjustmoreidlechatter to a group of listeners and you will find that they all think (and even insist) that they hear particular words, though few if any will agree on what is being said.

Lansky responded to the repeatability issue in another way as well. Using what he describes as stochastic mixing techniques, he essentially instructed a computer to determine certain aspects of the chattering at random. As Lansky has explained, the purpose of this unpredictability is to compensate for the fixity of the recorded medium, and in doing so simulate the spontaneity, the "danger," of live performance:

My view is that in order to recreate that sense of danger you have to make the listener into the performer. The listener has to take an active part in the experience in fundamentally different ways than in live performance, and in order to do this I think that it's necessary to compose elements into the music that are non-linear, sometimes random, sometimes noisy and not discursive in the ways that a lot of traditional music is. I want the music to challenge the listener anew on each hearing, so that identical sounds will end up sounding different depending on the performance the listener creates in his own mind and ear.

In Notjustmoreidlechatter there is no performer in the traditional sense. So the performer's task—to create a fresh interpretation of a work with each performance—is split between composer and listener. The composer imbues the work with the unpredictability of a live performance, while the listener assumes the executant's interpretive duties. In fact, for Lansky it is the listener who truly defines the music: "The essence of the music," he argues, "doesn't lie as much in its details as in the act of trying to understand them." If we compare Lansky's response to repeatability with that of the recording performer, we see a fascinating inversion. I suggested in chapter 1 (see p. 25) that recording artists transform performances into works by creating unchanging texts that transcend the temporal vicissitudes of the concert. Lansky has done exactly the opposite: he has composed a work with the qualities of a performance.

As its title suggests, there is more to the work than chaotic chatter, which alone might well drive listeners to distraction. Just as Lansky seeks a balance between familiarity and strangeness, he also leavens complexity with simplicity. Anchoring the swiftly moving surface voices are what Lansky refers to as background singers. Where the former move randomly in complicated rhythms guided by no perceivable system of tonality, the latter
do the opposite. These voices sing slowly in simple harmonies on vowel sounds, meandering in stepwise motion within a diatonic scale. Although they do not follow the traditional rules of tonal voice-leading, their deliberate and predictable movement provides structure to the piece. A broader organizing principle also helps unify the work. The chatter voices chart a gradual path from lesser to greater intelligibility and back again, providing a kind of arch form to the work. At the midpoint of the piece, the background voices fade while the chattering becomes more prominent and distinct. Lansky seems to be rewarding careful listeners; for example, I hear “dream” and “a long way” (4:23–4:24), both of which are in the source text. (Then again, I would swear that I hear certain words and phrases that are not in the source text, so at any point in the piece it is impossible to know whether I hear what I think I hear.) After this section of relative clarity, the distinctness of the text diminishes as the chattering recedes into the background. After nearly eight minutes, the piece slowly fades from one’s consciousness, the voices dying away inarticulate, to paraphrase Jane Eyre’s description of her own voice disappearing in a dream.

Notjustmoreidlechatter wonderfully demonstrates the musical and aesthetic potential of digital technologies. Like an alchemist, Lansky transforms the ordinary into the precious, where a spoken word becomes a superhuman chorus. But this is no black magic—it is virtuosic handicraft developed from an understanding of both computer software and human perception. If Lansky exploits the possibilities of the technology to the fullest, he also confronts its limitations. The is and os of Notjustmoreidlechatter will not change no matter how many times we hear the piece. But he uses those same fixed digits to create the illusion of spontaneity, and makes us squint our ears in an attempt to hear more. The piece also raises questions about the definition of music. How does mere sound become music? Can we pinpoint the transformation? Is the transformation in the listener, achieved when something is heard as music? Lansky does not answer these questions, but he does suggest (as John Cage had done before, but with very different sonic results) that the line between noise and music is far from clear, if such a line exists at all.

Paul Lansky hopes that listeners will not dwell on the technology with which he creates his music. “Music succeeds when its machinery is less interesting than its tunes.” His stance is understandable, for he certainly would not want the medium to overshadow the message. While I do not agree with Marshall McLuhan that the medium is the message, a rich understanding can come of investigating both. Although the world of Notjustmoreidlechatter springs from the imagination of the composer, it is the technology that renders it audible.

FROM ‘TAKE YO’ PRAISE’ TO ‘PRAISE YOU’

The recording opens with a piano playing an eight-bar introduction in a gospel style. We can imagine the pianist sitting at a battered upright, vamping an introduction for a nervous amateur singer. Oblivious to the proceedings, some members of the audience continue their neighborly chitchat. The singer then enters tentatively:

We’ve come a long, long way together,
Through the hard times and the good.
I have to celebrate you baby,
I have to praise you like I should.

At the end of the phrase something very strange happens, disrupting our mental image of the proceedings. The singer starts to stutter unnaturally on the word should, as a complement of percussion instruments and then an electric bass thicken the texture. The woman holds the note for ten, twenty, thirty seconds. A synthesized drum joins in, pounding out quarter, then eighth, then sixteenth, then thirty-second notes before the texture erupts into an up-tempo dance.

The minute and twenty seconds of music I just described opens “Praise You” (Track 11 on the accompanying CD), the 1998 electronic dance music hit by Norman Cook, better known in his native Britain and throughout the world as Fatboy Slim. At the core of “Praise You,” however, is another song, representing a different era and genre. The voice we hear belongs to Camille Yarbrough and was recorded in 1975 as the opening of her soul/funk song “Take Yo’ Praise” (Track 12). Through the technology of digital sampling, Cook has at once decontextualized and recontextualized Yarbrough’s voice, giving it new sounds, functions, and meanings. What
makes this case study fascinating, however, is that the relationship between these two songs simultaneously confirms and confounds our expectations of digital sampling, and in the process raises some of the complex aesthetic and ethical issues arising from this new form of musical borrowing.

Cook samples only the first twenty seconds of “Take Yo’ Praise,” which consist of Yarbrough’s unaccompanied singing—nothing more. This comes as a surprise to most listeners, who assume that the opening of “Praise You” is an unretouched aural snapshot of an actual performance. It was Cook, then, who added the piano and the background voices; he even manipulated the crackling sound of the LP from which he sampled the piano, making it more prominent. (He also altered Yarbrough’s singing, increasing the tempo and flattening the melodic contour.) Cook demonstrates his mastery of the sampler here, providing a sense of wholeness to this olio. He does this not only through the harmonization of the vocal line, but with noise. The background chatter offers a sense of occasion, of liveness, and of place; the foreground crackling offers a sense of time, evoking the unspecified past of the vinyl age. The latter can now be produced digitally and is aptly known as the phonograph effect. A phonograph effect indeed, for it is a palpable manifestation of recording’s influence. This noise, real or digitally simulated, is now firmly part of our modern sonic vocabulary, and can be powerfully evocative to listeners. It was long deemed an unwanted addition to the phonographic experience by both the industry and listeners, but ironically became a valued and meaningful sound when digital technology finally eliminated it. In the age of noiseless digital recordings, this sonic patina prompts nostalgia, transporting listeners to days gone by (whether of their own or some generalized past), an effect Cook exploits in “Praise You.”

In the original, Yarbrough’s line “I have to praise you like I should” leads to the entrance of a sublimely funky electric bass line, with guitar and percussion filling in the accompaniment. As the song continues through several more verses, text and tone become increasingly passionate and erotic before subsiding into a postcoital coda. Cook, however, takes another path. The music following the opening sixteen measures, when Yarbrough’s voice starts to skip, seems rather unimaginative, even inept. The vocal stutter suggests a failed attempt to create a superhuman fermata; the synthesized sound of the throbbing drum is clearly foreign to the rest of the musical texture; and the successive doubling of the pulse is a dance music cliché. Yet whatever else he is, Cook is not inept. He is actually playing a sly joke on us, for his intentionally ham-fisted sampling convinces us all the more of the “authenticity” and “naturalness” of the opening, which, as we now know, is neither. Cook himself admits that the vocal stutter was “a gag, a way of saying, ’Look, I sampled this.’” With this heavy-handedness he thus makes his presence known; the man behind the curtain has revealed himself. Of course, he was there from the start. Attentive listening reveals that the first four seconds of “Praise You” are looped, so that the two measures in the piano, the fragment of conversation, even the pattern of pops and clicks are repeated in exactly the same form. His portrait of an artist as a young woman is clearly a construct.

The introduction now over, Cook proceeds to use the twenty seconds of Yarbrough’s singing, and various parts of it, through the rest of the five-minute song. The entire sample is heard only three times. All other appearances of Yarbrough’s voice come from the last line, “I have to praise you like I should.” Cook does not further alter the sample; rather, variation in the music comes from the accompaniment, which changes throughout the piece. Although this is dance music, which requires repetition and a steady beat, it has a subtlety that rewards close listening. Cook himself might argue to the contrary, however. According to him, with dance music, and his music by extension, “There’s nothing to sit and listen to. It’s the soundtrack of your nights out rather than anything that’s supposed to be heard or discussed at home or at great length.” Yet notice the male voice singing along to the bass in nonsense syllables at 0:57, the faint vocal echoes accompanying “I have to praise you” starting at 1:57, the human beat-box rhythm at 2:11, and the variety of glissandos, cymbal hits, and robotic chrips that pepper the texture. Most of these can only be heard with careful attention and headphones—that is, at home, rather than at the club.

If Cook adds a good deal musically, he also strips much away from the original. Camille Yarbrough’s “Take Yo’ Praise” offers a complex message, one absent in “Praise You.” Yarbrough’s is a multifaceted love song, one woman’s moving and sensual tribute to the man in her life. As the composer reveals, the lyrics are autobiographical: “I wanted the brother with whom I was attached to know that . . . he had contributed a lot to my growth.” The song has broader implications as well. Yarbrough wrote
“Take Yo’ Praise” during the civil rights movement, in which she, an African American woman, was deeply involved. “I had decided to give it a double meaning,” she explains. “It was also directed at all people of African ancestry ... who had at that time been in the front lines of the battle to turn racism around.” The opening line—“We’ve come a long, long way together”—refers, then, to her people, not just her man. In Cook’s hands, however, both the personal and political meanings of the original evaporate. In fact, after so much sheer repetition, it’s unclear whether these words mean much beyond what the timbre and rhythms of Yarbrough’s voice communicate musically. In a survey of informal reviews of “Praise You” posted on the Internet I found very few that even mentioned the lyrics. Of those that did, most were dismissive. “I can’t really say the lyrics are deep, because they’re not,” one reviewer noted. He summed up the song in this way: “I think one of my friends described ‘Praise You’ best when she said it felt like one of those songs you cruise around town with all your friends listening to and doing fun, crazy stuff. And if you know that feeling, you know what ‘Praise You’ feels like. It’s just a fun song.” While it might be tempting to dismiss this assessment as superficial, it is important to remember that Cook omits the vast majority of the text, repeating just a few words over and again. No wonder fans of the song have had little to say about its lyrics.

One could also argue that through his sampling Cook digitally neuters Yarbrough. On first hearing, many people think that the singer is a man or are unsure of the gender. Cook changes Yarbrough’s voice in such a way that it is less nuanced than the original, and the lack of timbral clues makes it possible to hear it as a tenor or alto. (Interestingly, Cook points out that the quality of Yarbrough’s sampled voice was an unintended consequence of time-stretching, at the time a relatively new and rather unrefined technique used to change the tempo of a recording without affecting its pitch. He nevertheless appreciated the resulting gender ambiguity.) Nor does the sample offer any textual clues as to gender, whereas in the original the second verse leaves no doubt as Yarbrough sings, “You make me glad I’m a woman, because you’re a feeling, thinking man.” The lack of any eroticism in “Praise You,” so clear in “Take Yo’ Praise,” also renders the voice asexual. The effect of this digital denaturing is ambiguous. It is possible to hear Yarbrough’s bodiless voice as a free-floating signifier, one that transforms the personal into the universal and allows the song to be heard from a male or female, heterosexual or homosexual, frame of reference. Another possibility, perhaps not mutually exclusive, is that Cook is disempowering Yarbrough, erasing her history, identity, and vitality. As Kay Dickinson has pointed out, “In the case of sampling, it would not seem untoward to derive extremely disempowering readings from male producers chopping chunks out of women’s performance.” It would certainly be fair to say that Cook has “chopped chunks” out of Yarbrough’s performance.

What should we make of “Praise You”? Is this just another example of a white musician—Cook—appropriating and denuding black culture for profit and fame? Certainly there was an unequal power relationship. Cook was a popular and wealthy musician (becoming much more so after the release of “Praise You”), while Yarbrough’s musical career brought her rather less money and notoriety, and was all but forgotten by 1998. (Even by Yarbrough herself; she had long since moved on in her varied career as a dancer, actress, radio host, writer, and teacher.) Notice, too, the “whitening” of the title as the black vernacular “Take Yo’ Praise” becomes “Praise You.”

Yet the story is not so black and white. It turns out that Yarbrough was actually “pleasantly surprised” when she first heard the song. She was pleased that Cook had sampled the hook from “Take Yo’ Praise,” which she considers the emotional core of her song, with an important message to offer. “We need to praise one another,” she explains, “we need to stop all the negativity. Once you begin to fill your mouth and your mind and your heart with praising something or someone the put-down lessens.” Yarbrough also feels that the gospel quality Cook lent the sample was appropriate, and brought out the spirituality of her song, at least in the opening of “Praise You.” (While Cook acknowledges the influence of gospel, he denies that there is anything spiritual about his song. Ironically, it is the gospel sound of the Rolling Stones’ “Sympathy for the Devil” that he cites as inspiration, As Cook points out, “I’m a big fan of gospel music, more than I am of God.”) And although Yarbrough seems ambivalent about what she calls the “dance hall” sound of the remainder of the song, she does not feel that it in any way devalues her work. After all, she points out, “I can still do that song as I do it. And so what he did, that’s on him; what I do, that’s me.”
For his part, Cook understands that what he did is on him. "I'm always aware that white artists who are fans of black music tend to have big hits when they cover black records. All I can say is, I don't do it for profit, I do it because that's the music I love, that's the music I want to make in my way. I always try to make sure that the original artist gets the credit and the money." To be sure, Yarbrough received both. Cook gave her co-composer credit and a 60 percent share of the royalties, a generous arrangement indeed. Cook, however, may have learned from experience. On his previous album, Better Living Through Chemistry, he sampled guitar chords from The Who's "I Can't Explain" without permission. Not until a year after its release did Cook approach Pete Townshend, the composer and copyright holder of the song. The ensuing negotiations between their respective lawyers ended badly for Cook: Townshend was given sole composer credit for the song and 100 percent of the royalties. Cook obviously wanted to avoid such a debacle with "Praise You." Nevertheless, Yarbrough received (and still receives) a considerable amount of money from the song not only from album sales, but from licensing fees paid by the many film and television producers who have used the song. She does not downplay the significance of this windfall, which she has described as "a gift." She later joked, "I have a platinum card, so now I praise Fatboy Slim!" Moreover, "Praise You" has brought a good deal of positive attention to Yarbrough and her music, leading to the re-release of her 1975 album The Iron Pot Cooker, two remixes of the song, and a revaluation of her place in popular music by the press. Cook may have "chopped chunks" out of Yarbrough’s song, but the result hardly seems to have been disempowering.

In 2002 I presented this case study to an undergraduate class on popular music and invited Yarbrough to speak to the students. The students were enchanted by Yarbrough and fell in love with her music. Yet as impressed as they were with Yarbrough’s talent and integrity—or perhaps because of it—a number of students were disappointed that she so readily accepted Cook’s “Praise You.” In a later discussion, these students said that Cook’s treatment of “Take Yo’ Praise” was demeaning, and found it disturbing that Yarbrough, who spoke so forcefully to us about racism and injustice, did not see that she herself had been exploited. Regardless of how Yarbrough felt about the matter or how well she was paid, these students still felt there was something wrong about the whole affair.

Although I sympathize with their viewpoint, I disagree with it, and will persist in resisting an unambiguous view of these two songs and their relationship, and of digital sampling in general. Sampling has often been criticized as fundamentally uncreative, even unethical. True, one can hear unimaginative borrowings that capitalize on a sample’s familiarity, neither revealing new ways of hearing the sample nor enriching its musical surroundings. And many musicians have had their work sampled without credit or payment, with others profiting from their creativity. Fatboy Slim’s “Praise You,” however, does not allow us the luxury of a blanket condemnation (or celebration, for that matter); it can be understood as derivative and novel, exploitative and respectful, awkward and subtle. The song, moreover, raises questions of creativity and originality, and forces us to confront issues of gender, class, and race. In that sense, the relationship between “Praise You” and “Take Yo’ Praise” brings into focus some of the crucial questions, issues, and ambiguities that face the study of digital sampling, as it presents to us the practice in microcosm.

DIGITAL AESTHETICS AND POLITICS
IN "FIGHT THE POWER"

Consider the opening of Public Enemy’s 1990 rap song “Fight the Power” (Track 13 on the accompanying CD). In less than a minute, more than a dozen samples fly by, chopped, looped, layered, and transformed in any number of other ways. The tone is set in the opening seconds by a resonant, agitated voice: “Yet our best trained, best educated, best equipped, best prepared troops refuse to fight. Matter of fact, it’s safe to say that they would rather switch than fight.” The second section (0:17–0:24), a mere three measures long, is anchored by the dotted rhythm of a vocal sample repeated six times. The words are indistinct, and with good reason—they’re backwards. The words are “pump me up,” from Trouble Funk’s 1982 song of the same name. Against this pattern a melodic line, sunk deep into the mix, snakes upward in triplets over the three measures. The sound, obviously electronically processed, may be the saxophone playing of Branford Marsalis, the only instrumentalist (in addition to Terminator X, who provided the turntable scratches) who performed specifically for this song. Eight hits of a snare drum in the second measure and some vocal exclai-
motions in the third fill out the texture. (One of these exclamations, a non-semantic “chuck chuck” from the 1972 soul song “Whatcha See Is Whatcha Get” by the Dramatics, may well be a sly nod to Public Enemy’s rapper, Chuck D.) The next section (0:24–0:44), which leads up to the entrance of the rappers, is even more complex. Clyde Stubblefield’s “Funky Drummer” solo makes an appearance, though it is submerged within a dense web of other samples. Only the first two eighth-notes in the bass drum (or kick) and the snare hit are clearly heard. Competing for the listener’s attention is a host of other sounds: four fragmented vocal samples (three have text and the other is one of James Brown’s famous grunts) as well as guitar, synthesizer, bass (from James Brown’s 1971 “Hot Pants”), and various percussion samples. The effect created by Public Enemy’s production team is dizzying, exhilarating, and tantalizing—one clearly cannot take it all in at once.

When Public Enemy rapper and spokesman Chuck D. explains, “Our music is all about samples,” he reveals the centrality of recording technology to the group’s work. Simply put, “Fight the Power,” and likely Public Enemy itself, could not exist without it. “Fight the Power” is a complex and subtle testament to the influence and possibilities of sound recording; but at the same time, it reveals how the aesthetic, cultural, and political priorities of musicians shape how the technology is understood and used. A look at Public Enemy’s use of looping and performative quotation in “Fight the Power” will illuminate the mutual influences between musician and machine.

The looping in “Fight the Power,” and in rap generally, directly arose from the hip-hop DJs of the 1970s. As we know from chapter 6, a recorded passage—typically an instrumental solo, or “break”—would be repeated by switching back and forth between two turntables playing the same record. Although looping in most rap (“Fight the Power” included) is no longer created on turntables, its connection to DJing remains crucial. Many hip-hop producers were once (or are simultaneously) DJs, and the skills in selecting and assembling beats are required of both. Moreover, the DJ is a central, founding figure in hip-hop music and a constant point of reference in its discourse; producers who stray too far from the practices and aesthetics of DJing risk compromising their hip-hop credentials.

Although “Fight the Power” samples dozens of different works, the total length of those fragments is fairly short, as most are less than a second long. From such an economy of material, the four-and-a-half-minute track can only exist through an extravagance of looping. Indeed, as Chuck D. once told an interviewer, “We put loops on top of loops on top of loops.” For example, in just one four-second segment (0:24–0:28), at least ten distinct samples are being looped; the whole texture is then repeated four more times as a meta-loop until the rappers enter. The section is wildly polyrhythmic; with no two samples overlapping completely, each one competes for the listener’s attention. This raises an interesting musical question: What is the effect of weaving together so many distinct and opposing rhythms into an ostinato? An uneasy balance is struck. The repetition provides a consistent pulse, yet the angular syncopation of the various fragments hardly provides a model of stability. The result is something of a paradox—a groove that somehow resists inevitability however many times it is repeated. This practice is also characteristic of various African American musics that do not make use of digital sampling. One need only listen to, say, James Brown’s “Papa’s Got a Brand New Bag” or “Funky President,” both densely packed with competing ostinatos, to understand that looping represents an extension of earlier practices, not a break from them. The loops in “Fight the Power” are not only polymetric, they are polytimbral, representing what composer Olly Wilson calls the “heterogeneous sound ideal.” Such an ideal values a diversity of tone colors sounding simultaneously and is demonstrated in a wide variety of African and African American repertoires. Listen again to the section following the opening spoken sample: the combination of percussive grunts, sing-song speech, throbbing bass, cracking drums, and high-pitched ringing defines “heterogeneous.” This meta-loop is therefore not simply a technological manifestation, but a cultural one.

Public Enemy’s sampling in “Fight the Power” serves political as well as musical ends. There is no mistaking the song’s rhetoric. The lyrics express black pride, voice opposition to the white establishment, and address racism, freedom of speech, and the representation of blacks in American life and culture. Toward the end of the song (3:18–3:24) Chuck D. raps, “Most of my heroes don’t appear on no stamps/Sample a look back you look and find/Nothing but rednecks for 400 years if you check.” The use of the word sample is significant. Public Enemy’s remedy is to provide
its own samples, literally in the form of digitized snippets—performative quotations—of the work of its underrepresented heroes. Among others, these samples pay homage to Afrika Bambaataa, Bobby Byrd, James Brown, George Clinton and Funkadelic, the Jacksons, Sly and the Family Stone, and Trouble Funk, all seminal figures in the development of late-twentieth-century African American popular music (and popular music, period). Although many of the samples in “Fight the Power” are disguised beyond recognizability, there is no mistaking Brown’s grunts and Bambaataa’s electronically processed exclamations. Even when not readily identifiable, the samples clearly draw from African American culture. Various exhortations common in black music and church services—“Let me hear you say,” “Come on and get down,” “Brothers and sisters”—dot the soundscape. Reinforcing the musical samples are textual references to the music of black Americans (many of them also quoted digitally), including “sound of the funky drummer” (James Brown and Clyde Stubblefield), “I know you got soul” (the title of a Bobby Byrd and, later, an Eric B. and Rakim song), “freedom or death” (a Stetsasonic song), “people, people” (from James Brown’s “Funky President”), and “I’m black and I’m proud” (James Brown’s famous anthem). The track’s title itself invokes the Isley Brothers song of the same name.39 Finally, a more general reference to African American music is implicit throughout the entire song—in its virtuosic sampling and looping, “Fight the Power” draws upon and honors the work of the hip-hop DJ.

In Black Noise, Tricia Rose argues that although rap music is shaped by and articulated through advanced reproduction equipment, its stylistic priorities are not merely by-products of such equipment.39 “Fight the Power” perfectly illustrates that claim. On the one hand, it would be extraordinarily difficult, perhaps impossible, to reproduce the dense polyphony and distinctive timbres of the rhythm track without digital sampling. Even if the sampled musicians were to perform their chopped and looped parts in concert (an unlikely prospect!), they themselves could not exactly reproduce the original. It is not simply their voices or their playing that is important, but specific and well-known performances as mediated through recording technology and heard on discs of a certain vintage. And even if it were somehow possible to recreate the samples, to do so would be to miss the point of hip-hop sampling completely. As Joseph Schloss has demonstrated in his study of the practice, it is the sample—not the live performance—that is the real thing. As one producer explained to him, a live recreation “just doesn’t sound authentic. There’s something about the way old records sound when they’re put together right. You can’t really recapture ’em when you play [live].”31 In other words, it is performative quotation—made available by digital sampling—that allows Public Enemy to call forth a pantheon of black figures with such vividness. And it is the manipulability offered by recording technology that makes it possible to interweave these sounds into a rich collage.

Yet the structure and texture of the music were not directly determined by the tools used to create them. Rather, Public Enemy employed these tools in ways that served their own musical and rhetorical ends. They would no doubt agree with Stetsasonic’s Daddy O. (cited as a “lyrical inspiration” in the liner notes of Fear of a Black Planet) that “A sample’s just a tactic/A portion of my method, a tool/In fact it’s only of importance when I make it a priority.”32 Sampling serves to continue the predigital, prephonographic practice of signifying that arose in the African American community. Signifying, which can be used to boast, insult, praise, or moralize, generally plays on the many possible meanings and interpretations of a given statement; it is, in the words of Henry Louis Gates Jr., a “black double-voicedness.”35

We can see how in “Fight the Power” sampling is a digital form of signifying. (Recall how in chapter 6 turntablism was invoked as an analog form of signifying.) The double-voicedness of the samples is clear, as two examples will illustrate. In its original context, the opening sample (“Yet our best trained . . . troops refuse to fight”) most likely referred to the Vietnam War. In quoting this passage, Public Enemy preserves its bitterness and fury, but broadens the message, suggesting that real injustice comes not from without (in the form of the country’s wartime rivals) but from within, in the form of racism, poverty, and crime, attributed here to the white establishment—“the power.” The statement of “people, people” (1:43) is literally double-voiced: Flavor-Flav and a sampled James Brown (from “Funky President”) speak simultaneously. But the double-voicedness is also rhetorical. Flavor-Flav proclaims “People, people we are the same,” while Chuck D. retorts, “No we’re not the same.” On its own, the lyric expresses the conflict between assimilation and separatism within the
black community. The addition of James Brown's voice taps into his cultural authority, while linking Public Enemy to the less complacent past of the civil rights era.

Yet the power of these sampled statements comes not just from their words, but from their voices, their digitally sampled voices. It is the "grain" of these voices—captured in sequences of 1s and 0s—that truly gives their words such power. And round and round we go: the message cannot be understood without examining the medium, while the nature of the medium is not fully apparent independent of the message. One way of understanding "Fight the Power," then, is as a four-and-a-half-minute treatise on the phonograph effect, one that reveals, as much as anything discussed in this book, the complex relationship between artist and technology.

Too often discussions of sampling treat the practice simply as technological quotation. However, as I have suggested throughout this chapter, sampling is most fundamentally an art of transformation. A sample changes the moment it is relocated. Any sound, placed into a new musical context, will take on some of the character of its new sonic environment. Every "Funky Drummer" sample, however recognizable, leads a distinct life in its new home. Thus, the sound and sense of a two-second drum break may change radically from song to song, even if the patterns of 1s and 0s do not.

Yet samples rarely leave home unchanged, and it is in the chopping, looping, tweaking, and shuffling that the art is truly found. The sampled sounds are really only raw materials, waiting to be mined and refined. This is made most clear in the work of Paul Lansky, whose sources are not songs but everyday sound, and it is up to him to give them musical meaning and syntax. But even finished compositions are ore in the sampler's hands. "Take Yo' Praise" is still recognizable in "Praise You," but in changing its sound, Norman Cook has transformed its function and meaning as well. By contrast, very little of the ore Public Enemy mines in "Fight the Power" is even recognizable, having been transformed so dramatically.

Sampling is also transformative in a less tangible way, in that it blurs the traditional distinction between ideas and expressions. As they are typically understood in the discourse of intellectual property, an idea is a concept, principle, process, or system that is independent of any form, while an expression is a particular embodiment of that idea. For example, the concept that sound recording influences modern musical life is an idea, one that I and many other people share. On the other hand, Capturing Sound is a particular expression of that idea. In practice, the dichotomy is not always so clear-cut, but digital sampling muddies the distinction almost beyond recognition. Trouble Funk's 1982 song "Pump Me Up" is obviously not an abstract idea, but a concrete expression. But does the passage sampled in Public Enemy's "Fight the Power" remain Trouble Funk's expression when it no longer bears any resemblance to its unaltered state? Isn't Public Enemy's use of that sound an expression distinct from Trouble Funk's? And if so, does that make the Trouble Funk song the raw material of an idea (or even a wholly different idea) for Public Enemy?

The collapse of the idea-expression dichotomy could have considerable ramifications for copyright law, for while expressions are legally protected, ideas are not. If sampling can be more like taking inspiration from another's ideas than appropriating another's expressions, then sampling—in many cases—should be treated as a form of protected speech immune to prosecution for copyright infringement. My point, however, is not to argue the legal issues of sampling—an area I have intentionally avoided, as I believe it overshadows so many more interesting aspects of the practice. Rather, I raise the idea-expression dichotomy to demonstrate the radically transformative potential of digital sampling.

Finally, sampling has transformed the very art of composition. When composers sample existing works, they begin with expressions, transform them into ideas, and then again into new expressions. Sampling obviates the need for notation or performers, since the final product is not a score requiring interpretive realization, but a document of binary numbers requiring electronic conversion. Composers who work with samples work directly with sound, thus becoming more like their counterparts in the visual and plastic arts. As Public Enemy's Chuck D. explained, "We approach every record like it was a painting."55 Sampling is a rich and complex practice, one that challenges our notions of originality, of borrowing, of craft, and even of composition itself.
CHAPTER SEVEN

1. "Funky Drummer" was originally released as an LP on Ydeo 6290 in 1970. It has been reissued on Star Time, Polydor compact disc 849:108.


5. Paul Lansky, Notjustmoreidlechatter, on More Than Idle Chatter (Bridge compact disc BCD 9050). Lansky's other "chatter works" are Idle Chatter (1985), just_more_idle_chatter (1987), and Idle Chatter Junior (1999). The first two are included on More Than Idle Chatter; the most recent was released in 2000 on Paul Lansky, Ride (Bridge compact disc BCD 9103). Lansky also manipulates speech, though in different ways, in several works on Conversation Pieces (Bridge compact disc BCD 9083).


7. Paul Lansky, e-mail message to author, 7 April 2003.


9. "Praise You" was released on You've Come a Long Way, Baby (Skin compact disc: BRASSICRD 662-47-2); "Take Yo' Praise" has been re-released on The Iron Pot Cooker (Vanguard compact disc: 79356-2).
12. Camille Yarbrough, telephone interview with author, 15 July 2003. Unless otherwise noted, all following quotations of Yarbrough come from this source as well.
13. Review posted 17 April 2000 at www.epinions.com/music-review-2CEE-132C1929-18FBF273-prod3. I did find one review that actually interpreted the lyrics. The reviewer, who wanted to have the song played at his wedding, explained: “To me these words pretty much sum up every couple in the world. Two people that love and care for one another through thick and thin” (www.epinions.com/music-review-646-3A4354C-3A13EE0D-prod6, posted 21 November 2000).
14. I base this assessment on the reactions I have gotten to the song when presenting it to students and acquaintances.
15. Cook, telephone interview with author.
17. Cook, telephone interview with author.
18. Ibid.
23. In hip-hop, there is typically a division of labor between the rappers, who write and perform the vocal part of a song, and the producer(s), who compose the accompaniment—referred to as the rhythm track or the beats—but do not perform. The opening section of “Fight the Power” and the rhythm track for the whole song were created by the Bomb Squad, Public Enemy’s production team. Published interviews of the rappers and the production team make it clear, however, that there was a close collaboration in the creation of the tracks and the lyrics in *Fear of a Black Planet*, the album on which “Fight the Power” appears.

24. Ibid., 92.
25. For more on the relationship between DJing and producing, see Schloss, “Making Beats,” 65–74.
28. Chuck D. proves prescient here, for Elvis Presley, who is deified earlier in the song as “straight up racist,” was put on a United States postage stamp to great fanfare in 1992, not long after the release of the song.
29. Bobby McFerrin’s “Don’t Worry. Be Happy” is also cited, though this sunny song is held up for derision.
32. Stetsasonic, “Talkin’ All That Jazz” (1988), on *In Full Gear* (Tommy Boy compact disc 1459).
34. For a discussion of the way that music problematizes this distinction, see Vaidyanathan, *Copyrights and Copywrongs*, 117–18.

**CHAPTER EIGHT**

3. There are other file-compression formats, such as Windows Media Audio (WMA), Real Audio, Ogg Vorbis, and AAC. However, I will be focusing on MP3, as it is the current de facto standard for file-sharing.
5. My thanks to Christopher Burns for clarifying the concept of perceptual coding to me. For a very lucid explanation of perceptual coding and, more generally, the process of creating MP3 files, see Paul Sellers, “Behind the Mask—Perceptual Coding: How MP3 Compression Works,” *Sound on Sound* (May 2000), www.soaspubs.co.uk/soc/may00/articles/mp3.htm.
6. It should also be noted that not all MP3s have the same sound quality. The sound quality depends on the bit rate—the average number of