Sampling and Timbre in *Collage #1 ('Blue Suede')*

Regis Verdin

ABSTRACT

James Tenney's composition *Collage #1 ("Blue Suede")* is historically significant as an early example of a composer using samples from pop music. The entire piece is constructed from a recording of Elvis Presley's *Blue Suede Shoes*, and because of this unabashed reuse of musical material, Chris Cutler identifies it as an early and important plunderphonic composition: "It wasn't until 1961 that an unequivocal exposition of plunderphonic techniques arrived in... *Collage #1*"[3]. Sampling has since become one of the most widespread uses of technology in music, and *Collage #1* has a place in the early history of this practice.

The way Tenney samples *Blue Suede Shoes* is especially interesting: he plays with the listener's ability (and sometimes inability) to recognize the original sample. This connects the piece to another significant trend in 20th century music: a growing understanding of auditory perception, and the use of this knowledge in creating music. The way these two trends intersect in *Collage #1* makes it an interesting and valuable composition in the history of music technology.

INTRODUCTION

James Tenney was an American composer who lived from 1934-2006. He composed *Collage #1* in 1961 at the University of Illinois Urbana-Champaign, in the Experimental Music Studios founded by Lejaren Hiller. At the time, Tenney was a graduate student, studying with Hiller. The studio contained basic tape-editing and broadcasting tools: tape decks, a mixer, microphones, amplifiers, oscilloscopes, and various filters. Tenney's composition is a monaural tape "collage" composed entirely of one source recording that, according to fellow composer Arthur Jarvinen [4], Tenney happened to find in the studio: a 1956 recording of Elvis Presley performing a cover of Carl Perkins' *Blue Suede Shoes [12]*.

As a piece of experimental tape-music, *Collage #1* is easy to relate to certain aspects of musique concrete: both involve rearranging recorded samples, the recordings are often manipulated with effects, and both were created in electronic music studios. However, it differs from musique concrete in significant ways. *Collage #1* uses a sample from popular music (as opposed to the non-musical sound sources of musique concrète), and over the course of the piece draws attention to the original source of the material. This is the opposite of the "acousmatic" approach of Pierre Schaeffer's musique concrète [13]. Tenney's act of appropriating popular music in an obvious way (especially without permission) was later dubbed "plunderphonics" by John Oswald [9], and so *Collage #1* is often considered the first proper piece of plunderphonic music.

It is important to note that *Collage #1* was neither the first tape-collage [11] nor the first instance of musical quotation. Tenney states that he "didn't want it to be like quotations", but instead like a "texture that would have some of the timbral characteristics of the original" [10]. This quote illustrates the intersection of two important practices in 20th century music that occurs in *Collage #1*: sampling, and the exploration of timbre and texture as structural elements in music. The technology available in the studios at the time enabled the rapid growth of these trends. By the time *Collage* was composed, and arguably much earlier, the formerly dominant musical element of harmony had been so deeply explored and controlled as to seem an exhausted resource to many composers. Electronics opened the way to exploring other musical features that had formerly eluded precise control, and *Collage* is an example of this tendency.

MUSICAL REUSE: QUOTATION

Musical reuse can be achieved on many levels, some more apparent than others. One of the more historically prominent varieties of musical reuse is musical quotation: the incorporation of passages of pre-existing music into a new piece of music. The verbal analogy of "quotation" paints a clear picture of this. The many creative uses of musical quotation can be seen in the number of varieties of and names for it, even before audio recording made the technique easier: medley, quodlibet, potpourri, fricassee, centonization, pasticcio, and so on.

Tenney was known for performing Charles Ives' *Concord Sonata* from memory, and it is no coincidence that *Collage #1* bears some resemblance to several features common in Ives' music [11]. Ives' sonata makes liberal use of quotations from both classical and folk traditions, and yet they are often consumed by the overall texture and density of the music. The same applies to *Collage #1*, and Tenney uses the moment of recognition of the source to great effect. There is something of a political statement about music to be found in Ives' and Tenney's quoting of popular music: the implication that popular and classical traditions are equally valuable as art. Or perhaps, in a more post-modern rephrasing, that the high-art/ low-art distinction is invalid.

MUSICAL REUSE: SAMPLING

Sampling and quotation in music can be viewed as a modern extension of the basic musical (and human) tendency to reuse available materials, as seen in quotation. While quotation in some form or another has probably existed for most of music history, sampling is made possible by audio recording technology. Sampling usually refers to using a fragment or "sample" of one recording in creating another piece of music. It is distinct from

quotation in that it is not the written symbols for sounds that are being copied, but the sounds themselves. To be more accurate: technically the audio recording is still a symbolic representation, but of a much higher fidelity than traditional music notation, so the quotation is more precise with sampling.

There are other early examples of sampling popular music, the earliest probably being Buchanan and Goodman's *The Flying Saucer* [15] from 1956 (which also samples "Blue Suede Shoes"). But given the above definition of sampling, *Collage #1* takes a much more extreme approach by using the entire piece and nothing else as material. However, this does not imply that the expressive content of *Collage* is identical to the source material. Some features are preserved from the Elvis sample, but the identity of *Collage* seems to be largely the result of Tenney's editing process: the reordering of the source material, and the various effects applied to it. This distinguishes it from examples like *The Flying Saucer*.

Ken Jordan notes that "The combination of databases (for storage), software (for manipulation), and networks (for interactivity …) is challenging many long-held notions of what music-making can or should be." [5] While Jordan is referring to computer music, storage and manipulation still apply here. The editing in *Collage*, being at such a fine level of granularity with extremely short samples, is largely the result of the availability of tape recording technology. The tape enabled the storage and manipulation of sounds, and like any other musical instrument, the set of available techniques influenced the composer's aesthetic decisions.

COLLAGE #1 NAVIGATES MULTIPLE LISTENING MODES

The title *Collage #1* links Tenney's composition to another related history: that of sound collage. Sound collage draws more from film montage than from quotation, as it usually involves assembling sound objects to create the impression of scenes. The word 'collage' is borrowed from the visual arts. Walter Ruttmann's "Weekend" from 1930 is the first known sound collage to use recorded media. The title of Tenney's piece here refers more to the technique of sound collage, rather than the aesthetic. Ruttmann was a filmmaker, but Tenney is firmly rooted in music. In spite of the similar techniques and technology used in both pieces, the aesthetic is different. Ruttmann's work invokes the visual imagination, while Tenney's is a more purely auditory experience.

Collage #1 combines a sampling aesthetic with the techniques of sound collage to yield a very different output than the input source material. This approach has more in common with Pierre Schaeffer, who used similar techniques to obscure the source material. Schaeffer's work was much more likely a direct influence than Ruttmann on Tenney. Tenney even worked in a studio similar to Schaeffer's: an experimental music studio styled after a radio-broadcast studio.

Schaeffer took the opposite approach of Ruttmann's, by obscuring the visual associations with sounds rather than relying on them. They could be said to require different modes of listening[1], with very little overlap in how their music is intended to be experienced. In contrast, *Collage #1* invokes different modes of listening as the source becomes more apparent to the listener. The boundary of recognition of the source is used as a formal element. This differs from how Schaeffer aimed to minimize recognition [13], and how others like Buchanan and Goodman required recognition in their music to realize the humorous effect of their work. Tenney's *Collage #1* is unique in how he navigates these listening modes, and in doing so he contributed a distinct approach to a nascent sampling culture.

PLUNDERPHONICS AND THE ETHICS OF SAMPLING IN *COLLAGE #1*

John Oswald identified *Collage #1* as an early piece of plunderphonic music [8]. In doing so, he politicized Tenney's choice to use a sample. From all anecdotal and firsthand evidence available, Tenney's motivations for sampling were not political in the way Oswald describes. Nevertheless, this is an important way to frame the piece in the history of music technology. For one, it shows the relative obscurity of *Collage #1*: Tenney never had any legal issues with *Collage #1*, while Buchanan and Goodman were hit with a lawsuit over *The Flying Saucer*.

Beyond the fact that Tenney's piece was not nearly as well known (*The Flying Saucer* hit #3 on the charts), I would also argue that any legal response would be obviously unjustified, as Tenney significantly transformed the source into a very original expression, and the fragments are so short as to each be an insignificant chunk of the original. It seems that with copyright law, the boundaries (which should be clear) are often exceptionally unclear. Barry Kernfeld describes this ambiguity in the law and ethics of musical reuse as "the push and pull between equivalency and transformational use" [7].

Debates of this nature arise more often now that sampling has become nearly ubiquitous. Is the risk of punishing progressive artists worth the reward of compensating the artists they sample? Or the converse: is the risk of under-compensating artists worth the reward of pushing the culture forward? And does this actually move the culture in the right direction? This of course, assumes that musicians are the primary financial beneficiaries of the music they create, which has not always been the case. Tenney may have slipped under the radar with his piece, but one can imagine that similar debates might have arisen if his piece were more lucrative.

TENNEY'S EDITING PROCESS

Tenney said the compositional process for *Blue Suede* consisted of "cutting up tape into little pieces, throwing them into a basket, shaking it up, pulling them out and splicing them back together not knowing which direction they were going or what" [10]. This is an aleatoric element in the piece, and likely influenced by John Cage's chance operations. Tenney would then "listen to it and edit it", occasionally changing something when "the fragments were too long" [10]. No samples were longer than half a second [10]. We can assume that the original Elvis recording was transferred from vinyl to a master tape, and then re-composed using common tape-manipulation techniques available at the time: Larry Polansky identifies "speed changes, reversal, tape head echo, multitracking, splicing and some filtering" [11] (superimposition seems more likely than multitracking, given that multitracking was mostly used for live recording).

Because *Collage #1* is so closely tied to it's source material *Blue Suede Shoes*, it is worth briefly looking at the structure of the source. The form of *Blue Suede Shoes* is A-A-B-A-B-A-A, where the A sections feature Elvis' vocals over a backing band, and the B sections feature a guitar solo backed by drums and bass. This alternation in instrumentation between sections is highlighted in Tenney's piece. There is a very noticeable timbral difference between the vocal samples and the instrumental samples, even when fragmented by Tenney, and this difference is part of the form and effect of *Collage #1*.

A VISUAL COLLAGE OF *COLLAGE #1*

My visual analysis attempts to recreate the process Tenney used, some of which is admittedly based on my own speculation about his process. This process, when applied visually, makes some of the formal elements of the piece more evident. While there are aleatoric elements in the process, a formal analysis clearly shows that Tenney was editing his randomly chosen materials into an expressive form, which is closer in spirit to stochastic music than chance music. Ligeti identifies this step in a compositional process as "decision 2", where the composer makes executive decisions after an automatic process has produced some musical materials [8]. Tenney's compositions often treat form as an "object of perception", rather than as a "strategy of persuasion" or to "ensure comprehensibility" [10]. In other words, the musical form is not simply a medium to help transmit the meaning; it expresses meaning in itself.

Collage *#1* consists of three main sections: A(a, a') – B – A+B (a, a'). The analysis uses some of the techniques Tenney used in his piece, to create a visual analog to the piece and hopefully make the perception of the form easier. I used a single image of Elvis [15] as the source material, and created a visual collage that parallels the changes in *Collage #1*. To recreate the effect of tape cuts/edits, I took vertical slices of the image and assembled them in a timeline. Although I could not confirm this with any sources, I believe Tenney made a number of versions of the master tape with different effects applied, and then organized them by tape-speed and by whether they contained instrumental or vocal sections of the original. I did the same: there are a number of source images with different effects applied that represent musical parameters.

Grayscale versions of the original image represent tape samples that have less effects applied, while color versions of the image represent the highly manipulated and "colorful" versions of the Elvis samples. The idea is that Tenney has created two characters: "Original Elvis" and "Electronic Elvis", and the piece introduces them both separately and then has them duet [11]. Section A showcases "Electronic Elvis", section B introduces "Original Elvis" (a reverse development), and section A+B is the duet. Additionally, I selected slices of different areas of the image to represent the listener's subjective recognition of the source. Slices of Elvis' face indicate that it is recognizable, slices from other areas indicate that it is not. I suspect this corresponds to which samples use instrumental clips versus vocal clips, although it is hard to be certain when they are covered in effects. At any rate, the more recognizable samples mostly feature Elvis' voice, which says something about human timbral recognition of voices [10]. With all of these parameters, I used Tenney's "basket-picking" method: I chose slices pseudo-randomly from the images and areas of the image that fit the required musical parameters.

ANALYSIS WALKTHROUGH

Section A is in color, meaning the source sounds are heavily manipulated with effects, such as tape head echo and extreme speed changes (and the corresponding pitch change). In section A, the hue of the image represents relative tape-speed: mid-speed sounds are yellow, low-speed sounds are blue, and high-speed sounds are pink. The piece begins with low and mid-speed sounds in A(a) from 0'00"-0'28", then adds high-speed sounds to the mix in A(a') from 0'28"-1'17". The samples are not recognizable as the source. Tenney transitions to section B by briefly accelerating the pace of editing, and this is shown as narrower image slices in the analysis.

After this burst of samples, Elvis' voice emerges in a clearly recognizable form to begin section B, which lasts from 1'17"-2'03". His face appears in the images to show this recognition. The sound source is recognizable as a result of less extreme effects being applied (this is represented by grayscale images), and possibly a shift from instrumental samples to vocal samples. The effects seem limited to reversal and small changes in tape-speed. The tape-speed is shown by the degree of image contrast applied, again with high-medium-low options.

Section A+B is defined by the return of the heavily effected samples to duet with the less-effected samples, and this can be seen in the analysis as the mix of color and grayscale images. Throughout this section, the recognizability of the source decreases, and the analysis shows this by decreasing the use of images of Elvis' face. At 2'40" (the end of A+B(a)), Tenney humorously recreates Elvis' "Well it's a one for the money, two for the show..." [12] count-off, and this leads the listener into the final section A+B(a'). Here, we have a dramatic increase in editing speed, as the samples come faster and faster until the music loses almost any resemblance of the source. Throughout the entire composition Tenney has maintained a sense of key consistent with the original, in spite of all of the tape-speed changes, and the piece ends with what sounds like a half cadence.

The three-part form has set up a simple but provocative narrative (albeit a bit masked by the dense texture of the piece) in which two opposing perceptual entities (the recognizable vs. unrecognizable Elvis sample) are given separate expositions, and then merged. Perhaps as a symbolic gesture to the fact that they arose from the same source.

COLLAGE #1 AND MUSIC PERCEPTION

From the analysis we see how Tenney's sampling and editing techniques are used to explore timbral recognition, and how the form is built around the contrast between sections that vary in their recognizability as the source.

Musicians have long been interested in the science of music, often with a goal of generalizing musical practices and making them more effective. With the rise of communications media came the field of information theory, and many composers used the findings of that field as musical resources. The relationship was and continues to be symbiotic, as a number of these composers were also researchers. Early electronic music studios were often

hybrid facilities that encouraged both research and artistic creation (for example: Bell Labs, where Tenney was hired as a composer-technician from 1961-64). One result was that many composers approached their music with a scientific mentality.

Tenney's research interests were in cognitive science, and his knowledge about auditory perception informed the content of several of his pieces: *Critical Band* is clearly inspired by Harvey Fletcher's concept of critical bands, and *For Ann (Rising)* consists entirely of Shepard tones. His interest in the science of auditory perception is also evident in *Collage #1*. As discussed earlier, Tenney edits the sample in a way that navigates the border of recognition of the source material. The piece relies on the highly attuned human ability to recognize a voice (and identify its owner), and Tenney demonstrates how powerful our timbral recognition abilities are with voices: in spite of all of the manipulation that the sample undergoes, we still easily recognize Elvis' voice. The day-to-day equivalent is picking up the phone and being able to identify the caller from just one word of greeting.

I n *Meta-Hodos* and other writings, Tenney studied the phenomenon whereby humans perceive collections of sonic materials as a unit [14]. He explored the concept of temporal gestalt units in sound (as opposed to spatial gestalt units in vision), where perceptual units are not solely linked by their proximity in time, but also by the similarity of their perceptual features. "Element", "clang", and "sequence" are three types of temporal gestalt, in hierarchical order. In these terms, we see that Elvis' voice invokes a perceptual unit, in spite of being fragmented and interwoven with other samples, and Tenney structures the piece around this unit. The listener integrates the fragments into a stream. The piece anticipated future interest in the realm of auditory streaming, such as Bregman's work on Auditory Scene Analysis [2] .

Our ability to immediately recognize samples (as we do in *Collage #1*) may be what gives many of us a knee-jerk reaction when we hear a familiar song being sampled in a new context. Perhaps it is hard to separate the original context from the purely sonic material. This ability would be desirable in some cases, and undesirable in others where the reference to the original is part of the aesthetic. Perhaps it is a reaction against musical theft, in which we try to protect the notion of originality, however misguided the notion might be. At any rate, Tenney's sampling practice here would be difficult to call into question in any way, given that the output is so wildly different from the input.

Intuitively, the piece shouldn't resemble the source at all (although, I think the visual analysis shows that the streaming effect also works visually). Perhaps Tenney was never brought to court because it seems that the source shouldn't be identifiable, given all of the editing and rearranging Tenney has done. And yet, he was well aware that we perceive units not solely based on their temporal proximity, and that the timbral similarity of the clips would allow the listener to identify the clips as a unit. That perceptual unit very strongly resembles the source material.

CONCLUSIONS

Drawing from Doug Keislar's terminology [6], *Collage #1* challenges the traditional role of a composer by taking all of the source material from another composer (Carl Perkins, who originally wrote *Blue Suede Shoes*), thereby mapping the responsibilities of one composer to several. To add a layer of complexity and humor here, Tenney's piece is a cover of a cover. It differs from a traditional cover because it breaks down the linearity of the piece, and reformulates it to produce a very different effect. The title *Collage #1 (Blue Suede)* hints at two important aspects of how the piece sounds in relation to the original. The removal of "shoes" suggests that the dancing element has been removed, and we are left with "blue suede": a color and a texture.

Research and developments in communication media have given rise to a wide variety of tools and techniques that have practical uses in music. For one, it is easier to explore timbre with the help of technology: electronics and recorded media enable precision in the formerly imprecise realm of timbre. Secondly, the existence and accessibility of recorded media enable near-perfect musical quotation, and make it so easy that it often causes controversy. Both of these aspects came together in *Collage #1*, and continue to influence the theory and technique used in musical creation.

Link to James Tenney's *Collage #1 ('Blue Suede')*:
https://www.youtube.com/watch?v=xC7sdH2XvbU

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