
Technological implications of Phill Niblock's drone music, derived from analytical observations of selected works for cello and string quartet on tape¹

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Four compositions for cello and string quartet on tape by American intermedia artist Phill Niblock originating from 1974 to 2003 are discussed. The interdependence of compositional approach and available technology is considered, leading to the observation that the electronic music composer's technique is considerably independent of the available technology. Where a dependence of artistic development on factors not originally musical has to be acknowledged, these nonmusical factors lie not so much in the technology but in Niblock's interpretation of it. This is discussed within the context of philosophical observations on art and technology by Theodor W. Adorno, Martin Heidegger and Ernst Cassirer.

1. PHILOSOPHICAL BACKGROUND ON THE QUESTION OF WHAT *TECHNIQUE* IS

In the realms of media art and electroacoustic music, the interdependence of the artwork and the technology used for its creation is usually taken for granted. This comes as a surprise, considering that artists had brought their creative imagination to bear on technical sound synthesis long before the rise of electricity. Yet when the first electrical musical instruments came into being, their foremost use was in the performance of classical and contemporary popular tunes. Theorists such as Agostino Di Scipio have therefore stressed the quite independent relationship of music and technology, in this way opposing the concept of technical determinism (Scipio 1997a, 1997b), and Michael Hamman has proposed using *technological hermeneutics* to 'view technology as an *interpretative frame*' (Hamman 2002).²

The technology employed – if not developed for a particular artistic project or taken into special consideration in media-specific art – becomes a technique in the sense that any work of art is related to technique as understood in the ancient Greek τέχνη (*techné*): the activity of realisation. Aristotle (1980: 141) stated in his *Nicomachean Ethics* (VI4):

[A]rt is identical with a state of capacity to make, involving a true course of reasoning. All art is concerned

with coming into being, i.e. with contriving and considering how something may come into being which is capable of either being or not being, and whose origin is in the maker and not in the thing made; for art is concerned neither with things that are, or come into being, by necessity, nor with things that do so in accordance with nature (since these have their origin in themselves).

In his essay *Musik und Technik* (Music and Technique) of 1958, Theodor W. Adorno (1990) refers to this original connection between art and technique when he describes the close relationship of *Gehalt* (content) and *Erscheinung* (appearance) in art, which are mediated by technique while refusing to become identical. Art dies when *Technik* turns into *Technifizierung*, that is when technique merely illustrates the technology in use: 'The more the end subjugates the means, the more threatening becomes the means' control over the end: aesthetic dialectics of Lord and bondsman' (Adorno 1990: 232).³ Ultimately, Adorno suspects a 'fetishism of means'.

This contrasts with Martin Heidegger's thoughts about the *Frage nach der Technik* (2002, Question of what Technique Is) of 1949–54, which has been widely discussed in connection with electroacoustic music (Borio 1993; Palombini 1998; Scipio 1997a). For Heidegger, *Gestell* stands for the way modern technology refers to ontology without being technical in doing so.⁴ The 'unhiddenness', in which the real presents itself or withdraws, is – unlike technology – not at man's disposal.⁵ Where Heidegger makes reference to Plato's conception of ideas (Heidegger 2002: 17), Adorno posits the mind's ability to bring about ideas in the creation and reception of works of art. 'Das sinnliche Scheinen der Idee', 'the pure appearance of the Idea to sense', as

³The 'dialectics of Lord and bondsman' of course refers to the chapter *Herr und Knecht* (Lord and bondsman) in Hegel's *Phänomenologie des Geistes* (1986, The Phenomenology of Mind: Hegel 1967). Adorno's original reads: 'Je vollständiger der Zweck die Mittel sich unterjocht, desto drohender wird die Herrschaft der Mittel über den Zweck: ästhetische Dialektik von Herr und Knecht.'

⁴'Ge-stell heißt die Weise des Entbergens, die im Wesen der modernen Technik waltet und selbst nichts Technisches ist' (Heidegger 2002: 20).

⁵'[Ü]ber die Unverborgenheit, worin sich jeweils das Wirkliche zeigt oder entzieht, verfügt der Mensch nicht' (Heidegger 2002: 17).

¹I would like to thank Phill Niblock for his untiring support and Wilm Thoben, TU Berlin, for his technical assistance. For Ch.

²For a wider review of literature in this field see also Peter Manning (2006: 81–3).

Hegel had put it (*Aesthetics* part 1, chapter 1.3 – 1992: 151, 1975: 111) must for Adorno be constantly in danger, as technique easily turns into mere technology, mindlessly concerned with itself.

Although Ernst Cassirer was well perceived in the English-speaking world after his emigration to the United States, his essay *Form und Technik* (2004, *Form and Technique*) remains little known. Written in 1930 as a contribution to the influential anthology *Kunst und Technik* (Art and Technology, Kestenberg 1930), the text undertakes a new definition of the relation between nature and technology. Technology follows nature's laws, but instead of interpreting nature as 'ein Fertiges, ein bloßes *Gesetztes*' – that is, something finished, a mere given – nature is understood as 'ein ständig *Neuzusetzendes*, ein immer wieder zu *Gestaltendes*': constantly to be shaped (Cassirer 2004: 175).⁶ In a broader sense, the "form" of the world is neither in thinking nor in doing, neither in speaking nor in affecting just perceived and accepted by man, but needs to be "created" by him ('*Die "Form" der Welt wird vom Menschen weder im Denken noch im Tun, weder im Sprechen noch im Wirken einfach empfangen und hingenommen, sondern sie muss von ihm "gebildet" werden*') (Cassirer 2004: 150). According to Cassirer, this parallels Wilhelm von Humboldt's understanding of language: The act of speaking is not just perceiving objects, but rather '[ein echter] Akt der Welterschöpfung', a true act of world-making, in which the world is moulded into form (Cassirer 2004: 151).

What makes Cassirer's approach to technique so interesting is its anticipation of Heidegger's conception of the *Gestell*. Cassirer emphasises the existence of the tool as detached from man: 'ein Etwas, das in sich Bestand hat' (2004: 161–2). Here, the tool's reality is mainly its effect, just as Heidegger understands *Bestand* as transcending the object towards its 'discovering' impact.⁷ On the other hand, Cassirer also acknowledges technique as an activity of realisation: 'In the first place, technique does not ask for what is, but for what *can* be' (Cassirer 2004: 176).⁸ Therefore, Cassirer finds evidence for the close connection between technique and art. Creation intends to take from the realm of the possible and plant into the real.⁹ The reference to Aristotle's understanding of $\tau\chi\nu\eta$, discussed above, is obvious.

⁶Emphasis in original.

⁷'Das Wort "Bestand" rückt jetzt in den Rang eines Titels. Er kennzeichnet nichts Geringeres als die Weise, wie alles anweist, was vom herausfordernden Entbergen betroffen wird. Was im Sinne des Bestandes steht, steht uns nicht mehr als Gegenstand gegenüber' (Heidegger 2002: 16).

⁸Emphasis in original.

⁹'Es wird damit ein an sich bestehender Sachverhalt aus der Region des Möglichen gewissermaßen herausgezogen und in die des Wirklichen verpflanzt' (Cassirer 2004: 176).

2. PHILL NIBLOCK'S ARTISTIC BACKGROUND

It is in this context that I shall discuss some compositions by American intermedia artist Phill Niblock (b. 1933). For almost 40 years, Niblock has been known for his seemingly unchanged production of dense micro-tonal drone tape-pieces that are to be played at very high volume to bring about all kinds of combination tones.¹⁰ Sometimes, amplified live instruments play along with the tape, preferably with the performers wandering around in space; only a few compositions are set for large groups of acoustic instruments or choir. Most of the time, the tape works function as a strong acoustical element in multi-screen environments, in which Niblock's minimalistic, semi-documentary films of the series *The Movement of People Working* (1973–91) or more abstract black-and-white *Computer-controlled Slide Pieces* (1996) are shown. In this paper, I will focus on the music. The closer examination of Niblock's compositions *3 to 7 – 196* (1974), *E for Gibson* (1978) and *Harm* (2003) for cello on tape and *Five More String Quartets* (1993)¹¹ for string quartet on tape is guided by two questions: first, what are the crucial distinctions among the four works, which had been created over the course of thirty years and are, like almost all of Niblock's pieces, dense, loud and 25 minutes long? Second, what can be said about the interdependence of composition, realisation and technology in these works – if there is any at all?

Phill Niblock is no trained musician. He became involved with the arts as a visitor, later a photographer of 1960s New York experimental theatre productions (for published photographs see Feldman and Walter 1966; Smith 1966). One of his first short films was an experimental documentation of a percussion performance by Max Neuhaus, titled *Max* (1967). This led to an *Environment* with films by Niblock and performances by Neuhaus and dancer Ann Danoff at Judson Memorial Church, the then famous New York venue for happenings and experimental theatre, in 1968. Niblock's first compositions were created for this intermedia environment. When they were presented in 1972 in a concert installation at his downtown New York loft, still the active location of Niblock's Experimental Intermedia Foundation, the composer and then Village Voice music critic Tom Johnson stated:

¹⁰Incidentally, very little critical writing has been done about Phill Niblock's work. The two most substantial articles have been published in German (Brand 1994; Gronemeyer 1985), and Greg Hainge (2004) focuses on the aesthetic aspects of experiencing time when listening to Niblock; other literature consists of interviews (e.g. Niblock, Gilmore, and Bièvre 2007) or concert reviews (most notably Johnson 1989c). It is this lack of any analytical study that led to the totally false assumption that Niblock's musical compositions are basically re-creations of the same piece.

¹¹Niblock usually refers to this piece as *Five More Stringquartetts*. In this paper, I make use of the standardised spelling.

'Niblock's tape music reflects his background as a filmmaker in several interesting ways. He tends to think of music as accompaniment and is more concerned with its suggestiveness than with its structure. His music has an undefined drifting quality much of the time, which leaves it vague and open to interpretation. ... The tapes are seldom as captivating as most music created by composers, but they are often more evocative. Because their art relies so much on technology, and because the technical standards are so high in their field, filmmakers tend to place a higher value on technical perfection than composers do. This is certainly the case with Niblock, whose tapes are immaculately clean, very precisely recorded, and mixed with unusual care' (Johnson 1989b: 38).

Niblock's approach to music composition, established in 1968, has remained basically the same until today. Long sustained sounds from acoustic string or wind instruments are recorded and assembled on multitrack tape. Rhythmic structure is avoided, while careful attention is given to frequency relation of the sounds that are present at a certain time. The tones, usually combined in four to sixteen layers (*Early Winter* of 1991/93 arrives at no fewer than 51 voices), are slightly out of tune, thus creating beating patterns of different and/or changing speed. When the beating becomes fast, a new, very low frequency is established. This is only one of many acoustic and psychoacoustic phenomena present in Niblock's music. Others are combination tones, which are frequencies produced by non-linear distortion of the ear or fundamentals evoked by fifths and major thirds (Helmholtz 1870: 239–331; Sorge 1744: 40–1; Stumpf 1910). In conjunction with static waves, the playback of the tape creates an aural geography in space, populated by sounds not present on the recording but established in the listener's very own aural sense and environment. This is why the composer can describe his music as 'architectural. The intent is to fill the space. It's non-frontal music, nonproscenium, anti-stage, not about an ensemble sitting in front of an audience, not about a single sound source. At least four speaker systems are desirable, arrayed around the periphery of the room, saturating the total space, engaging the air' (Niblock 1982).¹²

3. 3 TO 7 – 196

While in his very early compositions Niblock cut off the attacks and eliminated breathing spaces, thus, together with other procedures, changing the sound quality of

the recorded instruments or voices (Johnson 1989a: 67; Nelson 1973: 21), from his first string quartet (1973, very untypical Niblock, making use of repetitive aleatoric counterpoint) on, and in *3 to 7 – 196* (1974) for cello on tape, the natural attacks of the recorded instrumental sounds are preserved. The cello piece does not conceal its sounding material by any means. Niblock recorded cellist David Gibson playing sustained samples of 3'25" to 6'05" in length. The frequencies to which the title refers are G3 (196Hz) and seven higher pitches in irregular steps of 3 to 7Hz (200, 207, 213, 216, 221, 225, 228Hz), covering slightly more than 1¼ tones (228Hz is 62 cent above A3). In the recording session, Gibson was provided with an oscilloscope, into which a calibrated sine wave and his own signal were fed, resulting in characteristic visual patterns that ensured very precise tuning.

The score (figure 1) is in eight layers, each presenting repetitions of a recorded sample, interrupted by rests of 30" to 5'45". In the stereo mix, layers one to four (196, 207, 216, 225Hz) and five to eight (200, 213, 221, 228Hz) were combined to one channel each, therefore bringing together frequencies that are as far apart as possible (in steps of 7 to 13Hz). This way, the composer ensures that the most prominent, slow beating patterns occur *between* the two channels, in space.

The graphic analysis of *3 to 7 – 196* (figure 2) reveals that the extreme frequencies (196/228Hz) are present most of the time. If not, the comprising interval is diminished as slightly as possible with the given pitch material (200/225Hz), arriving at a major second (204 cent, to be precise). The piece begins with the rich sound of a solo cello at low G3 and ends with a two-voice A3, slightly out of tune and thus creating beatings of 5Hz. The main feature of the work, however, is not the almost imperceptible microtonal change of frequencies, but the development of the number of superimposed layers, causing the modulation of number and characteristics of beating patterns. The number of active layers builds up and declines in three waves, the last one leading towards the climax with all eight frequencies being present from 18'30" to 20'00". There, 28 combination tones or beating patterns of 21 different frequencies between 3Hz and 32Hz emerge. The higher ones are not perceived as steady beats, but as very low tones, activating the lowest audible octave between C0 and C1. To make these very low frequencies audible, however, the music needs to be played at very high volume – usually Niblock calls for 90 to 100dB (Niblock 1993) – and their quality is still that of a 'dröhnendes Geräusch', a booming noise (Helmholtz 1870: 278).

4. E FOR GIBSON

After *3 to 7 – 196* (1974), *Long Distance* (1975) and *Descent* (1978), *E for Gibson* (1978) is Phill Niblock's

¹²The creation of long, sustained sounds and microtonal drones was not unique to Niblock. Since the early 1960s it had been a common practice around the emerging movement of minimal music, most notably by La Monte Young. Niblock's almost stubborn restriction to this genre, however, is without comparison. The history of drone in 20th-century experimental music remains to be written. Henrik Marstal (1999) provides an overview of drone practices in 1990s techno and metal rap.

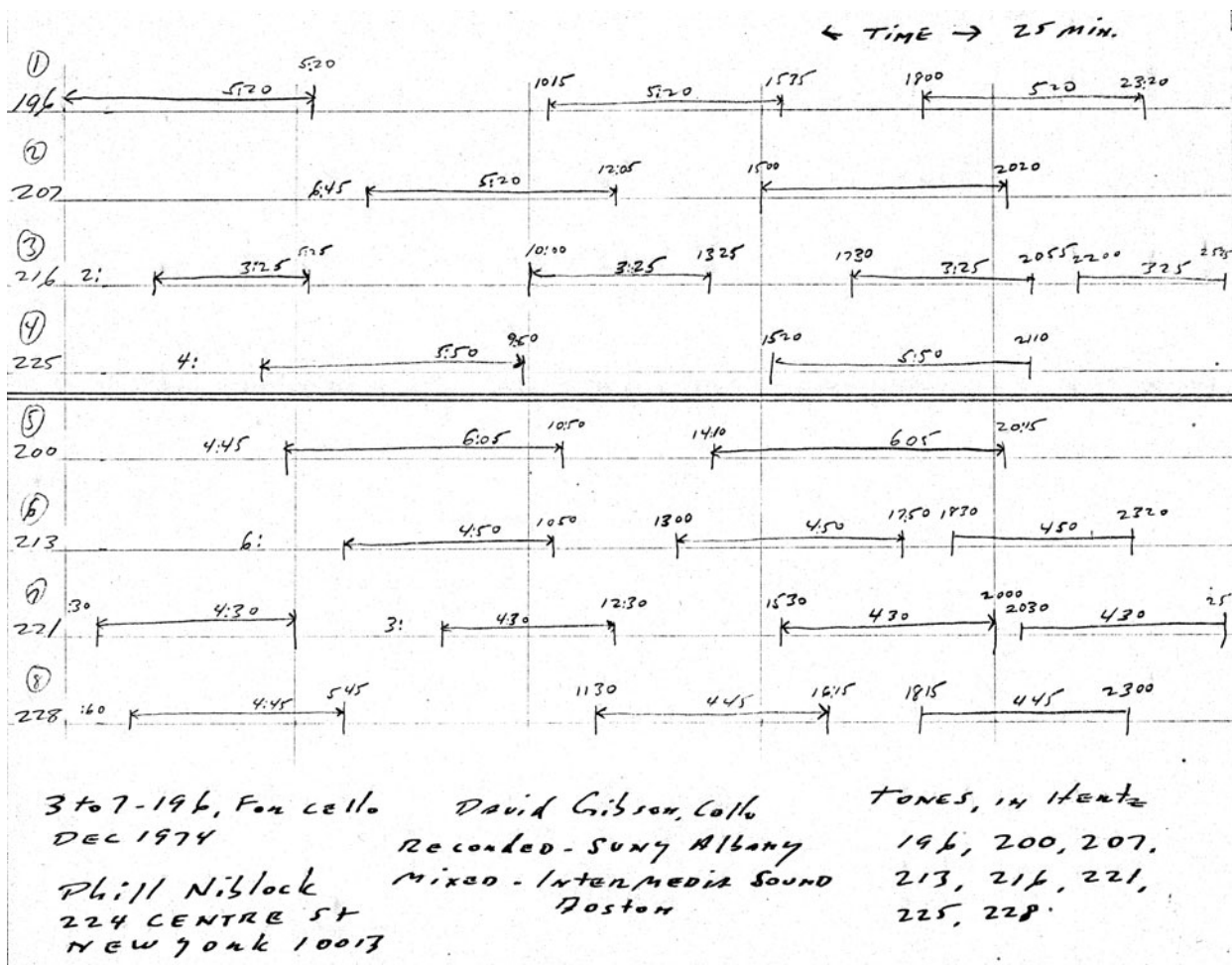


Figure 1. Phill Niblock: 3 to 7 – 196 (1974), score. Archive Phill Niblock, New York.

fourth composition for cello on tape. Like the other three, it was built up from recordings of cellist David Gibson, but in comparison to 3 to 7 – 196, three important changes in the compositional concept occur: all (four instead of eight) layers are active all the time (no rests and therefore no changes in density), the tone-range is limited to less than a quarter tone (42 cent) around E, and the different fundamental tones are projected into four octaves, E2 to E5.

The method of recording and production was the same as established in 3 to 7 – 196. This time, 17 samples of different frequencies were used, ranging in eleven values of length from 2'08" to 3'30" with no interrelation of duration and frequency. While the score of *E for Gibson* (figure 3) suggests a composition in four voices, it is actually in three, one of which is in two parts slightly out of tune (in the beginning: 164.8Hz (channel 1) against 165.5 (channel 2), at 3'40": 330Hz (channel 3) against 331Hz (channel 4), and so on). The doubled voice is a very characteristic quality of this piece: since the samples in the different layers are shifted against each other (in time), they allow almost imperceptible change between the two parts, thereby creating an

uninterrupted continuity of sound in a given octave. This wouldn't be an important element of structure if the sounds weren't separated by at least an octave. But because they are, the beginnings and endings of sounds in a certain – especially a higher – octave become a musically significant event that breaks the constant stream of sound. The resulting twelve streams differ in duration from 2'23" to 9'46" (see the graphic analysis in figure 4).

To sum up the observations made in terms of musical form, it can be said that even though in *E for Gibson* the samples are lined up without silences between them, because of the comparatively low number of layers and their wide separation in frequency, the rests in a certain octave become very prominent. The compression in the parameter of the fundamental's tone range does not lead to a musically condensed and compact composition.

5. THE FIRST INTERDEPENDENCE: ARTISTIC CONTEXT

In the works discussed and the other works of the same period, there is no evidence of any interdependence of

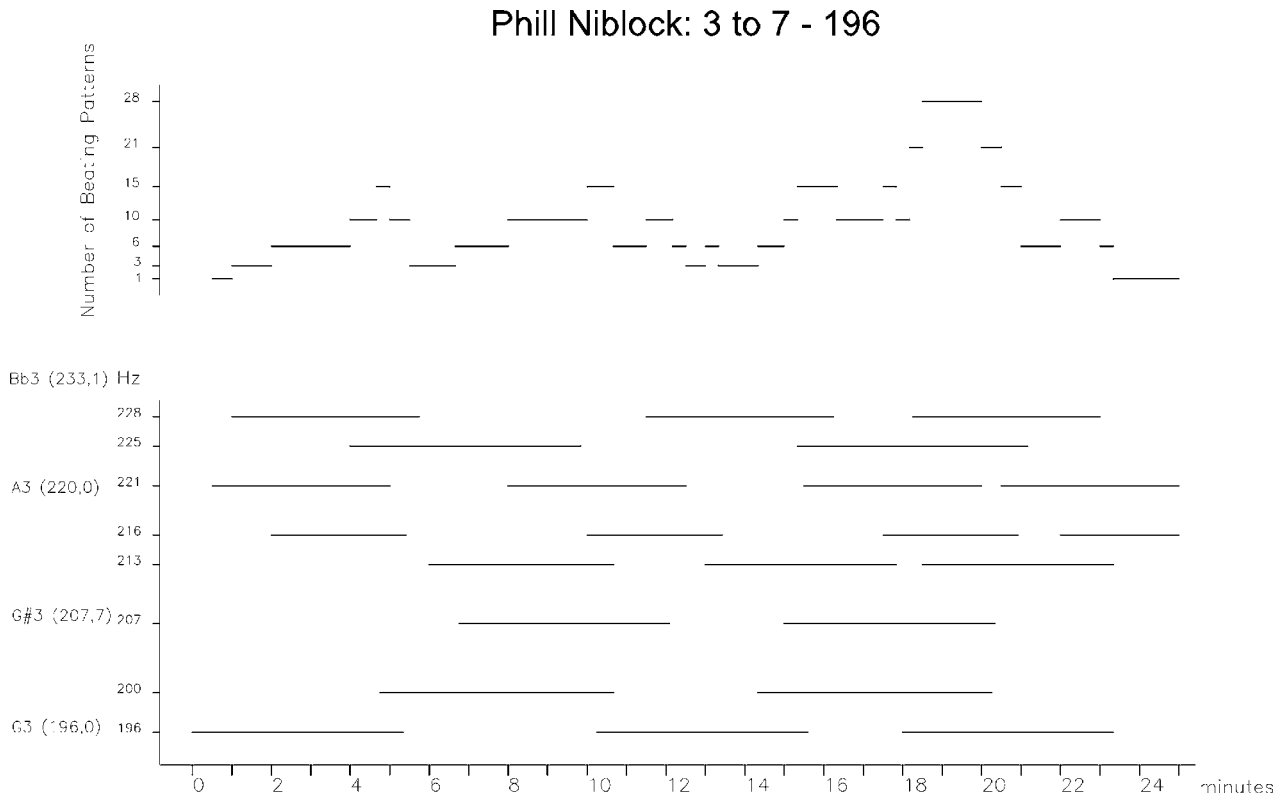


Figure 2. Phill Niblock: *3 to 7* – 196, graphic analysis.

composition and technology. There is no musical reason why these pieces should not be played live by an ensemble of amplified instruments whose players are fed the desired frequencies via headphones or oscilloscopes. The use of tape can be explained from two roots: first, as a filmmaker Niblock had no affinity for musical performance, and within his multidirectional environments a group of musicians would have inevitably created a stage-centred concert situation that couldn't be further from his wishes. Second, in his very early compositions for voices (vocalise, *Voice III* and *Voice IV*, 1972 or before), Niblock established the use of tape loops and so became accustomed to the concept of samples of recorded sound on tape that were available for manipulation or simply organisation – that is, placement in time. Therefore, the decision to produce his musical works on tape can only be explained from the artistic context of their presentation and the composer's experience of earlier productions.

6. FIVE MORE STRING QUARTETS

Quite early in his career, Niblock became interested in very dense drones that achieved their microtonal complexity not so much from a small comprising interval but from the sheer amount of voices in play. In 1975 he combined two eight-track pieces into his 16-track *Mix of Cello and Bassoon and Contrabassoon and Contrabass*, and similarly in 1981 combined two pieces

for alto flute and flute to create the 16-track *PK and SLS*. Also, the eight-track tapes *A Trombone Piece* and *Twelve Tones* (for double bass) were composed in 1977 with their later combination in mind, even though this mix didn't come into being until 1990 (Niblock 1990).

However, 16 voices seemed to remain the maximum of layers Niblock encompassed in one composition. In the early 1990s, when for a short period he incorporated synthesised and digitally sampled voices, the pieces are still based on the time structure of not more than eight parts (e.g. *MTPNC* for 32-sampler voices controlled by computer (1992) and *Weld Tuned* [sic] using sequencer software, a sample player and analogue synthesiser (1990), in the eight-track score of which second frequencies for each of the sounds have been added later). The next decisive step was taken when in 1993 Niblock applied the structure of his *Another String Quartet* for amplified string quartet and string quartet on stereo tape (1991) to a new work on 20-track tape: his *Five More String Quartets*.

Having experienced the results of projecting the fundamentals into different octaves, that the beating patterns and combination tones became uncontrollable, Niblock chose a more conceptual approach to creating musical form: he designed a scheme that defines the global form and according to which individual fundamentals are decided upon. In this case, Niblock deals with four voices. Over the course of the 25-minute piece, the lowest one steadily rises from F# to G, while the

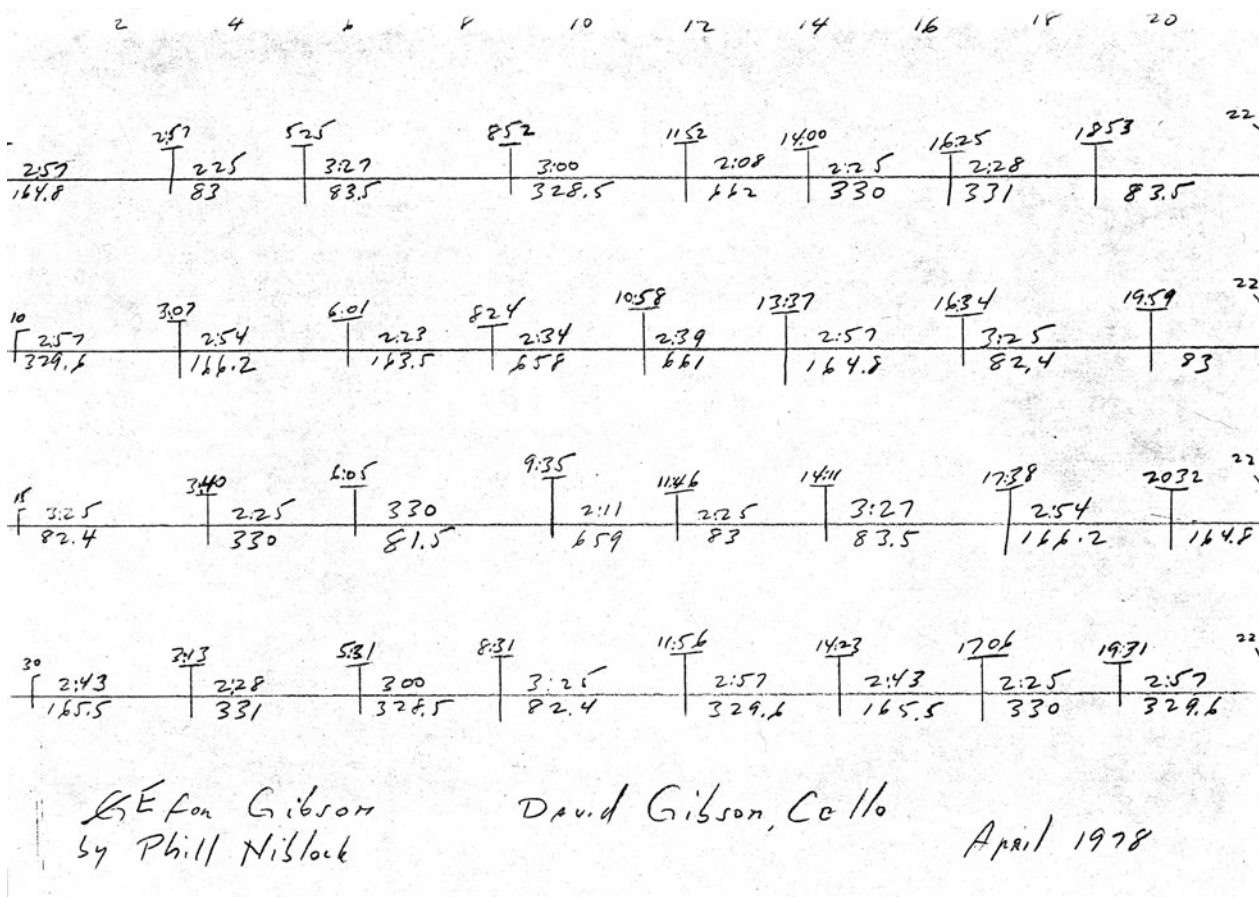


Figure 3. Phill Niblock: *E for Gibson* (1978), score. Archive Phill Niblock, New York.

highest voice descends from G# to G. The two middle voices start in unison at G and separate after three minutes to reach 35 cents below or above G respectively in the middle of the work. From there, the progression inverts and both voices join in unison G three minutes prior the end of the piece. Changes in frequencies may occur in the scheme every three minutes, in the realised scores every minute, thus establishing the same time structure in all parts. However, the musicians ‘were instructed not to change at the same time, but in a staggered fashion. So some delayed longer’ (Niblock 2008). And indeed, some distinct changes of beating patterns can be observed in the recording as long as 15" after the turn of the minute.

Using a global scheme to assure coherence in musical form allowed Niblock to generate several sets of scores for an increasingly dense-sounding result. As its title suggests, for *Five More String Quartets* he created five scores, ending up with twenty layers of sustained sound. The fundamentals got projected into four octaves, and if one takes on the task of tracing back the 100 frequencies to one common octave of reference, the underlying formal scheme can indeed be reconstructed (see figure 5).¹³ The highest octave (around G5) occurs in the first violins only, and in 14 of 25 possible minutes. Niblock never leaves more than three of the five cellos the lowest

octave (around G2), this way maintaining slow beating patterns in the low register.

Niblock describes the production of *Five More String Quartets* as follows:

The quartet came to the recording studio and played through five different scores of the piece in successive sessions, direct on a twenty-four track recorder. The musicians were tuning to calibrated sine waves on tape, heard through headphones, and not to each other. So even if the same pitch occurs on two or more channels of the tape, the musicians will probably play microtonally differently from each other. Each session was recorded in real time. Each instrument was miked separately, and in the mix assigned to the left or right channel, to obtain maximum separation of the microtonal intervals. The 24 track tape was mixed to stereo, again with no processing (reverb, delay, etc.). The music is the purest, unadulterated sound of the instruments that we could achieve. The resultant harmonic changes come from the microtonal intervals of the score, not from the recording process. (Niblock 1993)

¹³This calculation is based on a ‘corrected’ set of frequencies. The published score (Niblock 1993) has the following incorrect frequencies, most of them obvious misprints: V12/a at minute 1 should read 392 instead of 298, Va/a at 18: 399 instead of 299, Vc/a at 17: 101 instead of 103, Vc/d at 2 and 3: 92.5 instead of 92 and Vc/e at 24: 99 instead of 96.

Phill Niblock: E for Gibson

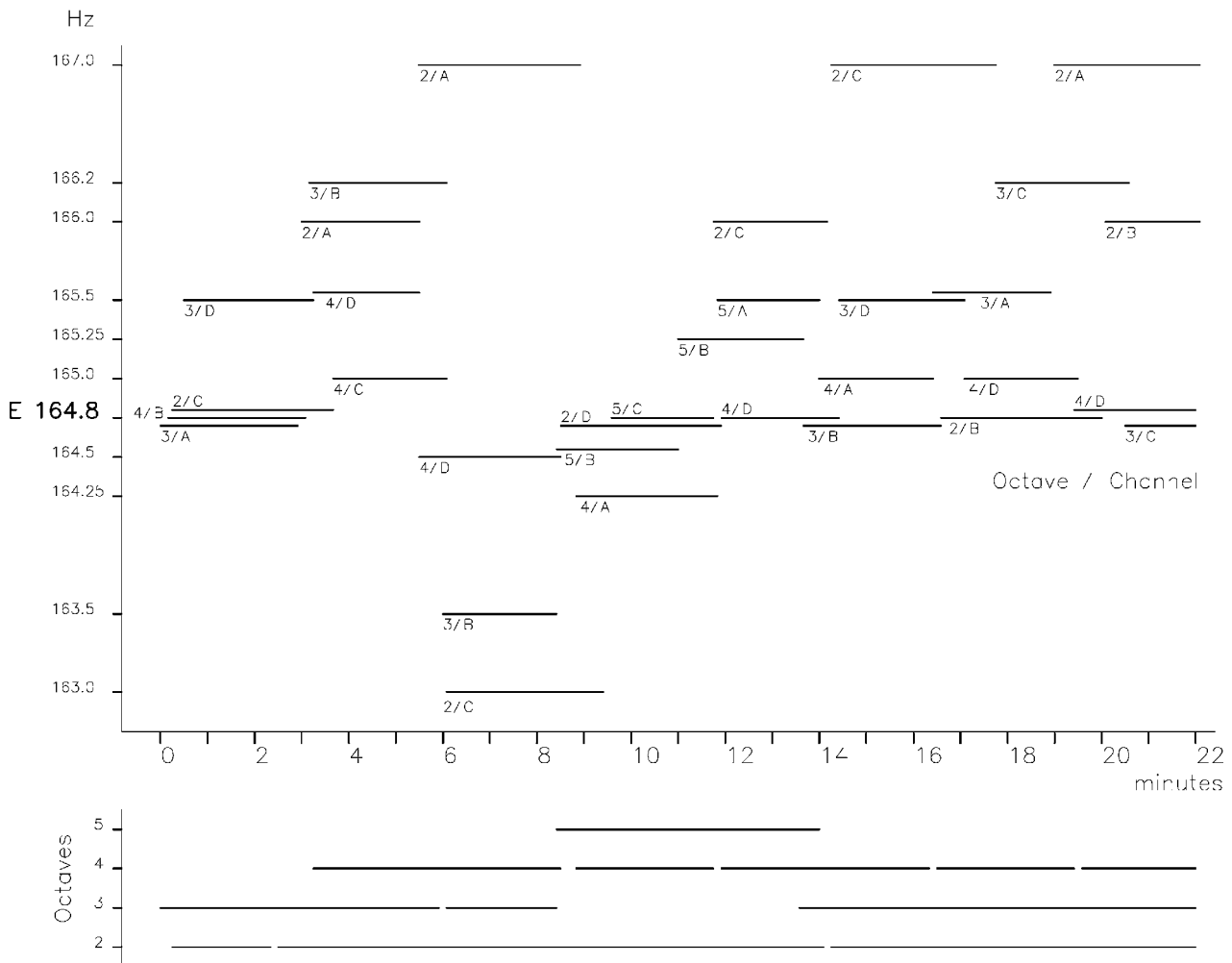


Figure 4. Phill Niblock: *E for Gibson*, graphic analysis.

This approach of following an instrumental live performance rather than recording samples and arranging them on tape is a turning point in Niblock's musical aesthetics. Even if the piece still resembles the typical 25-minute drone and even if it is presented on tape – the score that represents the compositional essence is no longer a mixing score but a score meant to be followed by musicians in a live performance. It was this crucial turn that allowed Niblock later to set pieces for live large orchestra(s) (*Disseminate* 2001, *Three Orchids* 2003 and *Tow by Tom* 2005) and baritone, choir and orchestra (*4 Chorch+1* 2007). Those acoustic works also follow certain global schemes that the composer creates and then hands to collaborative assistants who actually score the works.¹⁴

¹⁴*Disseminate* was scored by Ulrich Krieger, *Three Orchids* and *Tow by Tom* by Volker Straebel and *4 Chorch+1* by Arne Deforce.

7. THE SECOND INTERDEPENDENCE: A DIALECTICAL DETOUR

Phill Niblock discovered the paradigm of live performance through the new technology at hand in a dialectical detour. Considering the fact that Niblock already had access to a 16-track recording studio in the early 1970s (Niblock and Straebel 1995), a work such as *Five More String Quartets* could have been created twenty years earlier. It was not the recording means available to the composer, but the experience of dealing with realisations utilising rigid sampler and synthesiser voices that led to the interest in recorded live performances. The desired technology, once available, had failed to produce the expected results (Niblock, Gilmore and Bièvre 2007). Therefore, the second observation of interdependence of artistic work and technology in the oeuvre of Phill Niblock is that of independence. The composer freed himself from the

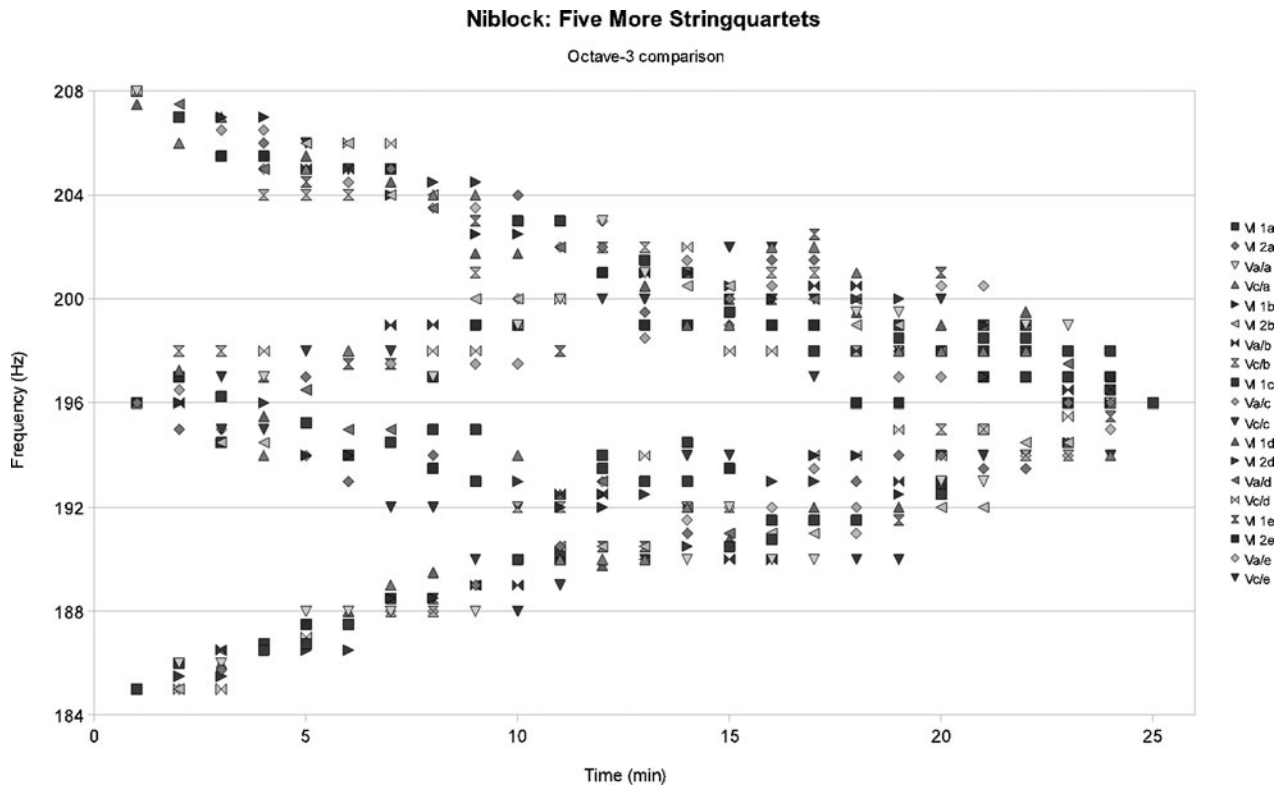


Figure 5. Phill Niblock: *Five More Stringquartets*, graphic analysis

long-established technique of fixed and technically determined compositions as tape pieces. That gave way to an approach that connects musical thinking (scoring for performance) with conceptual art (the artist creates the essential concept and leaves its realisation to others).

8. HARM

The last composition to be discussed here is Niblock's *Harm* for cello on tape and amplified cello ad libitum, commissioned by the Berlin contemporary music festival MaerzMusik on the occasion of Phill Niblock's 70th birthday and premiered by Arne Deforce in 2003. It stands for Niblock's most recent production that employs the audio workstation Pro Tools (by Digidesign). Using this, since the mid-1990s Niblock has seriously changed his composition process. The flexibility of the new technology allows the creation of new pieces on the fly, where the sounding result of the operations can be checked at any moment. Instead of preparing a fixed score that designates the frequencies to be recorded, Niblock now follows a global scheme, which he applies to the recorded sounds that get pitch-shifted as desired. The pitch-shifting technique, first employed in *Didgeridoos and Don'ts* for didgeridoo on tape and soloist with four-channel pitch shifting system (1992), becomes a new tool that also changes the recording situation. There, composer and

instrumentalists would 'sit down and talk about what sort of resonance points there are on their instrument, what sounds particularly rich' (Niblock, Gilmore and Bièvre 2007). Even more than in previous works, the compositions become very specific to the musicians providing the samples, and now even the frequencies on which the work is based may be chosen depending on the characteristics of the very instrument in use.

In his Pro Tools sessions, Niblock carefully labels the regions incorporated, keeping track of take numbers, pitches and pitch shifting applied. For *Harm*, cellist Arne Deforce recorded 17 samples of G2, G3, G4 and G5 and combinations of the first three in double stops. Also, twelve samples of the pitches F#, A \flat , A, C, C# and D were recorded, some of which again in double stops, now and then establishing a minor second, major seventh or minor ninth (Deforce 2003).¹⁵ The Pro Tools session of *Harm* is in 24 tracks, with odd numbers panned left and even numbers panned right. Tracks 1–14 present samples of G, including samples shifted in pitch in different steps between 24 cent downward and 22 cent upward. At 4'10" tracks 20–4 introduce four more layers of pitch-shifted Gs. Tracks 15–19 are reserved for the other pitches. Those come in blocks of roughly two minutes' duration, beginning at 2'20" to establish streams a minor second below, a minor and

¹⁵Besides samples 17, 18, 21 and 29, marked 'delete' in Deforce's list, samples 28 and 30 also were not used in the final mix.

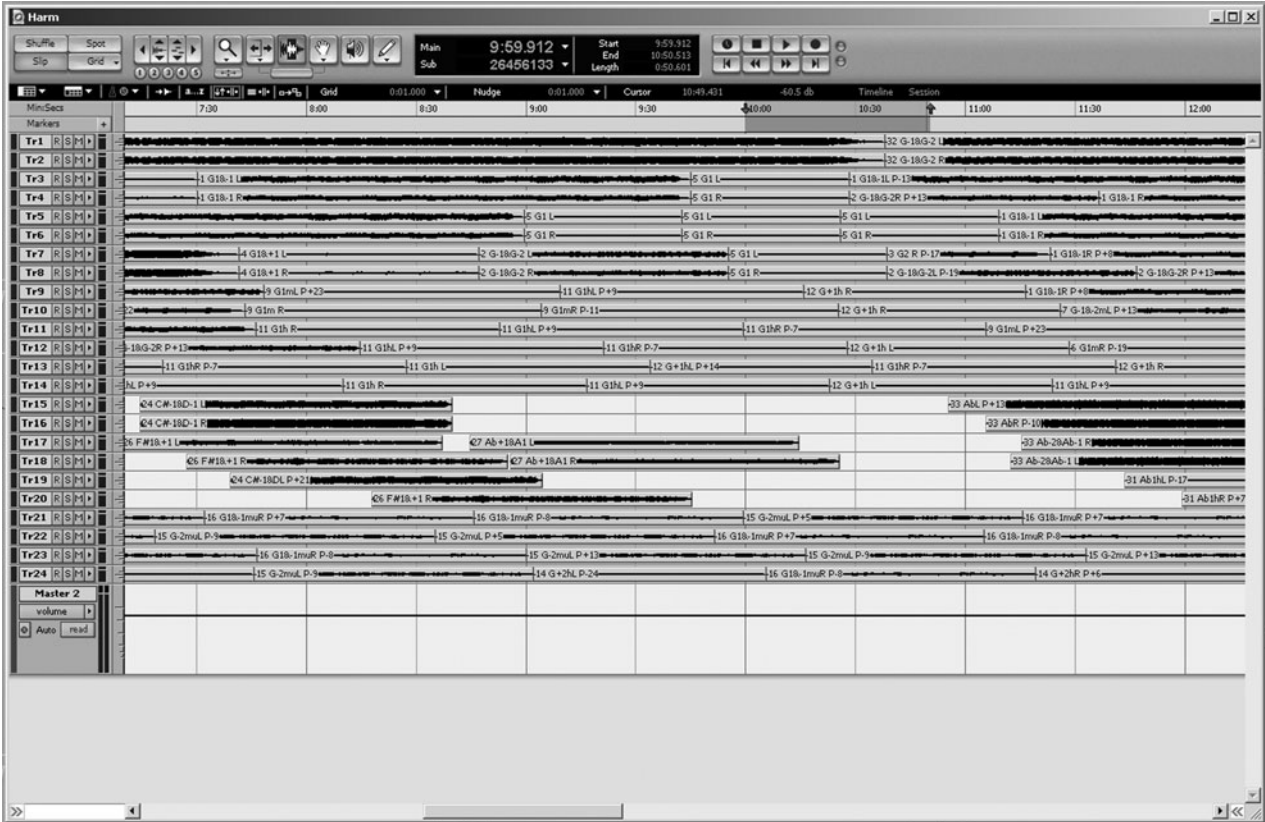


Figure 6. Phill Niblock: *Harm*, excerpt from Pro Tools session.

Phill Niblock: Harm

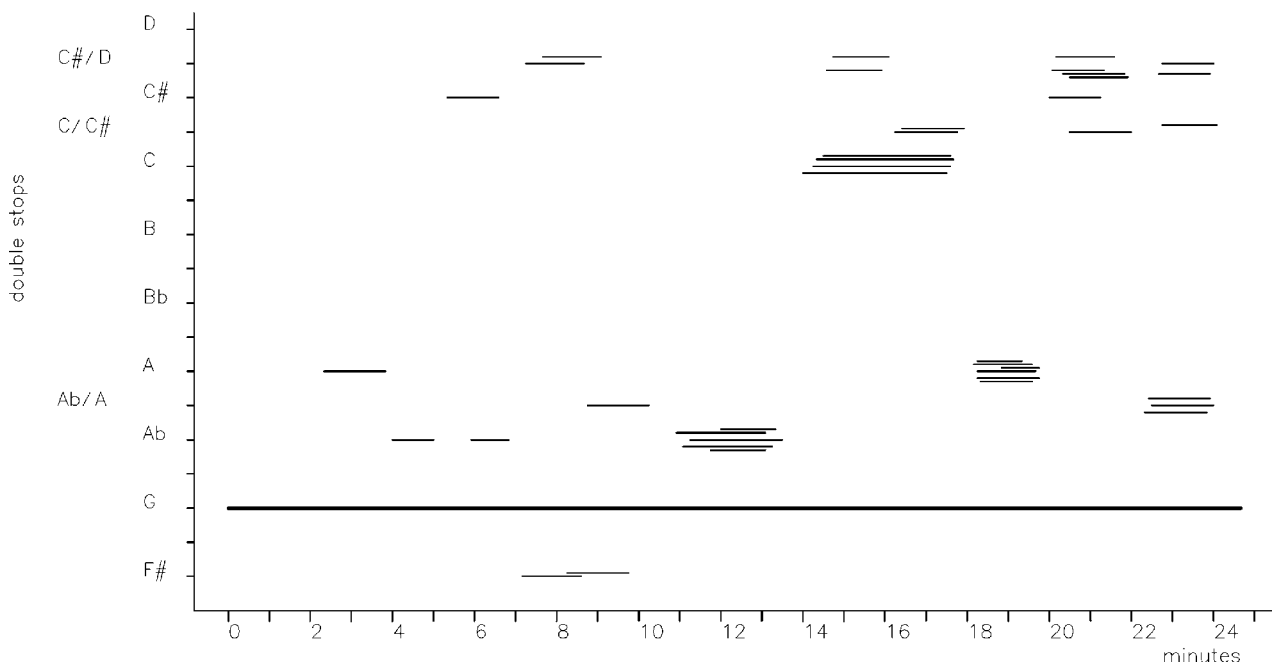


Figure 7. Phill Niblock: *Harm*, graphic analysis.

major second above G, as well as a fourth, tritone and fifth above G, each of them including microtonal pitch shifts. The graphical analysis shows that over the course of the piece the sound becomes more complex in an irregular way, having its climax 22'30" to 24'00", before the piece ends with a minute of microtonally augmented G (figures 6 and 7).

In the recording session, the cellist not only focused on 'particularly rich' sounds (Niblock, Gilmore, and Bièvre 2007), but also created samples in this early stage of production that clearly showed strong harmonics. Those samples were marked 'harm' in the recording protocol (Deforce 2003), thus providing the work's title, which also is a nice example of Niblock's predilection for double meanings and puns. Other samples are already noisy or unstable in pitch in their unedited original. By using this kind of material, the composer shifts his concern for microtonal digressions from the compositional preconception in the score laid out beforehand to the unpredictability of actual studio performance. His interest has shifted from the planned features of arising beating patterns and combination tones to the conduct of the combination of 'rich sounds' once observed.

9. THE THIRD INTERDEPENDENCE: TECHNOLOGY AS SOURCE OF INSPIRATION

This leads to the third observation about the interdependence of technique and technology in Niblock's oeuvre, which in this case might best be called 'inspiration by the technology at hand'. The opportunity to work more freely with the Pro Tools system tempted Niblock not to carefully plan which frequencies to record. Instead, he now detunes precisely pitched sounds of the chromatic scale. Thus, the global schemes in which the pieces' musical form are laid out are concerned with pitches, not with frequencies. The interest in the unique sounding characteristics of a given instrument (and its player) goes together with the orientation to the chromatic scale. The detailed features of the resulting drone are no longer subject to artistic calculation, but – although they remain the goal of the whole undertaking – just happen to take place. Their prominence in the overall impression keeps Niblock's latest work far from appearing chromatic.

10. CONCLUSION

The analysis of selected works and working processes comprising thirty years of Phill Niblock's compositional oeuvre has not only proven wrong the superficial impression of unchanging production and artistic fatigue, but has also shown the considerable independence of the electronic music composer's technique from the available technology. Where a dependence of artistic development on factors not originally musical has to be acknowledged, these nonmusical factors lie

not so much in the technology but in Niblock's interpretation of it. For him, technology has served not as a tool but rather as an source of inspiration that has led to solutions certainly neither intended nor suggested by the technology in use.

This can be related to the discussion of the philosophy of technique, technology and art given above. When technology is not so much a means technique strictly depends on, and when it does not control the outcome, as Adorno had suspected (1990: 232), it turns into just a procedure the composer selects to bring the work into being. Technology becomes a tool in Cassirer's sense, mostly defined by its effect – one tool among others. Indeed, the fact that Niblock in the early 1990s disapproved of the synthesiser technology he had been waiting for and instead turned towards recorded live performance in his *Five More String Quartets*, as he could have done two decades earlier, underlines the dialectical interdependence of art work and technology. Here, a certain technology is at the same time imperative and interchangeable: imperative not in its use, but rather in its neglect. And interchangeable not in its ability to bring the possible into the real (Cassirer 2004: 176), but in the specific way of doing so.

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