Phill Niblock chapter: Richard Glover

Identity through instability

Despite this chapter's title, the raw materials of Phill Nilbock's music are based entirely upon stability. Each piece uses only sustained tones performed by instrumentalists who are doing all they can to retain the parameters of their note fixed. Scores, where they exist, project only stability. The grid below in **Figure 1** is the composer's score from *Five More String Quartets* (1993), where the players are directed to match each tone as it is played through their headphones; the austerity of the frequency chart suggests the immobility of these sustained tones. The intense dynamic of each tone in a piece does not alter throughout the piece, only with variations in density. There is little to no transformation in the timbral quality of the instrument as natural timbral envelopes are removed, and these tones are heard continuously throughout a piece: rhythm, as denoted by sound framing silence, does not feature in Niblock's music.

The one composed parameter which does alter throughout is the harmony, the arrangement of the sounding frequencies. The shape described by the frequencies in the score for *Five More String Quartets* is shown below in **Figure 2**, and presents the global transition from divergence to convergence in the harmonic shape of the piece. However, each of the frequencies is played for an entire minute, before the musician moves on to the next tone: the instability suggested by the converging harmonic structure is allayed by the extremely gradual rate at which the harmony actually transforms. Whilst the simple global shape is one of perpetual movement with regard to the harmony, stability is what is suggested on a local, moment-to-moment level.

Structure

As is the case with *Five More String Quartets*, structures from a number of other Niblock's pieces employ a move either from divergence to convergence, or vice versa. The shape outlined by the frequential change is usually that of a relatively linear glissando (some pieces are more strictly linear than others), reminiscent of the global pitch shapes employed by composers such as Peter Adriaansz in his *Waves* series (2007-8) and much of Alvin Lucier's later music for ensemble such as *Wind Shadows* (1994), *Q* (1996) and *Diamonds* (2002). Both of these composers include instruments tracing elongated structural glissandi towards and away from unison, but always with local-level glissandi occurring on either acoustic instruments or accompanying sine waves. Niblock's music, whilst based around global-level glissandi, doesn't employ local-level glissandi, and so again the immobility of the sustained tones suggests a real stability in the music. The word 'monolithic' is often ascribed to Niblock's output, and this is certainly in no small part on account of the apparently unmoving tones which are continuously sounded. Although these composers may employ similar global shapes, the stationary nature of the sustained tones in Niblock's music are a primary symbol of his creative identity.

There is a distinct difference between pieces based on a gradual convergence (e.g. *Five More String Quartets*) and a gradual divergence (usually beginning with a very close cluster, or even unison). Whereas with a divergence, where the harmony expands outwards and more pitches are revealed to the listener (as in a more traditional dialectic), the convergent structure gradually reduces the harmony down to a single point, resulting in a distinctly different perceptual experience.

We tend to only realise that this final point has been reached only *after* we hear it, due to the downward motion of parametric values such as pitch density and dynamic. Niblock employs a completely linear syntactical closure – the movement towards unison is always rational, a logical continuation of previous material, rather than a sporadic gesture. Although this convergent point is the first time we hear unisons on their own, the clusters we have experienced throughout the piece have always bordered these unison frequencies, so we have very much become accustomed to these notes, and have continued to expect to hear them. This affects our sense of our time passing, as perceived durations seem longer than absolute durations as we approach completion of a goal-oriented task.

Listening

Since the global shape of each piece is not comprehensible at any given moment in a piece, the listener therefore has no discrete 'shape' to focus upon and to compare and contrast with future shapes or gestures. However, owing to the stationary nature of the primary sonic parameters, the listener becomes cognisant of the fact that no sudden alterations are likely to occur, there will be no dramatic, unexpected changes. This

results in the listener being left to focus only upon the immediacy of the sound – what is occurring in the sound at the present moment, without sustaining an expectation for future transformation. What the listener perceives are the phenomena which arise from the *surface layer* of the sound: phenomena which are created from the close clusters and loud dynamics, but are not indicated in the score - they are perceived only upon experiencing a performance of the piece.[1] The manner in which these auditory phenomena are perceived is less concerned with what the analyst Ian Quinn calls 'quarendo' (to obtain, to get) which is familiar to more traditional compositional syntax, but with 'audiendo invenietis' (to discover on hearing).[2] The perceiver is given the opportunity to discover these naturally-occurring variations within the surface layer of the sound, and engage with their transformative qualities. What occurs out of this intense focus on the present properties of the sound is a perceptual awareness of the inherent instability within these apparently stable harmonies. Canadian composer Chiyoko Slavnics defines this level of engagement with the surface: '[m]y music requires that the listener step forward, come very close in order to see (hear) the details – just as one would in order to look at the details of the pigment on a painting'.[3] This 'looking in' aspect of the music is one which Niblock promotes through the sustained nature of his material; the continuation of the sustained tones allows the listener to be fully engaged with this surface detail (Slavnics' pigment on the painting).

As the listener is 'invited in' to examine the sound, Brian Duguid notes that “the music becomes more of an environment than a narrative...which requires a change in perceptual approach; you need to immerse yourself in it, experience it at a direct intuitive level, allow your attention to drift and follow subtle patterns in the overall density”.[4] Again, the nature of the sustained material is crucial here: the utter lack of performed gesture in the sound pushes the listener to focus on activity elsewhere. As composer La Monte Young said ‘When the sounds are long...it can be easier to get inside of them’[5], which is nowhere more evident than in Niblock's music.

The surface layer

So, what is it that arises in the music to bring forth instability? The variation in the surface layer of the sound is comprised of many acoustic and psychoacoustic phenomena, which arise from physical waveform interference, and the non-linearity of our auditory systems, respectively. Whilst many of the phenomena can occur with shorter durations, an environment of continuous sustained tones allows these phenomena to be perceived much more effectively, as there are no relatively large transformations in other parameters to divert attention away from the surface.

One of the most overt resultant acoustic phenomena which are perceived within much of Niblock's music are acoustic beating patterns. These occur when two frequencies which are in very close proximity are heard simultaneously. The two waveforms collide and produce constructive and destructive interference patterns, much as in waves in water when they appear to bounce back off the side of a swimming pool and cancel out waves coming from the opposite direction. These constructive and destructive patterns results in a change of amplitude to the aggregate sound of both pitches: constructive interference increases the amplitude, while destructive interference decreases the amplitude. With these two phenomena happening alternately at high speeds, the resultant sound is one of an amplitude 'wave', with the perceived dynamic of the sound continually rising and falling as the amplitude alternates causing our eardrums to vibrate back and forth at the same speed.

The speed of this rising and falling is directly linked to the proximity of the fundamental frequencies: a difference of one hertz (one cycle per second) will give a beating speed of one-per-second, i.e. one peak and one trough within one second. A difference of two hertz will give a two-per-second beating speed, twelve hertz will give twelve-per-second and so on. The harmonies which Niblock creates in his music are most often based around octaves and fifths, with multiple detuned tracks overlaid to create dense clusters around these focal points. These clusters are full of tones microtonally displaced, and beating patterns are in

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1 In an influential article, 'The Minimalist Aesthetic in the Plastic Arts and in Music', Jonathan Bernard defines 'an emphasis upon the *surface* of the work' as one of the criteria he sees as essential for an example of minimalism in composition. (Bernard, Jonathan W., 'The Minimalist Aesthetic in the Plastic Arts and in Music', *Perspectives of New Music*, 31/1, (Winter, 1993), 95).

2 Quinn, Ian, 'Minimal Challenges: Process Music and the Uses of Formalist Analysis', *Contemporary Music Review*, 25/3, (June 2006), 287.

3 Slavnics, Chiyoko, 'Opening Ears – the Intimacy of the Detail of Sound', *Filigrane: Nouvelles Sensibilités*, 4 (2006), 39.

4 Duguid, Brian, 'Phill Niblock', ESTWeb, (1996) <http://media.hyperreal.org/zines/est/articles/niblock.html> accessed 25/1/2011

5 Young, La Monte, 'Lecture 1960', *The Tulane Drama Review*, 10/2 (Winter, 1965), 81.

abundance as the close fundamental frequencies collide with each other at varying distances and create a multitude of beating speeds. As the sustained tones are either performed live or recorded live, their pitch will likely drift microtonally throughout the drone, meaning that the speeds of beating will change accordingly and there will be a gradual ebb and flow of beating speeds over the course of a cluster. These speeds are constantly accelerating and decelerating as the pitch of the live and recorded tones varies, therefore providing an active, engaging surface layer for the listener. Were these pieces to be constructed from purely synthesised means, this organic instability would be in the control of the composer, and that is certainly not Niblock's experimental aesthetic approach. There is a strong intention to allow the indeterminacy of the surface layer to generate interest for the listener.

The phenomenon of beating patterns is actually much more engrained into traditional tonal language than is often realised; it forms the basis of our understanding of consonance and dissonance, as put forward by German scientist Hermann von Helmholtz[6] and formalised by American theorist James Tenney.[7] Niblock's music benefits from the notion that, as beating speeds increase, our sensation of dissonance increases, and supports the unstable surface layer beating speeds; this provides a high degree of variability between consonance and dissonance (or 'roughness', as is used in scientific terminology) in performance within what is a comparatively stable system of near-identical sustained tones. This dialectic between different speeds of beating and their transformative nature, and thus the very real ambiguity of consonance and dissonance, creates further instability.

The liner notes to a recent Alvin Lucier CD[8] explain that as the amplitude of these beating patterns change (i.e. what creates the sensation of 'beats'), which is a result of the two frequencies moving in and out of phase, then the pitch of the tone complex will itself drift higher and lower, therefore creating a smooth glissando. While this glissando is of imperceptibly minimal pitch change, it is interesting to note that glissandi are occuring alongside the microtonal drifts in the sustained tones caused by performer imperfection. The liner notes go on to discuss how Helmholtz's original German term for beating (*Schwebung*) relates to the English “sweeping” and “swooping”, implying a continuous glissando motion.

The loud dynamic level of Niblock's music in live performance (usually 110 – 115 dB) allows the transitory nature of the many harmonics of the fundamental tones to be clearly perceived, an aspect which is rarely heard in other musics. These harmonics are by no means stable, and their continual appearance and disappearance provides an unstable high-end to the overall mix. Indeed, when discussing the multitracked cello piece *3 to 7 - 196*, Niblock states that the high volume allows the listener to hear the harmonics at the expense of discerning the cello at all, and that low volumes are unsatisfactory for him as you are left with just the cello and no layer of harmonics.[9] Whilst Niblock employs the most resonant instrumental registers which yield a high number of harmonics, the overtone spectra always differ significantly in strength, between both piece to piece, and various realisations of the same piece. However, the transitory harmonics in a Niblock piece do not convey a transforming timbre, but rather expose a shimmering, volatile surface layer. The stronger harmonics often generate beating patterns with other harmonics and fundamentals, hence why many of the harmonies are centred around the octave and the fifth as these are the lower-order harmonics. As Niblock states, with the combination of a 57 Hz tone and a 113 Hz tone, “you know *something's* going to happen”[10], as consequently a further level of depth is added to the active surface layer.

When a beating speed is below one-per-second, i.e. when there is less than a hertz between two sustained tones, the beating pattern begins to sound more like slow changes of amplitude rather than a rhythmic 'beating'; this is palpable in Niblock's music as beating patterns transform into undulating amplitudes and then back towards faster, pulsating speeds. When the speed of a beating pattern moves above the threshold that the human auditory system can perceive (usually around 20 Hz), it becomes a difference tone. These tones are produced entirely within the inner ear and tend to only be perceived at high volumes, such as those in a Niblock realisation, creating a substantial extra layer upon the surface of the sound.

The final auditory phenomena to be discussed are standing waves, which occur when two waveforms approaching each other from opposite directions interfere. This results in the appearance of two kinds of points along the waveforms' trajectory: nodes, where destructive interference means the wave is cancelled

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6 Helmholtz, Hermann von, *On the Sensations of Tone as a Physiological Basis for the Theory of Music* (Dover, 1954).
7 Tenney, James, *A History of 'Consonance' and 'Dissonance'* (New York, 1988).
8 Lucier, Alvin, Anthony Burr/Charles Curtis (Anthony Burr, Charles Curtis, ANSI002).
9 Saunders, James, 'Phill Niblock', in *The Ashgate Research Companion to Experimental Music,* ed. Saunders, James (Farnham, 2009), 322.
10 Warburton, Dan, 'Phill Niblock*', The Wire*, 265 (March, 2006), 37

out and there is no audible output, and antinodes, where constructive interference doubles the intensity of the signal. These points remain stationary along the waveform (as long as the source frequencies do not alter), hence the name 'standing waves'. The listener of Niblock's music who moves around the performance space can identify these points by their clear differences in dynamic: the quiet dynamics of nodes in particular provide engaging material for the listener, in amongst the continuous mass of loud sustained tones. Niblock describes the entire experience as being inside a “big, full box”, where “there are many possibilities of things happening”[11]; the standing waves support this notion that the music is in three dimensions, where the listener can explore the architecture of the sound to its fullest extent.

Surface layer perception

With so much surface layer activity occurring, how do our perceptual mechanisms process it all? It begins with chunking, an information theory term describing how we detect divisions within a message – for instance, a piece of music. We detect divisions by perceiving changes in parametric values in the auditory signal, and then applying sectional boundaries to break the message into chunks. In Niblock's music, there is very low informational change within primary parameters such as pitch, rhythm, timbre etc., as these tend to remain relatively constant throughout a piece. In music of such low information, the issue which arises is the inability to chunk easily; our ability to arrange hierarchical phrase structures is lost, as is consequently our ability to place events in our memory in the order in which they appeared (time-order). The term “parametric values”, necessary for chunking, can also be applied to the varied extra-notational acoustic phenomena described above, including audible beating patterns, appearance of multiple harmonics, difference tones and standing waves. It is here that our perceptual mechanisms can operate in distinguishing separate messages due to the vibrant activity of the surface layer.

For the following argument on chunking I will focus on audible beating patterns, but the process can just as easily be applied to other phenomena. We chunk these beating patterns into separate gestalts, and although we remain aware that these patterns have no long-term ramifications on the form of the piece (they are not in any way part of a narrative), their duration, speed, frequential register and dynamic all contribute to our grouping them into different sections. According to the theorist Bob Snyder, a change in a single parameter doesn't constitute a sectional boundary, but rather an articulation or variation *within* a section[12]. So, if we hear a continuous transformation of speed in a beating pattern over a certain period of time, we perceive this as an *articulation* in the gestalt; clearly we don't interpret this as some kind of narrative articulation, but we certainly attribute a value to it. This is evidently context dependent, as a single parametric change of a large magnitude, for instance a large intervallic or dynamic change, may well create a new sectional boundary, but the notion holds for the small parametric changes in the surface layer of a Niblock piece. This articulation may not significantly alter the manner in which we perceive the following information, in the way that a large intervallic change might suggest a hierarchy in comparison with smaller changes, but we certainly perceive it as an *occurrence*.

Snyder uses the word 'syntax' to define sets of relations between identifiable patterns, and so we can perceive that syntax generated by different beating patterns. Returning to the idea of stability/instability, a clear dialectic is set-up between moments of pure global unisons, and sections with beating patterns. However, no new sectional boundaries are formed due to the low informational nature of the change, but there *is* a perceived alteration within the sound. The articulations from slight parametric changes, and the relationships between these articulations, provide the basis for the evolving sense of listening described by Larry Polansky on the music of James Tenney, but which is just as applicable to Niblock: 'It's no so much that Tenney wants to tell you something, as it is that, like Cage, he is interested in providing a tool to help you evolve”.[13]

In an interview with Frank J. Oteri, Niblock states how he is against realisations of his pieces involving steady state instruments, such as synthesizers. “[...] the whole piece was full of these constant beatings which is totally against what I would do normally—recording instruments which have some variations in pitch as they play: wind instruments or string instruments. That really seems to destroy the constant beating a lot.”[14] This seems to suggest that, at some level, Niblock is considering these perceptual mechanisms as being

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11 Forman, Rob Forman, 'Phill Niblock at Seventy', (2003) <http://www.phillniblock.com/phillniblockat70.pdf> accessed 25/1/2011

12 Snyder, Bob, *Music and Memory: An Introduction* (Cambridge, 2000), 204.

13 Polansky, Larry, 'Jim Tenney and Space Travel', *Perspectives of New Music*, 25/1 (Winter – Summer, 1987), 437-438.

14 Oteri, Frank J., 'Phill Niblock: Connecting the Dots', new music box, (2010) <http://newmusicbox.org/article.nmbx?id=6675> accessed 25/1/2011id=6675

important to the listener's experience, and creating the music in such a way as to fully explore these indeterminate articulations.

Three pieces

I will be looking here at three works which demonstrate differing approaches to their creation, yet collectively maintain a strong identity: *Sethwork* for solo guitar, *Tow by Tom* for three orchestras, and *Five More String Quartets* (one quartet multitracked). The global shapes for the pieces differ, with *Sethwork* an extended divergence form unison, *Five More String Quartets* an opposite extended convergence (as mentioned at the beginning of the chapter), and *Tow by Tom* converging halfway through before digressing again. However, the musical material remains very much the same across the three pieces, and despite timbral variations owing to different instrumentations, the end result of an engaging array of surface layer phenomena is always present.

For all the resultant similarity, the construction and performative realisation of each piece differs significantly. The score for *Tow by Tom* for orchestra employs microtonal variations of equal temperament to communicate pitch trajectories for individual players; the indeterminacy of this notation allows for much microtonal variation by instructing players to vary each note very slightly in intonation from the one before, and that players should be actively aiming for a multitude of beating patterns. This may well result in players drifting towards pitches of others to induce beating patterns, and therefore producing further perceptual articulations. The quieter dynamics, when compared to a high-decibel speaker system, mean that difference tones will not be as abundant as in pieces created in the studio, as the overall volume level will be significantly lower. The densities of the music will be far more active due to the varying timbres and relative dynamics of orchestral instruments.

Conversely, *Five More String Quartets* consists entirely of homogenous instrumentation and consequently the textural density is much more consistent. Since each individual instrument is miked up separately, there is an active bed of high harmonics continually shifting, which remains much more noticeable than *Tow by Tom*. The final piece, *Sethwork*, is also created around octave pitch clusters, but the e-bowed acoustic guitars produces very pure tones with fewer higher spectra, so that there is much less focus upon the surface layer harmonics as in *Five More String Quartets*, and the listener tends to be drawn towards the beating patterns between fundamentals. Since there is little variation within density, timbral-envelope or surface harmonics within *Sethwork*, the vibrancy of the beating patterns is heightened as there are few other factors distracting the listener; the purity of the tones also help to create intense standing waves within the auditorium space.

The manner in which these pieces are composed is also remarkably different: whereas *Tow by Tom* and *Five More String Quartets* are both meticulously predetermined beforehand (the orchestral piece using indeterminate microtonal notation, *Five More String Quartets* employing the frequential grid shown at the beginning of this chapter), *Sethwork* was created by recording a number of pitches, which were then intuitively pitch-shifted afterwards. A player in one of *Tow by Tom*'s three orchestras is fully aware of how their current pitch relates to the overall pitch trajectory and it's context within the entire ensemble; when recording the sound material in the studio, the guitarist of *Sethwork* does not hear their pitch in amongst the other multiple layers, but rather as a single tone. Therefore the orchestral player may well alter their dynamic, for instance, to balance more with the ensemble, but the soloist of *Sethwork* is much more likely to maintain fixed parametric values throughout the recording, as there is no ensemble to which to react. This means that the studio-produced pieces have much more consistency in primary sonic parameters, and therefore the listener's perception is focused even further upon the transformative nature of the surface layer.

Temporality

The perception of the surface layer articulations affects the manner in which the listener experiences the passing of time in Niblock's music. Bob Snyder writes that “a message cues memory only to the extent that it cues something in a way we are not completely familiar with, and this is related to change or difference”.[15] Many other drone musics operate on *very* low information that exhibits no change or difference which leads some analysts to the use of the somewhat ethereal term 'timelessness' due to the lack of cues for memory. However, the variety in Niblock's music to the engaged listener gives enough change, enough opportunity for chunking, that recall functions can be employed and hierarchies created through comparative memory.

Consequently our own subjective perception of the passing of time is affected: moments of instability, with

15 Snyder, Bob, *Music and Memory: An Introduction* (Cambridge, 2000), 209.

parametric changes occurring, are described as taking up more memory space (although this is used as a metaphor rather than a physical description) than stable moments of low information. Thus, duration experienced during instability is perceived as being shorter, but remembered as being longer, whereas the opposite holds for sections of stability – they are perceived as longer durations, but remembered as shorter. The flux between parametric change and parametric stasis ensures our perception of both experienced and recalled temporality is also in flux; to paraphrase Jonathan Bernard, this is music which is *about* time".

Closing remarks

Niblock's aesthetic approach to making music has remained relatively unchanged throughout his lifetime, and whilst the media employed to create the music may have altered (e.g. analogue to digital recording and editing technologies), the single-minded objective to explore sustained-tone textures and resultant sound surfaces has steadfastly persisted. The combination of the surface layer articulations upon loud, dense harmonies occur within simple, comprehensible structures. A very real instability results, which provides a level of perceptual engagement unique to the music world which Niblock has made very much his own.

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