Involution and Hexany Permutations

Dean Rosenthal

The work contained on this recording represents Dave Seidel's second foray into the realm of releasing a full-length recording. But this new milestone was not reached until he had long immersed himself in the experimental scene in NYC in the 1980s and 1990s, working closely with established experimental music pioneers Lois V Vierk and Guy Klucevsek among others. Seidel's own composing and performing grew, blossoming into live performances in the 2000s and 2010s, allowing further exploration into programming and experimenting with sonority and algorithmic sonification. What we hear on this recording is the care and detail of his passion for these two features of composition and a steady integration of them. This leads us to the two pieces heard here: *Involution* and *Hexany Permutations*.

In thinking of sonority, Seidel has spoken of the strong influence of La Monte Young's use of perfectly-tuned intervals and Young's ideal of previously unheard sounds, those that may engender new sensations and emotions in the listener. But Seidel also confirms the influence of the work of Alvin Lucier, in particular the *Orpheus Variations.* For Seidel and his sonorities, he has found little use for the 12-note chromatic tempered system, no doubt the ubiquity of this universal tuning of Western music having too few possibilities for his ear. The question then appears: how does he apply this desire to explore new forms of sonority outside the well-tempered system and, for our purposes, in these pieces?

The first CD in this set presents Seidel's composition *Involution*, heard in three sections. The music is presented as an expansion of slowly-changing sonorities that explore the harmonic spaces inherent in certain microtonal tunings and scales, or modes within those tunings. Each section employs a different tuning and a different set of scales or modes. How does this work in Seidel's arrangement of these possibilities?

In *Involution,* Seidel employs both traditional and modern scales as well as one of his own devising. We hear this as follows: *Involution 1* uses the Wilson-Grady Meta Slendro scale, *Involution 2* the just-intonation Centaur tuning divided into the Scriabin-derived Prometheus scale and the Hindustani Marwa scale, and *Involution 3* combining the use of two 6-note scales (also used in the second piece on this recording, *Hexany Permutations)* known as the Hexany scale.

The sonorities given have three layers. In the fundamental layer is a sustained dyad, the next layer a "choir" of sine waves deriving from that dyad based on combination tones, the final layer adding another clustering of tones further derived from the fundamental dyad. The first two layers are produced by a computer, and have a cool, orderly, continuous surface. The third layer is produced by a modular synthesizer and is itself composed of several layers, featuring constant change influenced by random processes, resulting in a warmer, noisier, and more disorderly extension and commentary on the fundamental dyad.

The piece is loosely combinatorial in structure, using two separate, concurrent sequences of slightly different lengths and registral ranges and running at different tempi, eventually working through most of the possible two-note combinations of a scale, with occasional octave displacements. We can further hear that the two sequences described run at different tempi to ensure that a high proportion of the dyads and their resulting chords share a common tone, smoothing out the harmonic transitions.

Hexany Permutations, the music that the second CD of this release contains, hints at the same concerns of sonority heard in *Involution* but tackles the composing slightly differently, with musical results of differing proportions. In this piece, the structure of the piece plays an equal if not more dominant role than the microtonal sonorities explored.

After hearing the American minimalist Tom Johnson's 1986 piece *The Chord Catalogue*, in which all 8178 chords in a single octave are enumerated, Seidel, while enamored of the catalogue aspect conceptually, decided the music that resulted from such a purely presented collection was too dry, without the color and texture he felt could be inserted into music that explores the complete set of combinations within a gamut. *Hexany Permutations* is Seidel's response.

In this piece, each of the six sections result in a different formation of the same catalog. The music throughout employs unique scales which remains consistent throughout each section as well. The scales Seidel uses in this case is identical to the Hexany mode he puts to use in *Involution 3.* Seidel describes this scale as "a tuning I devised consisting of two six-note 1-3-5-7 Hexany scales, 9/8 apart. The dyads may come from the first hexany, the second hexany, or both (one voice from the first, the other voice from the second)".

What happens in the structure of this piece? In *Hexany Permutations,* the seven-note Hexany scales are, in pre-composition, used to articulate all of the combinations of

two-note, three-note, four-note, five-note, six-note chords and the one seven-note chord. How does this work? We can visualize this combinatorial process numerically in this way:

$$(0, 1), (0, 2), (0, 3), (0, 4), (0, 5), (0, 6), (1, 2), (1, 3) \ldots (0, 1, 2, 3, 4, 5, 6)$$

In completing the list, we find this totals 120 combinations. After these combinations are defined pre-compositionally, the scale can be mapped to each note, permitting the harmonies to proceed without disturbance. Here we find the harmonies unfolding in six different but related manners, each a discrete section of the piece. Seidel calls these different manners of presentation the "permutations" he refers to in the title.

To further understand the piece structurally, before looking into the sonorous result, a good question to ask at this point might be: how does the overall form of each section work? We find that the full catalogue of combinations of the scale is varied by inversion, retrograde, and other strict yet rudimentary manipulations ("permutations") without alteration or interference, each variation becoming the discrete section. This objectively neutral presentation allows the listener to take in the orderliness without Seidel inserting more emotional or personal musical decisions, like changing the order of a specific progression to more suit his musical taste or tweaking chord tones or entrances to create specific areas that are specifically pleasing to his ear. In this sense, the acceptance of the inevitability of the presentation allows for the process to be heard as a statement of neutrality; after this decision was made, we focus instead on the combinations and the sonorities of them, again returning to Seidel's insistence that we take in the color and diversity of the sound as well as the tapestry of order.

Interestingly, it turns out that the permutations of the presentation of the catalogue are, as Seidel describes them, are not in fact composed intuitively for their musical properties. After programming visual analogues to the combinatorial sound structures, he reveals that, "the order I chose for the sections, was just about entirely by the way the "score" diagrams looked when regarded as a series. Thus, in this sense, the overall structure of the piece was not about sound *per se*, but was more a conceptual choice based on intuitive visual aesthetics."

Taken together, these two pieces are composed to enter aural spaces both mathematical and sensual, each combining these elements in disparate and multifold ways. I find I am attracted to each in different ways, admiring the detail and consideration given with a fine attention to the sounding result. As we can hear, it is to Seidel's advantage to explore this area of composing with the ideals of forms

and tunings together. But, of course, the music must be the final arbiter for us and here Dave Seidel offers the welcome opportunity to both observe the detail of the construction if we choose or to immerse ourselves in the sonorous design. The balance is one that is best considered at once.

- Dean Rosenthal

Track List

CD1
1. Involution 1 (Meta-Slendro)
2. Involution 2 (Prometheus and Marwa in Centaur)
3. Involution 3 (Double Hexany)

CD2
1. Hexany Permutations 1 (Catalog Order)
2. Hexany Permutations 2 (Sorted Ascending)
3. Hexany Permutations 3 (Sorted Descending)
4. Hexany Permutations 4 (Reversed, Sorted Ascending)
5. Hexany Permutations 5 (Reversed, Sorted Descending)
6. Hexany Permutations 6 (Reversed Catalog Order)

Technical Notes

Involution was made with modular synthesizer and Csound, everything played together in real time and each track recorded as a single take. The pitches are driven by a sequencer in the modular system, and are also sent as MIDI notes to Csound code running on a Raspberry Pi 4. More information: http://mysterybear.net/releases/involution

Hexany Permutations was made with Csound on a laptop, driven by Python and rendered to a series of sound files. Code: https://github.com/DaveSeidel/music-src/tree/master/hexany-permutations

Credits

Composed, realized, recorded, and produced by Dave Seidel.
Mixed and mastered by Eric Honour.
Graphics, design and layout by Scott Unrein.
Liner notes by Dean Rosenthal.

Thanks