

$\infty 1$

Michael Winter (2004)
(Revised 2006)

∞1

Michael Winter (2004)
(Revised 2006)

$$\left. \begin{array}{l} f_{(n=1)} = L(\text{in cps}) \\ f_{(n=2)} = H(\text{in cps}) \end{array} \right\} L, H \text{ such that } \frac{H}{L} \text{ is rational}$$

$$\left\{ L + (H - L) \left(\frac{1 + 2(n - 2) - 2^{\lfloor \log_2(n-2)+1 \rfloor}}{2^{\lfloor \log_2(n-2)+1 \rfloor}} \right) \right\}_{n \geq 3} \begin{array}{l} \text{preferably } \infty \\ \text{acceptably } n \geq \left(\frac{250}{\log_{10} 2} \right) \left(\log_{10} \left(\frac{H}{L} \right) \right) \end{array}$$

Notes

The equation represents a sequence of pitches in cycles per second determined from predefined low (L) and high (H) frequency values. Only one performer can take each tone. The performer may begin each tone with any type of attack. After the attack, each tone should sustain by whatever means possible till the end of the piece and then all tones fade out together. However, if the piece is played in the preferable fashion, there is no end. The pitch, timbre, and amplitude of the sustain portion of the tones should fluctuate as little as possible. Duration between the onsets of tones of the sequence may be as long or short as the player(s) desire. All tones should sustain at equal loudness.

One may use a computer program to aid in the performance of this work. For example, by creating an application that allows the user to enter L , H , and then quantizes H down so that L and H meet the criteria specified in the equation. The user may then cycle through the sequence. At each step, a tone at the current index could be produced and sent to the performer(s) headphones. Also, the screen could display the closest tempered pitch in the traditional 12-tone equal tempered system with a cent deviation above the note.

Also some type of infinite reverb/sustain may be implemented for small ensembles or solo performances. Then, once the performer feels that the tone is as steady and correct in pitch as possible, they can trigger the application to use that portion of the tone for an infinite sustain and then move on to the next tone of the sequence.

Though such an application is suggested, it is encouraged that the performer(s) seek alternative ways to manifest the piece. There is no limit as to the type of sound sources or sustaining devices to be used. The piece is as valid with sine tones as it is with traditional instruments. The point is a transformation from open sonorities to a total saturation of a frequency band with equal frequency spacings; i.e. an extremely dense cluster.

Example of a Sequence

$$L = 100, H = 300$$

{100, 300, 200, 150, 250, 125, 175, 225, 275, 112.5, 137.5, 162.5, 187.5, 212.5, 237.5, 262.5, 287.5, 106.25, ... infinitely}