

## DXARTS SPRING CONCERT CRITIQUE

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On Wednesday, May 21, 2025, I attended John Chowning's DXARTS Spring Concert where he presented five of his most celebrated pieces in the world of Computer Music.

The five pieces presented were very related to our listening repertoire as they explored sound synthesis techniques, algorithms, and compositional techniques for scoring. Compositionally, the pieces reminded me a lot of Jean Claude Risset's *Mutations* or *Sud*, and the reference to *Mutation's* was further evidenced by Chowning citing Risset in *Phone*. In *Voices For Soprano & Interactive Computer*, I could definitely sense some inspiration from Harvey's *Mortuos Plango*. The way Maureen Chowning's voice was spatialized reminded me a lot of how Harvey seamlessly blended the voice of a boy and synthesized sounds to a point where the real and synthesized became indistinguishable. However, what made these pieces stand out against our repertoire was Chowning's use of FM synthesis, a technique he discovered and later patented. A majority of the pieces in our repertoire use additive, subtractive, or granular synthesis, while Chowning dove deep into FM synthesis techniques and reverb algorithms.

Out of the five pieces presented, *Turenas* particularly stood out to me. I was drawn to the unique FM timbres and spectral qualities of the piece, and the way the composition evolved. I really enjoyed the more plucky sounds that Chowning synthesized; they sounded like fingers tapping hollow wood, glass, or plastic, and were very pleasing to listen to. Once again, the piece compositionally and sonically reminded me of Risset's *Mutations*. I noticed a lot of sounds that were similar to the Risset bell, and even some reversed bells. Aside from the similarities to Risset, most of the sounds in *Turenas* were very different from the pieces in our repertoire since the FM synthesis used has such unique sonic qualities that can't easily be replicated with additive or granular synthesis.

During the performance, I was thinking a lot about what algorithms Chowning used to compose his pieces and spatialize his sounds. During *Voices For Soprano & Interactive Computer*, I was curious about the algorithm Chowning used for adding reverb and spatialization to Maureen's voice. Reverb is essentially how sound bounces off walls and reflects in a room, so simulating reverb would require creating a mathematical model for representing sound bouncing around a room, which I imagine is VERY complex. For composing *Stria*, Chowning explored using the golden ratio for his scale. Instead of using the basic 12 note per octave scale ( $2^{(n/12)}$ ), Chowning used a roughly 13 note per octave scale, meaning he had to multiply the base frequency by  $2^{(n/13)}$  to create partials. Using this factor, an array of potential partial frequencies could be calculated and used for composing the piece.

After the concert, I am more interested in FM synthesis and how it differs from the other synthesis techniques we have studied, and I hope to learn more about it!