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Titles of Classes: Class IX, XI: Trionys – Vector Alpha

Date of class: Nov 13, Nov 27, 2012

Date submitted: Dec 7, 2012

Key terms, sorted by area:

Primary Terms:

Scope
Energy Level
Movement
Texture
Gesture
Chaotic System
Cycles
Structure

Secondary Terms:

Serialism
Chaos Theory
Geological History
Supernova
Universe
Solar System

Sources accessed [Name; URL]:

<http://en.wikipedia.org/wiki/Glacier>

http://en.wikipedia.org/wiki/History_of_the_Earth

<http://en.wikipedia.org/wiki/Attractor> --- One of the movements is named *A-Ttractor* - while this movement is not explicitly touched on in this analysis, this concept is important to linking the movements together (that is to say, it was a large piece of the puzzle which allowed us to see we were on the right track, so to speak.)

http://en.wikipedia.org/wiki/Lorenz_system

http://en.wikipedia.org/wiki/Chaos_theory - Related to the above

<http://en.wikipedia.org/wiki/Supernova>

<http://en.wikipedia.org/wiki/Fractal>

Photograph representing Vector Alpha:



Part 1:

Vector Alpha is a piece that seems to reference the formation and demise of bodies on a great deal of different scales – and their regenerative cycles; celestial, biological, mineral, microscopic. It is a study in gesture, texture, and maybe most importantly, scope. It studies these elements on a global (from movement to movement, as far back as the entire piece) and a local scale (from moment to moment within each movement). These scales provide an important entrance into the meaning of the piece; because the movements and gestures can be “zoomed-in” and “zoomed-out” such that the information contained within these views is largely the same, or at least similar. This seems to reference elements of fractal mathematics, chaos theory and, in-so-doing, points at a metaphor for not only the history of, say, earth as a celestial entity but also, on a smaller scale the formation of islands, mountains and other geographic features. On the other hand, the scope can be expanded such that one may see the process of the formations of galaxies, of the universe itself, and their mechanics such that they have a beginning (with a great deal of energy) a cooling period (through which matter organizes itself structurally) and, inevitably, an ending. This is hinted at not only in the sonic and organizational elements of the piece, but also in the titles of each movement.

The instrumentation- piano, violin and percussion with electronic processing- is utilized such that virtually the entire frequency spectrum is available to the performers. While they take on local hierarchies, there is no real global hierarchy in the standard sense; they do not behave in an archetypal manner. That is, really, to say that the percussionist may serve to provide a rhythmic structure in a local sense, but that is not his dedicated role; each instrumentalist has a constantly changing and evolving role, and any one of them can and does take the lead at anytime. Their natures are mutable, as are the textures they use; moving from soloists, to accompaniment, to duets between any of the instrumentalists at a time. These changes, again, occur on several different orders of magnitude.

Part 2

MOVEMENT 2 - AQUA

Aqua, insofar as *Vector Alpha* is a metaphor for energy shifts on a number of different scales, is a study in static motion and gesture. It is an almost uniform sounding piece that seems to borrow heavily from the *Serialism* movement; particularly, it could be said to quote from Messiaen's Quartet for the End of Time (the first movement, *Liturgy of Crystal*). The reflections of that aesthetic in this movement can be seen in the apparent use of rules in governing the interplay between instrumentation and their focus on spectrum and colour rather than harmonic content. However, more obviously, the violin line itself and its interaction with the piano seem to be a direct citation of the relationship between the Cello and Piano in Messiaen's work. As Messiaen wrote in a program note regarding his first movement:

Between three and four in the morning, the awakening of birds: a solo blackbird or nightingale improvises, surrounded by a shimmer of sound, by a halo of trills lost very high in the trees. Transpose this onto a religious plane and you have the harmonious silence of Heaven.

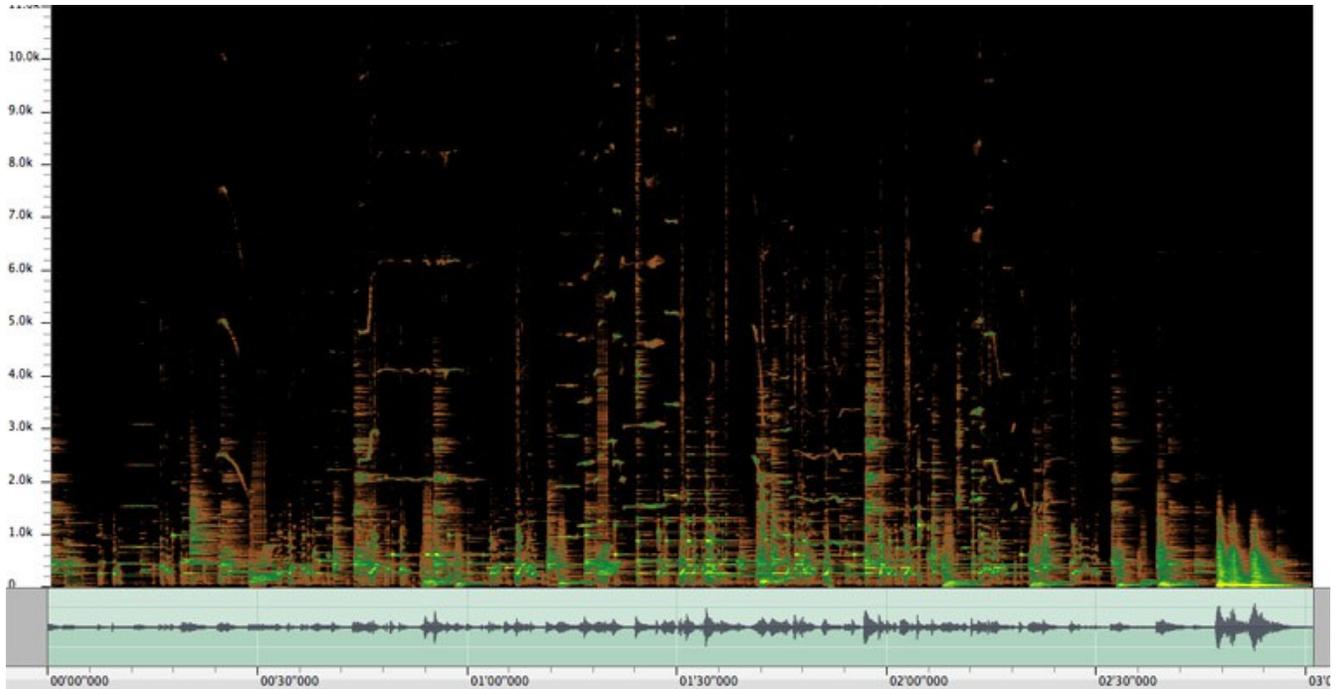
This appears to be a metaphor for the origins of life.

Aqua is the second movement of *Vector Alpha*, and follows a movement that references an intense expenditure of energy, characteristic of seismic and geologic reactions. What immediately follows these physical realities is a period of cooling as the original energy feeding the system dissipates. That is what we are left with in "Aqua." The energy level is consistent from beginning to end with the exception of some minor rises in amplitude that quickly level off. There are no real sections to the piece; though it is composed, on a local scale of a number of different gestures that carry their own articulations and colours. From moment to moment, on a small scale, there is change. On a more global scale that change is not as evident.

Water is a seemingly static substance that hides the fact that it contains a great deal of material diversity in the form of minerals that have dissolved within it. In other words, at one scope it is a homogenous material that, when one moves closer, the various parts become more visible and articulated (but that do not actually effect structural change). It would seem that this is one of the reasons for the titling of the movement.

Texturally, it moves in ebb and flow; it is almost tidal. It is constantly engaged in an inner motion but never really goes anywhere. The individual instruments interact with each other in a sort of constant conversation, punctuated mostly by the piano. The percussion here (hard not to notice it appears to be a kind of water percussion) does not really define the rhythm so much as give it a mild articulation. The violin, meanwhile, roams freely and melodically as it will.

Another reason probably relates to the role that water played in the formation of the earth and of the origins of life itself, as alluded to above. The earth began as molten rock (see "Eruption"); when it cooled, the oceans formed and served as an incubator for microscopic life (and all future life which followed.) This movement's scope, its movement, is on the microscopic level. This is visible immediately in the spectrogram below, which shows that the energy level does go through the smallest of evolutions, but the content seems to more or less remain the same. .



MOVEMENT 7 – EISIGE RESONANZ

On the other side of this continuum is a movement like *Eisige Resonanz* an absolutely gargantuan movement that, from a global perspective, seems contain a lot of change. From moment to moment, however, the piece moves so slowly (one might say at a *glacial* pace). It does have a sectional construction to it, though these sections are not only large but the transitions between them are rather gradual as well. It lives and breathes a more textural atmosphere than “Aqua,” such that its content is mostly sustained, large sounds that are sparsely articulated with more transient moments at times that seem to be evocative of the movement and energy change in ice. This would be not only in keeping with the earlier presumption that *Vector Alpha* is a piece about energy change in bodies on several different scales, but also the title of the piece itself which refers to ice.

As an example, the first section of the piece occurs between [0:00] and [1:45] and seems to be evocative of strong winds over an icy surface. At [1:08] the texture gains a series of short, transient, un-pitched sounds which could be interpreted as cracking ice, and this also represents the moment when the energy level in the piece begins to rise. As the next section begins the, mostly, high frequency shimmers begin to acquire a much lower frequency reverberated sound. This sound becomes significantly more distinct at approximately the [3:30] mark, which is the next section—though again, these sections blend so gradually into each other that it's difficult, especially to this point of the piece, to pin point exactly where one section ends and the next begins until one is already well into a section and it becomes more obvious that a change has occurred. Another relationship between a glacial mass and this movement can be described by this structural characteristic of the movement. A glacier is divided into zones essentially based on how much material in the glacier is in the process of melting or shifting. This piece is divided similarly, by energy level. As the energy level increases, these “zones” get closer together (or, in this case, shorter.)

At [4:30] the energy has increased such that the sound has acquired a significant amount of movement while also being more frequently populated by transient sound. At

[5:45] the amplitude of the sound increases again, featuring cymbals and even piano; the violin enters at [6:30] and the piece is now much more reminiscent of “Aqua.” It has taken this long to get to the gestural portion of the piece, and now that the energy level of the movement has allowed this shift, it quickly finds balance and tapers off though its essential “physical” state remains gestural and liquid. The then begins what appears to be another shift in energy (from low to high) as the movement comes to its end.

In *Vector Alpha*, a small shift in energy often has a number of big consequences that follow it. This is very much evident in a movement like “Eisige Resonanz,” wherein these shifts gather momentum from a very static point of beginning until a cataclysmic shift occurs towards the end and we are left with a much more fluid texture.

A chaotic, dynamical, system is one which is highly sensitive to (and within) the initial conditions of the system. In this case, the system contains a certain, small amount of energy which accumulates over a—relatively— long period of time until it effects global change (though at a local level it seems to be static.) This is analogous to all sorts of natural processes, and includes what probably constitutes (insofar as it is possible to conceptualize), even, the beginning of the universe. An amplitude timeline is an adequate illustration of this movement:



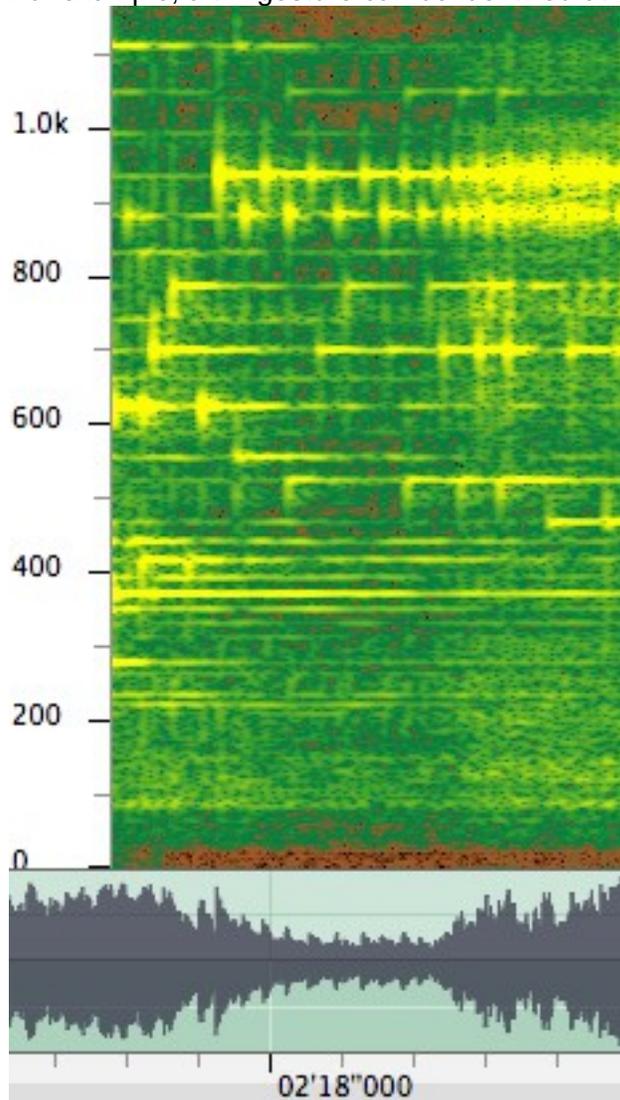
An amplitude/timeline graphic for Eisige Resonanz, with sectional markers

MOVEMENT 8 – PIANO SOLO

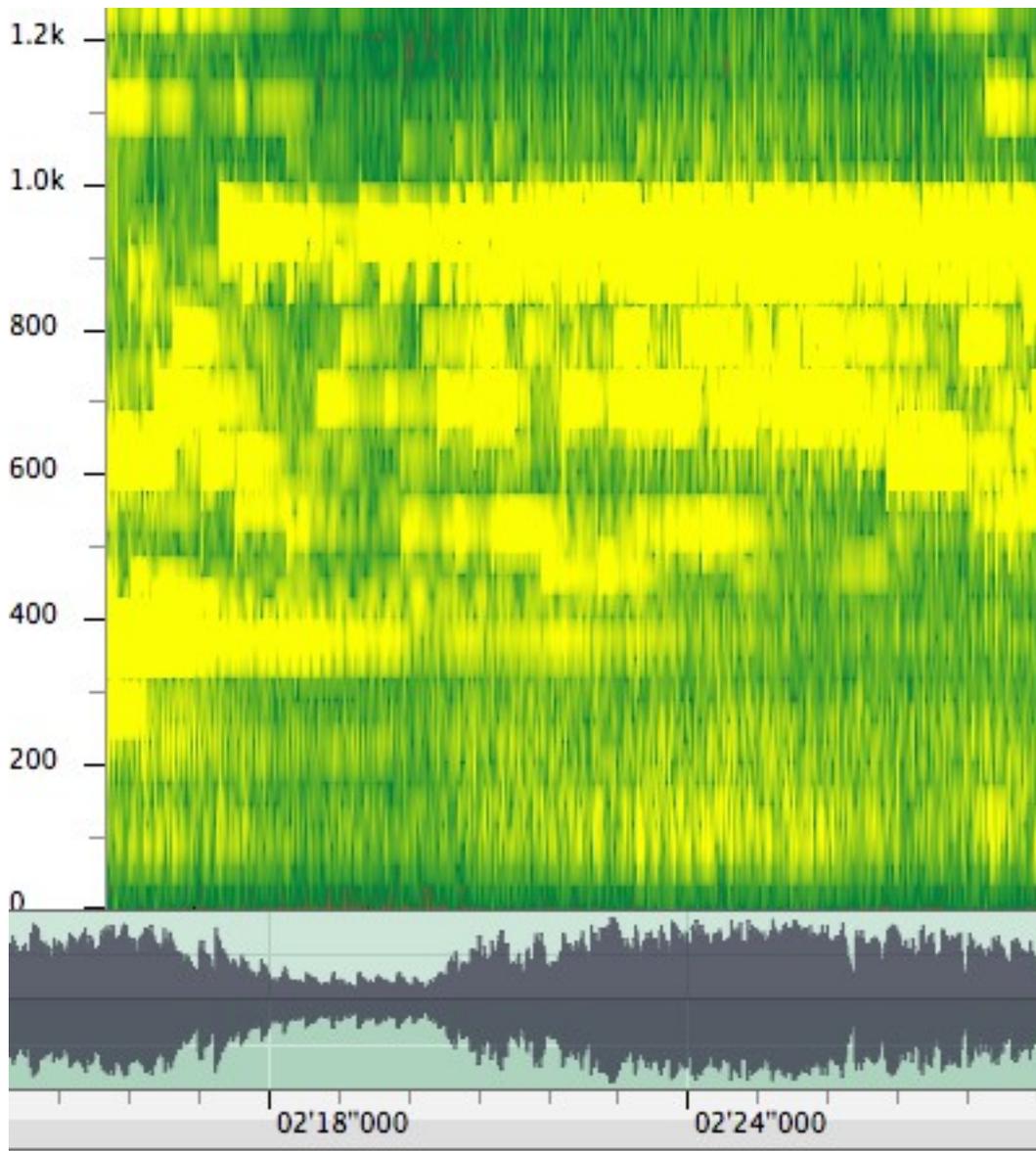
Similar to how repeating patterns can be found by zooming in deeper in fractal mathematics, crystal structures (such as snowflakes), features in terrain (such as coastlines), and geology, galaxies, and the universe itself, *piano solo* contains micro-gestures that at a larger scale become textures, which at a higher level, again become gestures.

Piano solo represents the division between gesture and texture, depending on what level of detail is observed. At a very focused level, individual gestures can be identified:

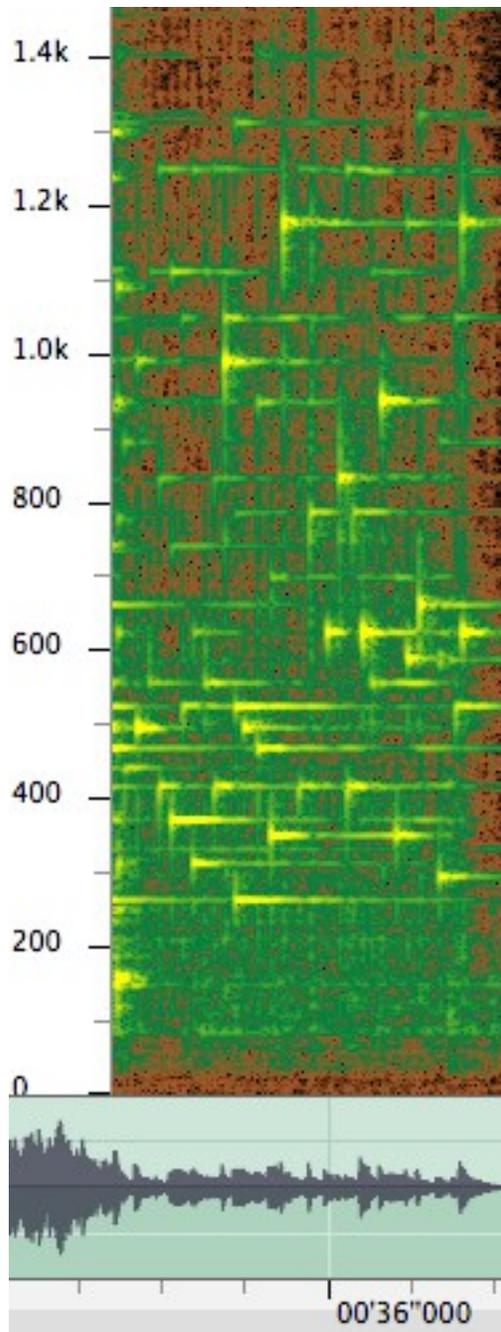
For example, a trill gesture can be identified at 2m:17s



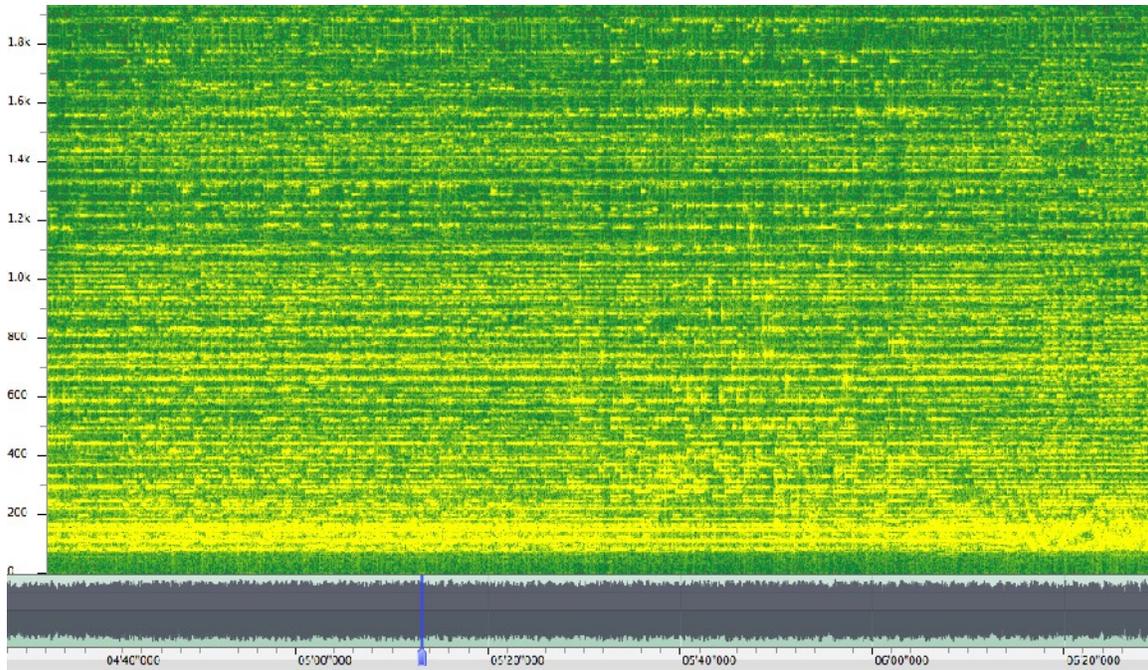
Nevertheless, as the listener's attention becomes satiated by the individual micro-gestures that exist in the movement, broader, macroscopic textures emerge. For example, the same section, seen with a lower FFT window that emphasizes temporal over frequency resolution, reveals a broader texture with energy concentrated in the midrange (400Hz-1000Hz):



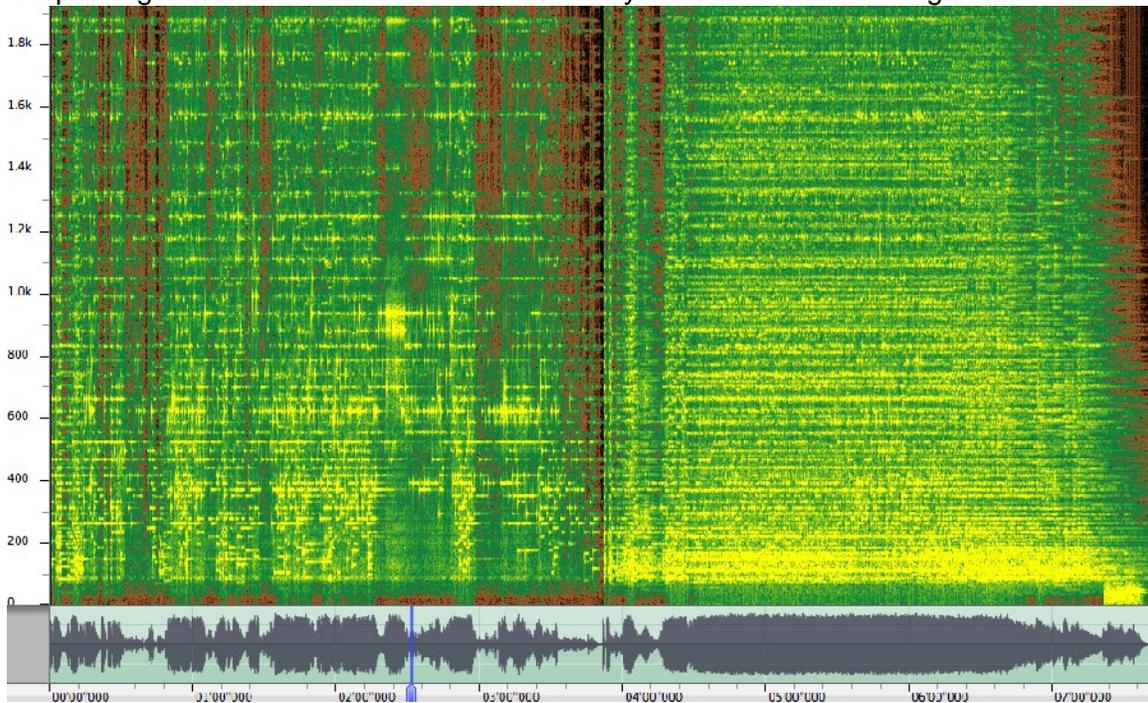
As a whole, the movement contains several sections representing different textures. The texture experienced is directly influenced by the type of micro-gestures that it is composed of. For example, at 0m:32s, the spacey, sparse texture is created with atonal notes and occasional intervals with the damper pedal depressed dynamically:



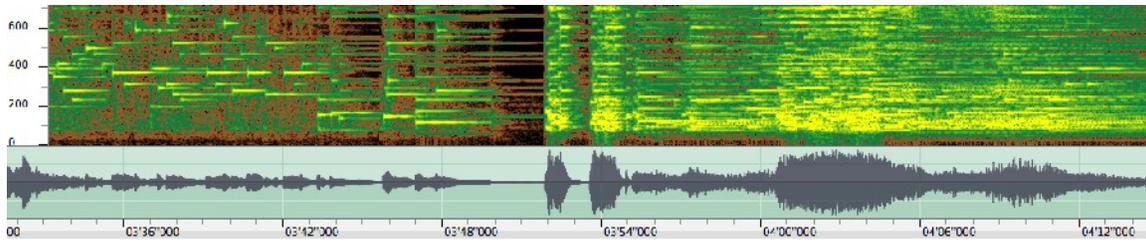
In contrast to this, a much heavier, denser, ominous, and chaotic texture is created between 4m36s and 6:30s. This is achieved by steady and relentless use of the damper pedal, denser notes with more emphasis on the lower frequency notes on the keyboard, more electronic processing (likely involving distortion) and heavy reverberation:



A spectrogram of the whole movement reveals yet another order of magnitude:



Grossly, *Piano Solo* seems to be divisible into two major sections, dividing at 3m52s. Prior to this point, the textures (made up of micro-gestures) themselves become elements of gestures, albeit on a larger scale. This contrasts with the heavy texture after 3m52s. The dichotomy is identified below, where the sudden heavy use of reverb and processing heralds the split. The resonating reverb can be identified as the band of energy below 200Hz.

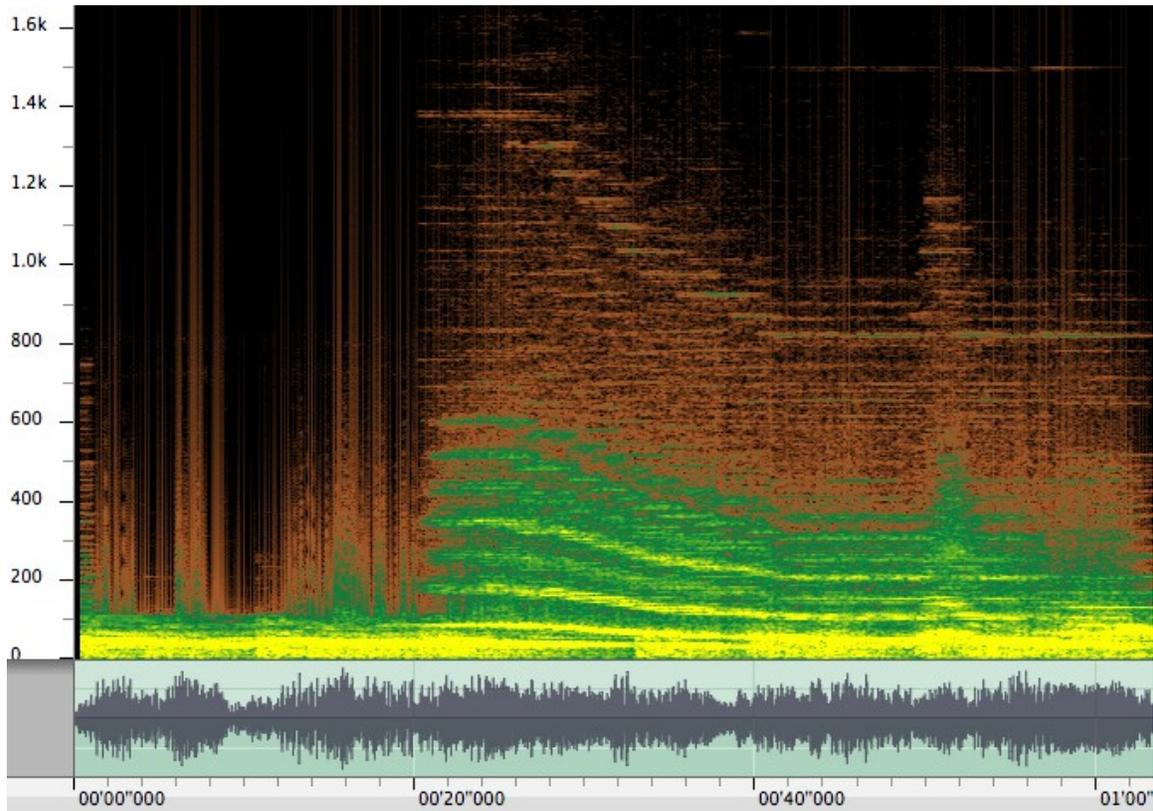


MOVEMENT 9 – URGRUND – VERWEHTS

This movement represents the theme of regeneration and life cycles in *Vector Alpha*. This is hinted at in the title of the movement, which literally translates to “first cause – gone.” To illustrate, consider the formation and demise of a solar system—a large scale structure whose energy and matter are thought to undergo cycles of regeneration.

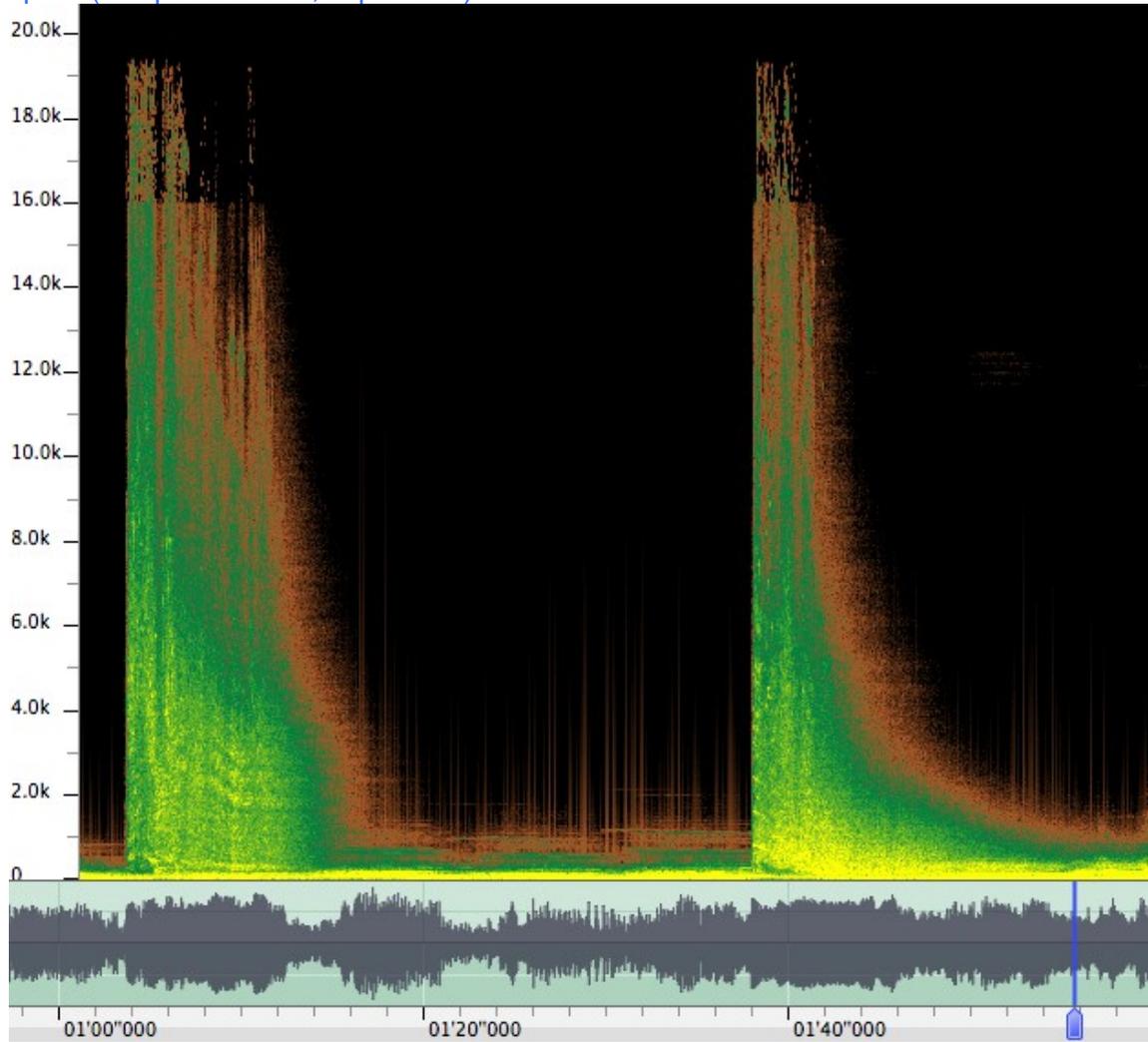
The movement begins with a very heavy rumble, characterized by low frequency (<100Hz) energy. This gives an ominous ambiance and depicts a cold and empty scene. This can be related to the frigid emptiness of outer space, while anxiously awaiting a massive and impressive event

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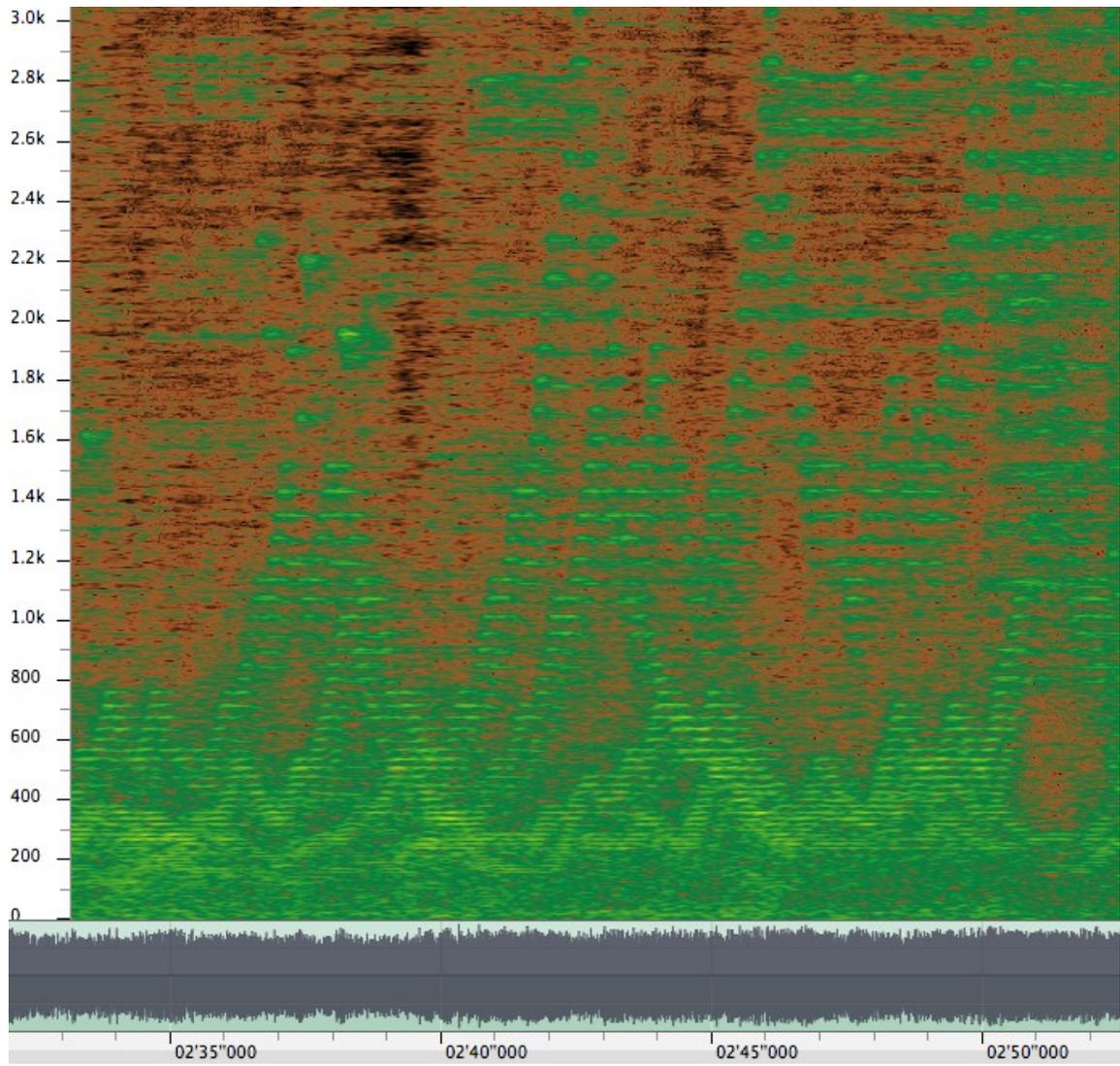


Suddenly, at 1m04s, there is a burst of sound with energy distributed in the entire audible spectrum. This foreshadows an even more intense burst of energy at 1m38s. The second burst is more intense as demonstrated in the spectrogram below, showing denser energy, especially in the 0-6kHz band. This burst is also shorter lived. This seems to reference a celestial phenomenon, the supernova: [“Supernovae are extremely luminous and cause a burst of radiation that often briefly outshines an entire galaxy, before fading from view over several weeks or months. During this short interval a supernova can radiate as much energy as the Sun is expected to emit over its entire life](#)

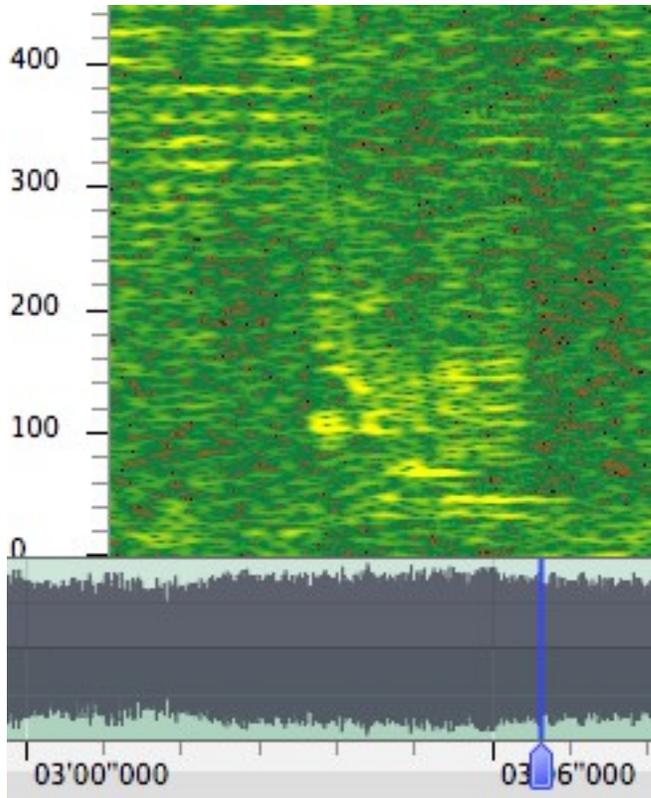
[span.](#)(Wikipedia article, supernova)



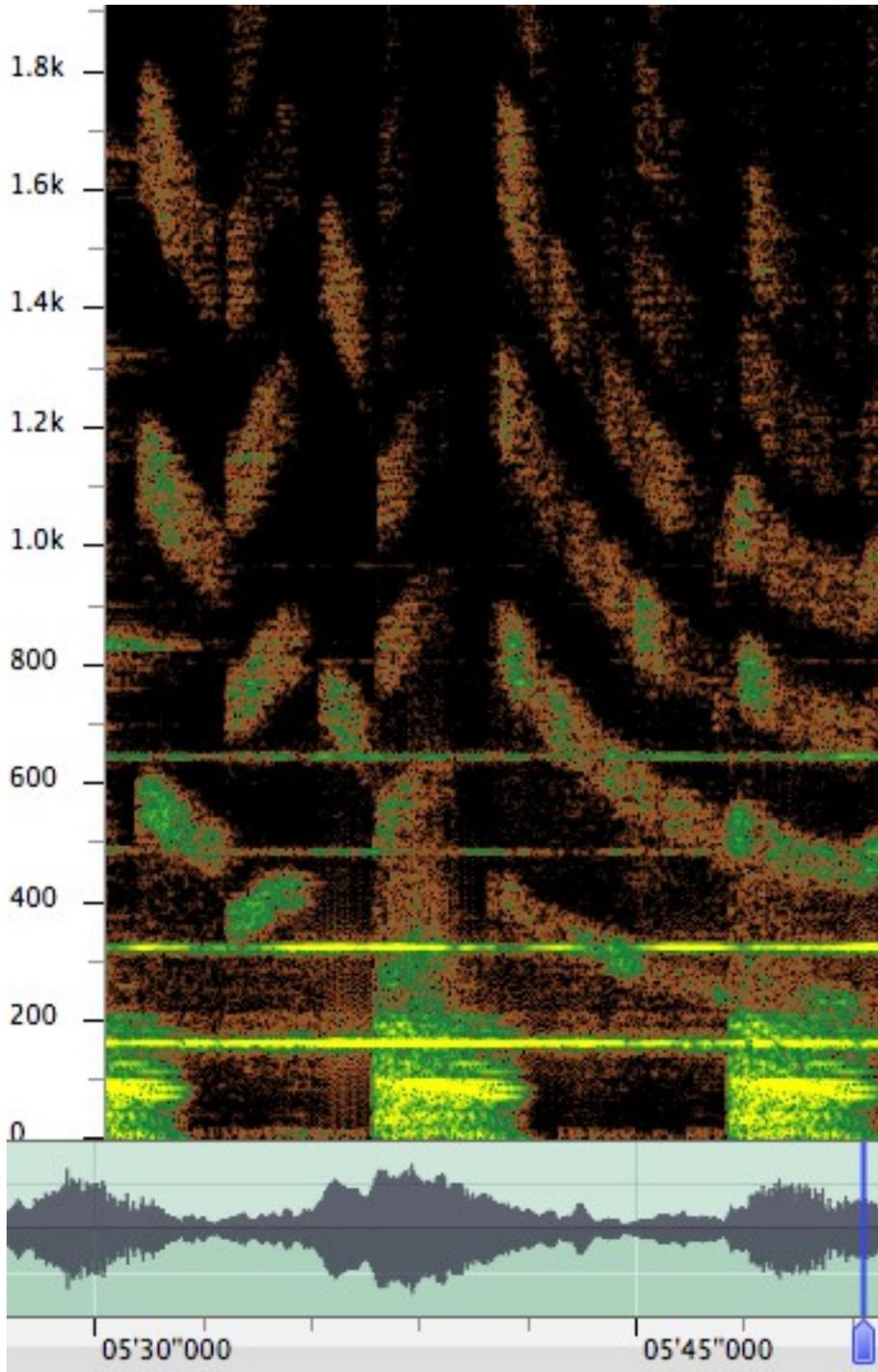
Carrying forward with the solar system analogy, what follows seems to represent the supernova remnants interacting; attracting one another through electrostatic and gravitational forces. As the particles swirl and dance around one another before colliding, the keyboard plays swirling ascending and descending arpeggios. Sometimes, more than one voice is playing at a given instant:



When heavy percussion is involved (beyond cymbals), collisions are implied, for example at 3m:04s:



What follows seems to represent an ordered and stable orbiting of planets around a star. The screeches played by the processed violin invoke images of planets whizzing by, as viewed by a distant observer:



As eons pass, slowly the star exhausts its supply of fuel, gradually dying out, playing its swan song (6m06s). The fate of the energy and matter of this celestial system is to be recycled into a new system. An explosion of energy, not unlike the beginning of this movement, will follow in *Violin Solo*.

