

it shares the same texture as the universe and is integrated in the weft and warp of its fabric. Music is inextricably embedded in the universe.

Summary In IMTE, the rules of simplicity, inclusion, and embeddedness are conceived musically as a theory of repetition. In this theory, music is best described in terms of loops, oscillations, turns, spirals, rotations, recursions, frequencies, and waves. Framed in this way, music functions as a universal machine or universal medium — a kind of computer through which any discipline can plug in and any intelligent life-form can engage.



The following sections of the blueprint outline, in the briefest terms, the “what,” the “how,” and the “why” of repetition:

- What is the nature of repetition (section 0011)?
- How does repetition work (section 0100)?
- Why is repetition important (sections 0101 and 0110)?

The purpose here is not to define a theory and fix its meaning, but to offer a few speculative coordinates to provoke further exploration on this voyage into space.

0011. REPETITION

Everything repeats. Everything repeats. Music repeats itself endlessly. If it were a language, it would be meaningless; its interminable reiterations would be denounced as incoherent stuttering.¹ Music is not language precisely for this reason. If anything, music (en)trains language to jump through its hoops, turning its meaning into stuttering nonsense that makes perfect sense as rhythmic phenomena. For example, take a simple sentence from a song by the Police:

I can't I can't I can't stand losing
 I can't I can't I can't stand losing
 I can't I can't I can't stand losing
 I can't stand losing you
 I can't stand losing you
 I can't stand losing you
 — "Can't Stand Losing You," The Police, 1987

Music's repetitive motion is the basis of its coherence. Indeed, at its basic level, music is just repetition — a rhythmic fold — that holds time together as a discrete loop (see section 0100). Without this loop, music is incoherent, if not impossible. Thus, repetition is the minimal condition for music and the maximal potential for its generation. Music is therefore very simple. It is simply a matter of repetition.

Music's fundamental simplicity enables it to be a theory of everything, because everything repeats. The universe repeats itself endlessly. It operates by repetition. Through its vibrations, oscillations, waves, and rotations, it moves and measures time and space in all dimensions — from the looping membranes of string theory to the massive shudder of gravitational waves. Repetition functions as a universal in the universe — a kind of background hum that is a fundamental condition for existence. As long as there is time and space, there is repetition. Or, to put it in the terms of Fourier analysis, space-time is frequency; *anything* that takes *place* in *time* can be expressed as frequency.²

This is the case for both the animate and the inanimate world. The laws of quantum mechanics and general relativity may repel each other, scuppering the scientific quest for "a theory of everything," but they at least share the same vibe: both theories require their worlds to oscillate. Indeed, in a curious validation of Pythagoras, the quantum leaps in string theory jump back and forth in accordance to harmonic ratios of a string. But to be a thing is not simply to vibrate randomly here and there, but to repeat itself in time to hold

its thingness together. As Catherine Pickstock claims, to be *anything* at all is to sustain identity as repetition.³ As for the animate world, life also oscillates; its biochemical and cognitive mechanisms circulate, replicate, and reproduce, from neural oscillations firing across the body to the feedback loops and mimetic actions that create a social oscillation between individuals. To live is to cognize and recognize. “Life is repetition.”⁴

If music is defined in terms of repetition, then it can be found anywhere in our universe, not so much because it exists in the universe, but because it partakes in the fundamental parameters of existence. Music is not contained in time, but is enmeshed in it. It is not so much a product of life as an expression of its process. Where there is frequency, there is music. Thus, any theory predicated on intergalactic communication would need to be musical, because music is woven in the fabric of life and the very dimensions of being. So although Pythagoras was wrong, he was wrong in the right way. The universe is a kind of music. You can tune in to its frequencies. To communicate across galaxies to an alien intelligence is therefore possible because we *frequent* the same space-time and life-form.

Summary

1. IMTE is premised on frequency as a shaping of space-time. Music, as repetitive motion, does not merely move in time and resonate in space, but is materially embedded in these dimensions and can therefore model and disclose their properties. Music is an aesthetics of space-time.
2. IMTE is premised on frequency as the biological and cognitive rhythm of life. Music, as repetitive motion, is embedded in mechanisms of sense and sensation, perception and reflection, motion and emotion.

These two statements are a reiteration of an ancient idea found in Greek, Indian, and Chinese cosmologies: music weaves the world together, both within us and outside us. Herder echoes this vision

when he writes: “Everything, therefore, that resounds in nature is music.” “It is not *we* who count and measure, but rather nature; the clavichord plays and counts within us.”⁵ Music embeds us in the universe, and the music we make enables us to hear how we inhabit the fabric of space and the cycles of life. To put the matter the other way around, we do not make music as its creator, but respond to a music that is already there. Repetition is therefore both an ontological domain and epistemological object of music theory.

If music weaves time both within us and outside us, then its repetitive motion operates as a mediator. Music converts time as an unknowable object into a *quality* of time that can be experienced. This relation is a metaphor: time *is* music. To listen to music is to attend to time. It is as if music scales time’s immeasurable vastness into an ear-size gravitational field that warps within our being. Or, heard from the opposite end, it is as if music amplifies the subatomic resonance of the universe to dance before our ears. Thus, as a metaphor, music measures the immeasurable to make time appear as if it is calibrated to tick precisely with our internal clocks.⁶ Music’s repetitive tick enables us to keep time with the universe. And in turn, by making music, we are manufacturing teeny-tiny big bangs — miniature explosions of time that expand as vibrational cycles — in order to share our peculiar measure of the universe with another. And the other (perhaps, an alien), in its turn, will receive our measure of time in accordance to its own measure and perpetuate a chain of difference as music passes from one interface to another.

Repetition is a generality in the universe, a specificity in music, and a multiplicity through media.

O100. THEORY

Of course, if everything repeats in the universe, then repetition is not the sole property of music. Its embeddedness seemingly erases music of its distinguishing characteristics. Color, for example, is also frequency. Given the right ears, you could hear color. Conversely, given the right eyes, you could see music. Both can be