

Digital Portfolio

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code repositories: <https://unboundedpress.org/code>

Links to Selected Publications

Meta+phenomenology: primer towards a phenomenology formally based on algorithmic information theory and metabiology

https://unboundedpress.org/pubs/metaphenomenology_primer.pdf

A few more thoughts about Leibniz: the prediction of harmonic distance in harmonic space

https://unboundedpress.org/pubs/A_few_more_thoughts_about_Leibniz.pdf

A few more words about James Tenney: dissonant counterpoint and statistical feedback

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Chordal and timbral morphologies using Hamiltonian cycles

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On minimal change musical morphologies

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Dissertation - *Structural Metrics: an Epistemology*

http://unboundedpress.org/pubs/Structural_Metrics.pdf

Counterfeiting in Colonial Connecticut

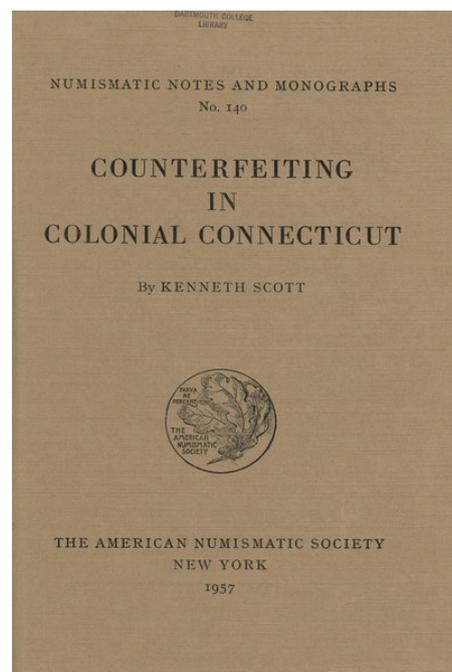
rec: <https://michaelwinter.bandcamp.com/track/counterfeiting-in-colonial-connecticut>

score: https://unboundedpress.org/scores/counterfeiting_in_colonial_connecticut_score.pdf

I started writing this piece with the intention to set readings of excerpts from the book *Counterfeiting in Colonial Connecticut* written by Kenneth Scott and published by the American Numismatic Society in 1957. I was intrigued by the stories and the dry, austere nature of Scott's accounts.

My original intentions were transformed by two major crises that occurred during the development of this piece: the Covid-19 pandemic and protests sparked by the death of George Floyd, a black man brutally murdered by police. I decided to add the possibility of complementing readings from the Scott compendium with readings of texts reflecting my experience during the time in which the piece was written.

I was reluctant to connect George Floyd with counterfeiting and colonialism. Floyd was being arrested for allegedly using a counterfeit \$20 bill and his murder, as well as the pandemic, clearly demonstrated that inequalities accepted in colonial times have persisted. As such, the use of texts about counterfeiting in colonial America acquired a whole new meaning and gravity. However, these coincidences and connections are actually quite apt. The systems enforced and perpetuated by governments today in 2020—capitalism, democracy, communism—are counterfeit. They are fraudulent implementations of ideas manipulated to satisfy greed but traded as currency for the “good” of the people; far more dangerous than the relatively benign act of passing (perhaps unknowingly) a counterfeit \$20 bill. In a more humane system, George Floyd would still be alive and a pandemic would demonstrate the resilience of our society rather than expose systemic inequalities within it.

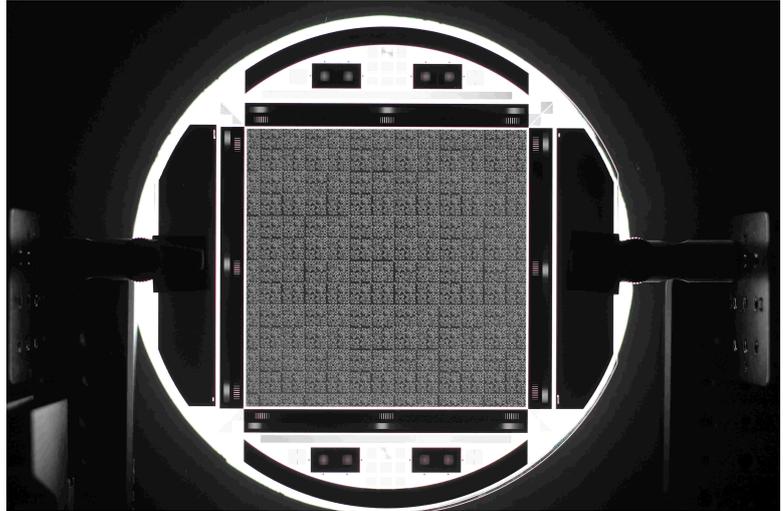


■ a history of the domino problem

rec: <https://vimeo.com/898127134>

score: https://unboundedpress.org/scores/a_history_of_the_domino_problem_score.pdf

a history of the domino problem is a performance-installation that traces the history of an epistemological problem in mathematics about how things that one could never imagine fitting together, actually come together and unify in unexpected ways. The work comprises a set of musical compositions and a kinetic sculpture that sonify and visualize rare mosaics constructed from dominoes. The dominoes in these mosaics are similar yet slightly different than those used in the popular game of the same name. As opposed to rectangles, they are squares with various color combinations along the edges (which can alternatively also be represented by numbers or patterns). Like in the game, the rule is that edges of adjacent dominoes in a mosaic must match.



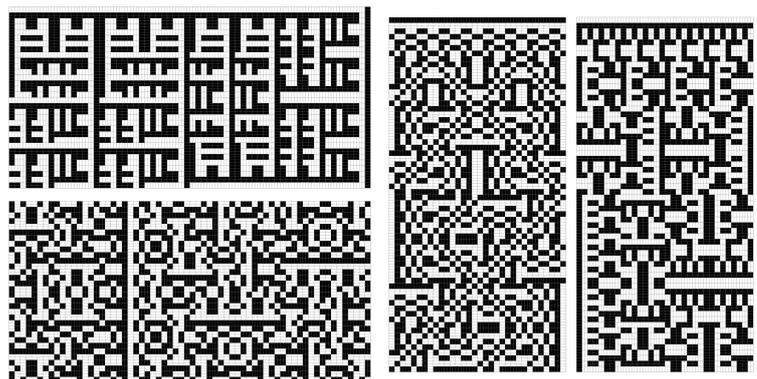
The mosaics sonified and visualized in *a history of the domino problem* are rare because there is no systematic way to find them. This is due to the fact that they are *aperiodic*. One can think of an aperiodic mosaic like an infinite puzzle with a peculiar characteristic. Given unlimited copies of dominoes with a finite set of color/pattern combinations for the edges, there is a solution that will result in a mosaic that expands infinitely. However, in that solution, any periodic/repeating structure in the mosaic will eventually be interrupted. This phenomenon is one of the most intriguing aspects of the work. As the music and the visuals are derived from the mosaics, the resulting textures are always shifting ever so slightly.

■ a lot of tiles (*trivial scan*)

rec: <https://soundcloud.com/mwinter80/a-lot-of-tiles-trivial-scan>

score: https://unboundedpress.org/scores/a_lot_of_tiles_trivial_scan_score.pdf

a lot of tiles (trivial scan) is based on a set of rectangle substitution tilings explored by Chaim Goodman-Strauss in his seminal paper *Lots of aperiodic sets of tiles*. A rectangle substitution tiling is generated by dissecting a rectangle into 4 smaller rectangles, which are then dissected into 8 even smaller rectangles, and so on. Rectangles can produce both periodic and non-periodic tilings and thus are not strictly aperiodic. A strictly aperiodic set of tiles consists of a group of geometric shapes that submit only non-periodic tilings. However,



Goodman-Strauss shows in his paper that the group of rectangle substitution tilings used for this piece can be represented by 25380 aperiodic tilings using subsets of 211 non-rectangular tiles. Prior to this discovery, only a handful of strictly aperiodic tilings were known. That is, in one fell swoop, Goodman-Strauss extended the number of known aperiodic tilings by some 500-plus fold.

The parenthetical in the title '*trivial scan*' refers to the method of sonification. A given tiling is further dissected into squares (groups of two rectangles side-by-side) which are then scanned/read such that the orientation of the pairs of subtiles that form the squares (whether they are grouped vertically or horizontally) determines sonic parameters. The piece is actually 4096 variations. This recording includes variations 2101000 (@ 0'00"), 0111211 (@ 4'20"), 2321101 (@ 8'40"), and 3231310 (@ 13:00). In a live setting, the tilings are projected with the recordings which can also be played live by performers.

rockfall

rec: <https://vimeo.com/212429832>

score: https://unboundedpress.org/scores/rockfall_score.pdf

rockfall is a kinetic sculpture that automates rocks falling against rocks created in consideration of the social and environmental impact of mining on the local and indigenous communities of Bolivia and Peru. The machine consists of a conveyor belt that raises rocks from ground level to be dropped unto a rock formation that funnels the rocks back onto another conveyor belt. An artist statement/extensive description of the genesis of the work can be read in the score.



Remembering Clive Wearing

rec: <https://vimeo.com/374942680>

score: https://unboundedpress.org/scores/remembering_clive_wearing_score.pdf

Acclaimed musician and musicologist Clive Wearing suffers from one of the worst known cases of amnesia after contracting herpes encephalitis. Wearing's caretakers encouraged him to keep a journal. *Remembering Clive Wearing* is an installation-opera that sets entries from Clive Wearing's journal. At intervals prescribed by the journal itself, entries are read and accompanied by a sonic and visual flickering/flourish of activity using recordings of Orlando de Lassus' nine *Lamentationes Hieremiae Prophetiae* (as Wearing was an expert in the music of Lassus), sustained noises and tones, as well as lights. The piece intends to reverently reflect the importance of memory on our lives and personal identity.



preliminary thoughts

rec: <https://soundcloud.com/mwinter80/preliminary-thoughts>

score: https://unboundedpress.org/scores/preliminary_thoughts_score.pdf

In 2016, I was asked to write a piece for the 300th anniversary of Gottfried Wilhelm Leibniz's death and have been investigating musical threads running through his vast body of writing. Even within his early works, it was clear that Leibniz had very deep musical insights. For example, his dissertation entitled "On the Art of Combinations" discusses applications of combinatorics to possible musical registries of an organ and in a later letter to Christian Goldbach, Leibniz suggests an extended harmony based on higher primes.

Leibniz worked in a world with far less specialization than is common today. He was a polymath of epic proportions who drew little distinction between various intellectual domains; including music. Many of Leibniz's texts are in the form of letters.

preliminary thoughts is a "musical letter" to my friend, mathematician Gregory Chaitin, addressing preliminary thoughts/reactions to the writings of Leibniz about combinatorics, harmony, aesthetics, structure, epistemological vs. practical limits, free will, and even love with respect to creativity. In the piece, a reading of the text of the letter sounds against a minimal guitar part that continually repeats a set of 6 tones with ever changing durations between the articulations of the tones. The guitar part and the reading of the letter starting 5 minutes into the piece are juxtaposed with random flickerings of computer-generated tones and noise.

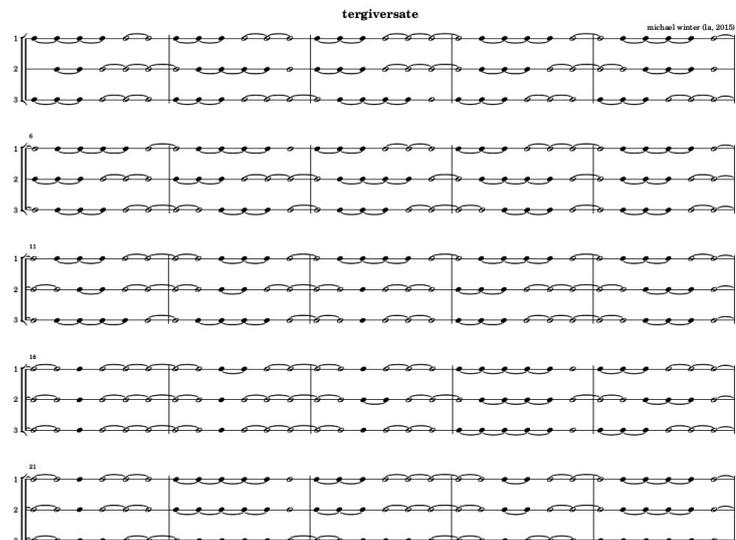


tergiversate

rec: https://soundcloud.com/mwinter80/tergiversate_the-wulf_2015-12-05

score: https://unboundedpress.org/scores/tergiversate_score.pdf

tergiversate enumerates all ways 3 instruments can start (or enter) and stop (or exit) together over 6 beats. However, since the exit of one cell always overlaps the entrance of the next (as defined by a mathematical structure called a de Bruijn sequence), the tones are not actually stopped but rather rearticulated by a change in bow/bellow direction. The score simply indicates when the direction changes occur for the respective players. Thus, a 3 note chord sounds throughout with a continual, yet subtle rhythmic shifting as the different patterns are enumerated.



quieting rooms

rec: <https://soundcloud.com/mwinter80/quieting-rooms>

score: https://unboundedpress.org/scores/quieting_rooms_score.pdf

In this installation, a genetic algorithm tries to put two signals out of phase and quiet a particular space/room. The minor variations heard are the mutations from generation to generation. When the room does not get quieter for an extended period of time, a new 'life-cycle' begins. The installation aims to create an environment for intimate viewing and focused listening within a given space.



Approximating Omega

rec: <https://soundcloud.com/mwinter80/approximating-omega-pre-master-for-apps/s-weFiy>

score: https://unboundedpress.org/scores/Approximating_Omega_score.pdf

Approximating Omega is another example of how epistemology and the the work of Gregory Chaitin influence my practice. As explained in more detail within the program notes included with the score, this piece sets a text by Chaitin and sonifies a computer program he defined that approximates the maximally uncomputable number, Omega.



just above and/or below the waterline...

image: https://unboundedpress.org/images/waterline_la_river_1.jpg

score: http://www.unboundedpress.org/scores/just_above_and_or_below_the_waterline_score.pdf

The title is the score. While I interpret this as a call to action for a performance piece, a realization could take many forms. The image below is from an installation on the banks of the Los Angeles River where rocks were used to write the text of the score near the waterline.

