

Romance Postmoderne

for two retuned virtual pianos

by Kyle Gann

2012

Technical Specifications

The 33-pitch tuning of the three pianos (the same in every octave) is as follows, given first in the number of cents above E-flat, and then as ratios to the E-flat 1/1:

Piano	1		2		3	
D	1088	15/8	977	225/128	1044	117/64
Db	969	7/4	938	55/32	906	27/16
C	857	105/64	773	25/16	840	13/8
B	738	49/32	755	99/64	729	195/128
Bb	702	3/2	590	45/32	609	91/64
A	551	11/8	551	11/8	481	169/128
Ab	471	21/16	440	165/128	408	81/64
G	386	5/4	320	77/64	342	39/32
Gb	204	9/8	275	75/64	275	75/64
F	155	35/32	192	143/128	192	143/128
E	92	135/128	53	33/32	27	65/64
Eb	0	1/1	1103	121/64	1173	63/32

Note that no string needs to be raised higher than its natural tuning except for the B-flat on piano 1, which is 2¢ sharp (or if one prefers, 2¢ could be subtracted from all quantities).

For electronic realization of the piece, it can prove helpful to reconfigure the tuning as a reference pitch in cycles per second for each piano, and ratios derived from that standard:

Tuning pitch:	38.891 cps	36.7641 cps	38.2833 cps
D	15/8	225/121	13/7
Db	7/4	20/11	12/7
C	105/64	200/121	104/63
B	49/32	18/11	65/42
Bb	3/2	180/121	13/9
A	11/8	16/11	169/126
Ab	21/16	15/11	9/7
G	5/4	14/11	26/21
F#	9/8	150/121	25/21
F	35/32	13/11	143/126
E	135/128	12/11	65/63
Eb	1/1	1/1	1/1

In the configuration of certain tuning softwares, the following sequences might facilitate getting the required tuning:

Piano 1:

38.891 = Eb0

1/1, 135/128, 35/32, 9/8, 5/4, 21/16, 11/8, 3/2, 49/32, 105/64, 7/4, 15/8

Piano 2:

36.7641485 = Eb0

1/1, 12/11, 13/11, 150/121, 14/11, 15/11, 16/11, 180/121, 18/11, 200/121, 20/11, 225/121

Piano 3:

38.283333 = Eb0

1/1, 65/63, 143/126, 25/21, 26/21, 9/7, 169/126, 13/9, 65/42, 104/63, 12/7, 13/7

For purposes of analysis, the entire scale (which I refer to as my 8x8 scale) is given below, grouping its pitches into eight harmonic series' on the 1st, 3rd, 5th, 7th, 9th, 11th, 13th, and 15th harmonics of E-flat, and naming each pitch in a typographical equivalent of Ben Johnston's just-intonation notation:

Pitch name	Ratio	Cents	1/1	3/2	5/4	7/4	9/8	11/8	13/8	15/8
Db^^-	121/64	1103						11		
D	15/8	1088	15	5	3					1
Db13	117/64	1044					13		9	
C#+	225/128	977								15
Db7	7/4	969	7			1				
C^	55/32	938			11			5		
C+	27/16	906		9			3			
C7+	105/64	857				15				7
Cb13	13/8	840	13						1	
B	25/16	773			5					
Bb^	99/64	755					11	9		
Cb77+	49/32	738				7				
Bb13	195/128	729							15	13
Bb	3/2	702	3	1						
Bbb713	91/64	609				13			7	
A+	45/32	590		15	9		5			3
Ab^	11/8	551	11					1		
Abb1313	169/128	481							13	
Ab7+	21/16	471		7		3				
G^	165/128	440						15		11
G+	81/64	408					9			
G	5/4	386	5		1					
Gb13	39/32	342		13					3	
Gb7^	77/64	320				11		7		
F#+	75/64	275			15					5
F+	9/8	204	9	3			1			
Fb13^	143/128	192						13	11	
F7+	35/32	155			7	5				
E+	135/128	92					15			9
Eb^	33/32	53		11				3		
Eb13	65/64	27			13				5	
Eb	1/1	0	1							
Eb7+	63/32	1173				9	7			

In Johnston's notation, + raises a pitch by 81/80, # raises it by 25/24, b lowers it by 24/25, 7 lowers it by 35/36, ^ raises it by 33/32, 13 raises it by 65/64, and F-A-C, C-E-G, and G-B-D are all perfectly tuned 4:5:6 major triads.

A couple of notes on listening to *Hyperchromatica*:

Some people think the piano sounds seem “funny” or “unreal.” It is essential to the timbre of a normal piano that the intervals are slightly out of tune, and surrounded by the fuzziness of the resulting beats. Remove that out-of-tuneness and the piano can sound different than you’re used to. It has always been common for me to play La Monte Young’s *The Well-Tuned Piano* for people and have them respond, “Isn’t that electronic?” “It sounds more like bells than a piano.” Often one’s unfamiliarity with pure tuning is misperceived as a deficiency in the piano sound. Relatedly, when I issued a disc of Disklavier music in 2005, people sometimes commented, “Too bad you couldn’t use a real piano, because the electronic sounds are off-putting.” In fact, the Disklavier *was* a real, acoustic piano, with pluckable strings. It was tuned to 18th-century well temperament, the notes went by *very* fast, and so the divergences from normalcy made people’s brains convince them that it was an electronic piano, which was a false perception. Give yourself some time to listen to the pieces over and over, and you’ll probably get used to them. I can guarantee, after hundreds of listenings myself, that the harmonies make their own purely-tuned sense, and that their logic sinks in once you can anticipate what’s going to happen. One of the purposes of these pieces is to expand your musical perception.

The Disklavier (computer-driven piano, the digital manifestation of the player piano) is a different medium than the human-played piano. One can, and must, write for it differently. With a couple of deliberate exceptions, these pieces are not playable by humans. The composer forbids performance by humans (which can’t happen anyway), and will not cooperate with any such attempt. The computer-driven version is the final manifestation, and the only one contemplated or permitted. These pieces were written, after years of profound thought and experimentation, specifically for the Disklavier medium, without any compromise in what the music was intended to achieve. If it bothers you that the music you are listening to isn’t being played by humans, there are millions of piano recordings made by humans; go listen to them. There is too much music in the world for anyone to waste time listening to any music wishing it were something other than what it is. This music is produced mechanically, for mechanical rhythmic capabilities that I savor. I make this music public on the chance that there might be a handful of other people on the planet for whom the possibilities opened up here in terms of rhythmic and harmonic language might more than compensate for the loss of a few habitual comforts. If you are not one of those rare people, you can do the composer a favor by moving on without comment. I guarantee you will not alter his mind on the matter.

- Kyle Gann

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♩ = 72 ♩ = 67 ♩ = 72

Piano 1

p
Ped.

mp

Piano 2

p
Ped.



6 ♩ = 65 ♩ = 72

Pno1

mp

p
Ped.

Pno2

mp

Ped.

♩ = 65 ♩ = 72

Pno3

p
Ped.

mp
p
Ped.

11 $\text{♩} = 67$ $\text{♩} = 72$

Pno1 *mp*
p
Ped.

Pno2 *mp*
Ped.

Pno3
Ped.



16

Pno1
p
Ped.

Pno2
Ped.

Pno3
Ped.

21 ♩ = 68 ♩ = 75 ♩ = 72 ♩ = 75

Pno1

Ped.

Pno2

Pno3

Ped.



26 ♩ = 72 ♩ = 75 ♩ = 72 ♩ = 68

Pno1

Ped.

Pno2

Pno3

Ped.

31 $\text{♩} = 72$ $\text{♩} = 75$

Pno1

Pno2

Pno3

Ped. _____

Ped. _____

Ped. _____

Ped. _____

$\text{♩} = 72$ $\text{♩} = 75$



36 $\text{♩} = 78$ $\text{♩} = 72$ $\text{♩} = 67$ $\text{♩} = 72$

Pno1

Pno3

Ped. _____

Ped. _____

Ped. _____

$\text{♩} = 78$ $\text{♩} = 72$ $\text{♩} = 67$ $\text{♩} = 72$

41 $\text{♩} = 75$ $\text{♩} = 78$ $\text{♩} = 72$

Pno1

Pno2

Pno3



45 $\text{♩} = 75$ $\text{♩} = 78$

Pno1

Pno2

Pno3

50 ♩ = 72 ♩ = 68 ♩ = 75 ♩ = 78 ♩ = 80

Pno1

Pno2

Pno3

mf *f* *mf* *f*

Ped. Ped. Ped.



55 ♩ = 72 ♩ = 68 ♩ = 72

Pno1

Pno2

p *p* *mp*

Ped. Ped.

59 $\text{♩} = 75$ $\text{♩} = 78$ $\text{♩} = 75$ $\text{♩} = 72$

Pno1

mf

Pno2

mf
Ped. Ped.

mp

p

mf
Ped. *p*

Pno3

mf

mf
Ped.

63 $\text{♩} = 67$

Pno1

mp

mp
Ped. Ped. Ped.

Pno2

mp

mp
Ped.

Pno3

mp

mp
Ped.

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67 $\text{♩} = 70$ $\text{♩} = 72$

Pno1

Pno2

Pno3

Ped.



72 $\text{♩} = 76$ $\text{♩} = 72$

Pno1

Pno2

Pno3

p

Ped.

76 $\text{♩} = 75$ $\text{♩} = 68$

Pno1

Pno2

Pno3



82 $\text{♩} = 72$ $\text{♩} = 72$

Pno1

Pno2

Pno3

88 $\text{♩} = 68$ $\text{♩} = 72$ $\text{♩} = 75$

Pno1

Pno2

Pno3



94 $\text{♩} = 72$ $\text{♩} = 77$

Pno1

Pno2

Pno3

100 ♩ = 72

Pno1

Pno2

Pno3

♩ = 72

Red.



104 ♩ = 67 ♩ = 72 ♩ = 75 ♩ = 78

Pno1

Pno2

Pno3

♩ = 67 ♩ = 72 ♩ = 75 ♩ = 78

III ♩ = 76

Pno1

Pno2

Pno3

The musical score consists of three systems, each for a different piano (Pno1, Pno2, Pno3). The first system (Pno1) has a treble and bass staff. The second system (Pno2) has two treble staves and one bass staff. The third system (Pno3) has two treble staves and one bass staff. Dynamics include *pp*, *mp*, and *p*. There are also accents and slurs throughout the piece. The tempo is marked as quarter note = 76.

115

$\text{♩} = 72$ $\text{♩} = 69$

Pno1

Pno2

Pno3

$\text{♩} = 72$ $\text{♩} = 69$

The musical score consists of three systems, each for a piano (Pno1, Pno2, Pno3). Each system has two staves (treble and bass clef). The first system (Pno1) begins with a measure of rest, followed by two measures of music with a tempo marking of quarter note = 72, and a final measure with a tempo marking of quarter note = 69. The second system (Pno2) starts with a melodic line in the first measure, rests in the second and third measures, and a final melodic phrase in the fourth measure. The third system (Pno3) has rests in the first and second measures, followed by two measures of music with tempo markings of quarter note = 72 and quarter note = 69. The score includes various musical notations such as notes, rests, and dynamic markings.

119 **accel.** ♩ = 82 ♩ = 77 ♩ = 75

Pno1

Pno2

Pno3

123

♩ = 72 ♩ = 77

Pno1

Pno2

Pno3

p

p

♩ = 72 ♩ = 77

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). The first system (Pno1) starts at measure 123. It features a 3/4 time signature for the first two measures, followed by a 4/4 time signature for the next two measures. The tempo markings '♩ = 72' and '♩ = 77' are placed above the staff. The dynamics 'p' (piano) are indicated in the first and second measures of the 4/4 section. The second system (Pno2) also starts at measure 123 and follows the same time signature changes. The dynamics 'p' are indicated in the first and second measures of the 4/4 section. The third system (Pno3) starts at measure 123 and follows the same time signature changes. The dynamics 'p' are indicated in the first and second measures of the 4/4 section. The tempo markings '♩ = 72' and '♩ = 77' are placed above the staff.

18

131 ♩ = 76 ♩ = 72 ♩ = 68 ♩ = 77 ♩ = 84

Pno1

Ped.

Pno2

mf

mp

Pno3

♩ = 76 ♩ = 72 ♩ = 68 ♩ = 77 ♩ = 84

mf

135 rit. ♩ = 72

Pno1

mp

p

Ped.

Pno2

p

Pno3

rit. ♩ = 72

mf

p

p

Ped.

146

rit.

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). The first system (Pno1 and Pno2) starts at measure 146 with a 6/4 time signature and a *rit.* marking. Pno1 begins with a rest in 6/4, then changes to 4/4. Pno2 starts in 6/4 and changes to 4/4. Dynamics include *p* and *Ped.* markings. The second system (Pno3) also starts at measure 146 with a 6/4 time signature and a *rit.* marking. It features a complex texture with multiple staves. Dynamics include *p* and *Ped.* markings. The tempo change *rit.* is indicated at the beginning of the second system.

156 $\text{♩} = 62$

Pno1

Pno2

Pno3

159

Pno1

Pno3

162

Pno1

Pno2

Pno3

164

Musical score for two piano parts, Pno1 and Pno3, spanning measures 164 to 166. The score is written in treble clef with a key signature of one flat (B-flat). Pno1 consists of three staves: the top staff is mostly silent with rests, the middle staff contains sustained chords and a melodic line, and the bottom staff contains a melodic line. Pno3 consists of a single staff with a melodic line. The dynamic marking *pp* (pianissimo) is present in both parts. The piece concludes with a double bar line at the end of measure 166.