

# Romance Postmoderne

*for three retuned computer-driven 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 nearest E-flat 1/1 below:

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 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 9<sup>th</sup>, 11<sup>th</sup>, 13<sup>th</sup>, and 15<sup>th</sup> 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.

# Romance Postmoderne

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2012

♩ = 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

Pno2

Pno3

Ped.

Ped.

Ped.

Ped.



26 ♩ = 72 ♩ = 75 ♩ = 72 ♩ = 68

Pno1

Pno2

Pno3

Ped.

Ped.

31  $\text{♩} = 72$   $\text{♩} = 75$

Pno1

Pno2

Pno3

Ped.



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

Pno1

Pno3

Ped.



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

Pno1

Pno2

Pno3

Ped.

Ped.

Ped.

Ped.



45  $\text{♩} = 75$   $\text{♩} = 78$

Pno1

Pno2

Pno3

Ped.

Ped.

Ped.

Ped.

50 ♩ = 72      ♩ = 68      ♩ = 75      ♩ = 78      ♩ = 80

Pno1

Ped.

*mf*      *f*

Pno2

Ped.

*mf*      *f*

Pno3

*mf*      *mf*      *f*

Ped.



55 ♩ = 72      ♩ = 68      ♩ = 72

Pno1

*p*

*p*

Ped.

Pno2

*mp*

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.

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 tempo is marked as quarter note = 76. The score includes various dynamics such as *pp*, *mp*, and *p*. There are also articulation marks like accents and slurs. The notation is in treble and bass clefs with various accidentals and rests.

115

$\text{♩} = 72$   $\text{♩} = 69$

Pno1

Pno2

Pno3

$\text{♩} = 72$   $\text{♩} = 69$

The image shows a musical score for three pianos, labeled Pno1, Pno2, and Pno3. The score is divided into four measures. The first measure is marked with measure number 115. Above the first measure, there are two tempo markings:  $\text{♩} = 72$  and  $\text{♩} = 69$ . The score is written in treble and bass clefs. Pno1 has a melodic line in the treble clef and a bass line in the bass clef. Pno2 has a melodic line in the treble clef and a bass line in the bass clef. Pno3 has a melodic line in the treble clef and a bass line in the bass clef. The tempo markings  $\text{♩} = 72$  and  $\text{♩} = 69$  are repeated above the second and third measures respectively.

119 **accel.** . . . . . ♩ = 82                      ♩ = 77                      ♩ = 75

Pno1

Pno2

Pno3

123

*p* *p*

$\text{♩} = 72$   $\text{♩} = 77$

Pno1

Pno2

*p*  $\text{♩} = 72$   $\text{♩} = 77$

Pno3



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.

139  $\text{♩} = 67$   $\text{♩} = 77$   $\text{♩} = 84$

**Pno1**  
Measures 139-142. Treble clef, 4/4 time. Dynamics: *p*, *p*, *mp*, *mf*. Pedal markings: Ped., Ped.

**Pno2**  
Measures 139-142. Treble clef, 4/4 time. Dynamics: *p*, *mf*, *mp*. Pedal marking: Ped.

**Pno3**  
Measures 139-142. Treble clef, 4/4 time. Dynamics: *p*, *mf*, *mf*. Pedal marking: Ped.



143 *rit.*  $\text{♩} = 72$   $\text{♩} = 68$

**Pno3**  
Measures 143-145. Treble clef, 4/4 time. Dynamics: *mp*, *p*, *p*. Pedal marking: 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 the first two measures, then enters in the third measure with a half note G4 and a quarter note A4, marked *p*. Pno2 enters in the second measure with a half note G4 and a quarter note A4, also marked *p*. Both pianos have a *Ped.* marking under the first measure of their respective parts. The second system (Pno3) also starts at measure 146 with a 6/4 time signature and a *rit.* marking. Pno3 has four staves. The top two staves (treble clef) play a melodic line: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter). The bottom two staves (bass clef) play a bass line: G2 (quarter), A2 (quarter), B2 (quarter), C3 (quarter), B2 (quarter), A2 (quarter), G2 (quarter). The score concludes with a 4/4 time signature change in the third measure of the second system, where Pno1 and Pno2 have rests, and Pno3 continues with a half note G2 and a quarter note A2, marked *p*.





156  $\text{♩} = 62$

Pno1

Pno2  $\text{♩} = 62$

Pno3 *mp*

159

Pno1 *mp*

Pno3 *rit.*

162

Pno1

Pno2 *rit.*

Pno3

164

Musical score for Pno1 and Pno3, measures 164-166. The score is written for two pianos, Pno1 and Pno3. Pno1 is in the upper system, and Pno3 is in the lower system. The key signature has one flat (B-flat), and the time signature is 3/4. Pno1 has a treble clef and a bass clef. Pno3 has a treble clef. The score includes dynamic markings such as *pp* and *ppp*. The notation includes various note values, rests, and articulation marks.