

Galactic Jamboree

for three retuned, computer-driven pianos

by Kyle Gann
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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 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.

Galactic Jamboree

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$\text{♩} = 88$

Piano 1

$\text{♩} = 88$

Piano 3

2

Pno1

Pno2

Pno3

2

3

p

p

Pno1

f

Pno2

Pno3

f

4

f

f

p

Pno1

p

Pno3

f

5

Pno1

p

f

f

f

f

p

p

Pno2

f

f

Pno3

f

f

p

5

5

5

3

Detailed description: This page of a musical score, titled 'Galactic Jamboree', contains three piano parts labeled Pno1, Pno2, and Pno3. The score begins at measure 5. Pno1 is written in a grand staff (treble and bass clefs) and features a complex rhythmic pattern with dynamic markings of *f* (forte) and *p* (piano). Pno2 is also in a grand staff, characterized by a series of five-measure rests followed by a melodic line with *f* dynamics. Pno3 is in a grand staff and includes a triplet of eighth notes marked *f* and a single eighth note marked *p* in the bass clef. The score includes various musical notations such as slurs, ties, and dynamic markings.

Galactic Jamboree

The musical score is divided into three parts: Pno1, Pno2, and Pno3. Pno1 consists of five staves. The top staff begins with a treble clef and a key signature of one flat (Bb), starting at measure 6 with a complex sixteenth-note pattern. The second staff has a treble clef and contains sparse notes. The third staff has a bass clef and contains chords with dynamics *f*. The fourth staff has a bass clef and contains a melodic line with dynamics *p*. The fifth staff has a bass clef and contains a long, low note with a dynamic *f*. Pno2 consists of one staff with a treble clef, containing notes with dynamics *f*. Pno3 consists of two staves. The top staff has a treble clef and contains a complex sixteenth-note pattern with fingerings '5' indicated below. The bottom staff has a bass clef and contains notes with dynamics *f*.

8

Pno1

f *f* *p*

Pno2

f

Pno3

f

Detailed description: The score is for three pianos. Measure 8 is marked with a '8' above the first staff. Pno1 (Piano 1) has a complex texture. The upper staff of Pno1 contains chords and a melodic line with a fermata. The middle staff of Pno1 has a bass line with a fermata and a dynamic marking of *f*. The lower staff of Pno1 has a bass line with a dynamic marking of *p*. Pno2 (Piano 2) has a single note with a dynamic marking of *f*. Pno3 (Piano 3) has a single note with a dynamic marking of *f*.

The musical score is divided into three systems, each for a different piano part:

- Pno1:** The first system starts at measure 9. The right hand features a complex, fast-moving melodic line with many slurs and ties. The left hand provides a rhythmic accompaniment with eighth and sixteenth notes. Dynamics include *f* (forte) and *f* (forte).
- Pno2:** The second system shows the right hand with some rests and later melodic fragments. The left hand has a few notes and rests. Dynamics include *f* (forte).
- Pno3:** The third system shows the right hand with some rests and later melodic fragments. The left hand has a few notes and rests. Dynamics include *f* (forte).

Key features of the notation include: *f* (forte) dynamics; slurs and ties; fingering numbers (5); and various rhythmic values (eighth, sixteenth, and dotted notes).

10

Pno1

Pno2

Pno3

f *f* *f* *f*

p

f *f*

f *f*

11 11 11 11

5 5 5 5 11 11 11

The image displays a musical score for three pianos, labeled Pno1, Pno2, and Pno3. The score is written in a grand staff format, with each piano part consisting of two staves (treble and bass clef). Pno1 features a complex melodic line in the upper staves, including a double bar line with a repeat sign and a fermata. The lower staves of Pno1 and Pno2 provide harmonic support with chords and bass lines. Pno3 has a more active role in the lower register, with a prominent bass line and chords. Dynamics such as *f* (forte) and *ff* (fortissimo) are used throughout. Performance markings include *11* (trills), *15:10* (fingerings), and *5* (fingerings). The score is set in a key with one flat (B-flat major or D minor) and a common time signature.

Galactic Jamboree

12

Pno1

Pno2

Pno3

14

Pno1

Pno3

15

The musical score is divided into three parts: Pno1, Pno2, and Pno3. Pno1 consists of four staves. The top two staves are in treble clef, and the bottom two are in bass clef. Pno2 has a single staff in treble clef. Pno3 has two staves, one in treble clef and one in bass clef. The score begins at measure 15. Pno1's top two staves feature chords and rests, with a dynamic of *f* in the final measure. Pno1's bottom two staves have a melodic line in the bass clef starting with a *p* dynamic, and a lower bass line with a *b* dynamic. Pno2 has a single staff with a *f* dynamic in the final measure. Pno3's top staff has chords and rests, while the bottom staff has a melodic line in the bass clef.

16

Pno1

f

mp

p

p

Pno2

f

5

Pno3

mp

Galactic Jamboree

17

Pno1

Pno2

Pno3

18

Pno1

Pno2

Pno3

20

The musical score is divided into two systems, measures 20 and 21.
Measure 20:
- **Piano 1 (Pno1):** Treble clef. Starts with a five-fingered scale (5) in the right hand and a five-fingered scale (5) in the left hand. The right hand continues with a melodic line, and the left hand has a bass line. Dynamics include *f* and *p*.
- **Piano 2 (Pno2):** Treble clef. Starts with a *mf* dynamic.
- **Piano 3 (Pno3):** Treble clef. Starts with a *mf* dynamic.
Measure 21:
- **Piano 1 (Pno1):** Treble clef. Features a five-fingered scale (5) in the right hand and a five-fingered scale (5) in the left hand. Dynamics include *p* and *f*.
- **Piano 2 (Pno2):** Treble clef. Features a *f* dynamic.
- **Piano 3 (Pno3):** Bass clef. Features a *f* dynamic.
A double bar line is present between measures 20 and 21.

Musical score for two pianos, Pno1 and Pno3, measures 22-29. The score is written in a key signature of two flats (B-flat and E-flat) and a common time signature (C). Measure 22 begins with a piano (p) dynamic. Pno1 features a complex texture with multiple chords and a melodic line in the bass clef. Pno3 has a melodic line in the treble clef and rests in the bass clef. Measure 23 continues the texture with a piano (p) dynamic. Measure 24 features a piano (p) dynamic and a melodic line in the bass clef of Pno1. Measure 25 features a piano (p) dynamic and a melodic line in the bass clef of Pno1. Measure 26 features a piano (p) dynamic and a melodic line in the bass clef of Pno1. Measure 27 features a piano (p) dynamic and a melodic line in the bass clef of Pno1. Measure 28 features a piano (p) dynamic and a melodic line in the bass clef of Pno1. Measure 29 features a forte (f) dynamic and a melodic line in the bass clef of Pno1.

23

Pno1

Pno2

Pno3

f

f

24

Pno1

Pno2

Pno3

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3).
- **Pno1:** Starts at measure 24. The upper staves (treble clef) feature a complex texture with triplets of chords and a forte (*f*) dynamic. The lower staves (bass clef) have a more rhythmic line with eighth and sixteenth notes, also marked with *f*.
- **Pno2:** Features a single treble clef staff with a triplet of notes in the first few measures, followed by rests.
- **Pno3:** Features two treble clef staves. The lower staff has a triplet of notes, and the upper staff has a forte (*f*) dynamic marking and a triplet of notes later in the system.

Piano score for measures 25-30. The score is divided into three parts: Pno1, Pno2, and Pno3.

- Pno1:** Treble and Bass clefs. Treble clef has a *p* dynamic. Bass clef has a *f* dynamic. Includes a five-fingered scale in the bass clef.
- Pno2:** Treble clef. Includes a five-fingered scale in the treble clef.
- Pno3:** Treble and Bass clefs. Treble clef has a *f* dynamic.



Piano score for measures 31-36. The score is divided into three parts: Pno1, Pno2, and Pno3.

- Pno1:** Treble and Bass clefs. Treble clef has a *f* dynamic. Bass clef has a *p* dynamic.
- Pno2:** Treble clef. Includes a *p* dynamic.
- Pno3:** Treble clef.

27

Pno1

Pno2

Pno3

f

f

f

f

f

28 21

Pno1

f *p*

Pno2

f

Pno3

f

29

Pno1

f *p* *p*

Pno2

p

Pno3

f *p* *p*

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The musical score is divided into three piano parts, Pno1, Pno2, and Pno3, each consisting of three staves. Pno1 starts at measure 30 with a complex chordal texture in the right hand and a rhythmic bass line in the left hand. Pno2 has a more sparse texture with some chordal accompaniment. Pno3 features a prominent five-note scale in the right hand and a bass line. Dynamics include *f* (forte) and *ff* (fortissimo). The score concludes with a final chord and a *ff* dynamic marking.

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32 23

Pno1
Measure 32: Treble clef, 7/4 time. Starts with a complex chordal texture. Bass clef: *p* dynamics, moving bass line. Measure 33: Treble clef, *mf* dynamics, triplet of eighth notes. Bass clef: *p* dynamics, moving bass line.

Pno2
Measure 32: Treble clef, 7/4 time. Starts with a triplet of eighth notes marked *f*. Measure 33: Treble clef, *mf* dynamics, triplet of eighth notes.

Pno3
Measure 32: Treble clef, 7/4 time. Measure 33: Treble clef, *mf* dynamics, triplet of eighth notes. Bass clef: *mf* dynamics, triplet of eighth notes.

33

Pno1
Measure 33: Treble clef, *mp* dynamics, triplet of eighth notes. Bass clef: *mf* dynamics, moving bass line.

Pno2
Measure 33: Treble clef, *mf* dynamics, triplet of eighth notes.

Pno3
Measure 33: Treble clef, *mf* dynamics, triplet of eighth notes. Bass clef: *mf* dynamics, triplet of eighth notes.

24

34

Pno1

Pno2

Pno3

35

Pno1

Pno2

Pno3

36

Pno1

Pno2

Pno3

9

5

f

7

5

7:6

f

26

37

Pno1

Pno2

Pno3

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). Each system contains two staves (treble and bass clef). Measure numbers 26 and 37 are indicated at the beginning of the first system. The score features various musical notations including notes, rests, and dynamic markings such as *f* (forte) and *ff* (fortissimo). There are also articulation marks like accents and slurs. The piece is titled "Galactic Jamboree" at the bottom.

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39

Pno1

Pno3

mf

mf

mf

mf

mf

mf

mf

mf

mf

p

40

Pno1

p *mf* *mf* *mf*

Pno2

mf **6:5** *mf* **6:5** *mf* **6:5**

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41

Pno1

Pno2

Pno3

The musical score is divided into three systems. The first system, labeled 'Pno1', consists of five staves. The top staff begins with a treble clef and a key signature of one flat (B-flat). It contains a series of notes and rests, with a large slur spanning across several measures. The second system, labeled 'Pno2', consists of three staves. The top staff has a treble clef and a key signature of one sharp (F-sharp). It features several measures with a mezzo-forte (*mf*) dynamic marking. The third system, labeled 'Pno3', consists of two staves. The top staff has a treble clef and a key signature of one sharp (F-sharp), and the bottom staff has a bass clef. Both staves in this system have a mezzo-forte (*mf*) dynamic marking.

42

Pno1

p *mf* *mf* *mf* *mf*

9

Pno2

mf

Pno3

mf

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43

Pno1

Pno3

mf 7:6

mf 7:6

mf 7:6

p

Detailed description: The image shows a page of musical notation for two piano parts, Pno1 and Pno3. Pno1 is the upper part, consisting of five staves. The first staff is a treble clef with a key signature of one sharp (F#) and a time signature of 7/6. It contains a melodic line with various rhythmic values and rests. The second and third staves are also treble clefs, with the third staff containing a melodic line. The fourth and fifth staves are bass clefs, with the fifth staff containing a bass line. A dynamic marking of *p* (piano) is placed at the end of the fifth staff. Pno3 is the lower part, consisting of three staves, all in treble clef. Each staff begins with a rest followed by a melodic line. A dynamic marking of *mf* (mezzo-forte) is placed below each staff. The time signature 7:6 is indicated below each staff. The notation includes various rhythmic values, rests, and phrasing slurs.

44

Pno1

Pno2

Pno3

The musical score is divided into three parts: Pno1, Pno2, and Pno3. Pno1 consists of five staves. The first staff is a treble clef with a key signature of one flat and a common time signature. It contains a melodic line with various notes and rests. The second staff is also a treble clef with a key signature of one flat and a common time signature, containing a similar melodic line. The third staff is a treble clef with a key signature of one flat and a common time signature, containing a melodic line. The fourth staff is a bass clef with a key signature of one flat and a common time signature, containing a melodic line. The fifth staff is a bass clef with a key signature of one flat and a common time signature, containing a melodic line. Pno2 consists of three staves. The first staff is a treble clef with a key signature of one flat and a common time signature, containing a melodic line. The second staff is a treble clef with a key signature of one flat and a common time signature, containing a melodic line. The third staff is a treble clef with a key signature of one flat and a common time signature, containing a melodic line. Pno3 consists of one staff. The staff is a bass clef with a key signature of one flat and a common time signature, containing a melodic line.

45

Pno1

p

Pno2

mf

Pno3

mf

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46

Pno1

Pno3

This system contains measures 46 and 47. It features five staves: two for Pno1 (treble and bass clefs), two for Pno3 (bass clefs), and one for Pno3 (treble clef). Measure 46 shows a complex piano texture with various rhythmic patterns and accidentals. Measure 47 begins with a double bar line and a repeat sign on the left. The Pno1 part has some notes circled in measure 47. The Pno3 part has a few notes in measure 47.



47

Pno1

Pno3

This system contains measures 47 and 48. It features five staves: two for Pno1 (treble and bass clefs), two for Pno3 (bass clefs), and one for Pno3 (treble clef). Measure 47 continues from the previous system. Measure 48 shows a continuation of the piano texture. The Pno1 part has some notes circled in measure 47. The Pno3 part has a few notes in measure 48.

48

p *p* *mf* *mf* *f* *f* *mf*

Pno1

Pno2

Pno3

49

p *p* *p* *p*

mf *mf*

p

mf

f

f

mf

f

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The musical score is divided into three systems, each for a different piano part:

- Pno1:** Features a complex melodic line in the upper staves with frequent sixteenth-note runs and trills. The lower staves provide a steady bass accompaniment with eighth-note patterns. A large slur is present in the second staff of this system.
- Pno2:** Includes a prominent melodic line in the upper staff with sixteenth-note passages. The lower staves provide harmonic support with chords and occasional melodic fragments. A dynamic marking of *mf* is present.
- Pno3:** Features a melodic line in the upper staff with sixteenth-note runs. The lower staves provide a bass line with occasional melodic accents. A dynamic marking of *mf* is present, and a final *f* marking is seen at the end of the system.

Pno1

Musical score for Pno1, measures 51-59. The score consists of five staves. The top staff is a treble clef with a key signature of one flat (B-flat). It features complex rhythmic patterns with 9-measure and 5-measure rests. The second staff is a treble clef with a key signature of one flat, containing chords and rests. The third staff is a treble clef with a key signature of one flat, featuring a melodic line with a forte (*f*) dynamic. The fourth staff is a bass clef with a key signature of one flat, featuring a melodic line with a piano (*p*) dynamic. The fifth staff is a bass clef with a key signature of one flat, featuring a melodic line with a forte (*f*) dynamic.

Pno2

Musical score for Pno2, measures 51-59. The score consists of three staves. The top staff is a treble clef with a key signature of one flat, featuring complex rhythmic patterns with 9-measure and 5-measure rests. The middle staff is a treble clef with a key signature of one flat, featuring a melodic line with a forte (*f*) dynamic. The bottom staff is a treble clef with a key signature of one flat, featuring a melodic line with a forte (*f*) dynamic.

Pno3

Musical score for Pno3, measures 51-59. The score consists of four staves. The top staff is a treble clef with a key signature of one flat, featuring complex rhythmic patterns with 9-measure and 5-measure rests. The second staff is a treble clef with a key signature of one flat, featuring a melodic line with a forte (*f*) dynamic. The third staff is a treble clef with a key signature of one flat, featuring a melodic line with a mezzo-forte (*mf*) dynamic. The bottom staff is a treble clef with a key signature of one flat, featuring a melodic line with a forte (*f*) dynamic.

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). Each system contains three staves (treble and bass clefs). The time signature changes from 3/16 to 7/4 at the beginning of the second measure in each system. Pno1 features a complex bass line with dynamic markings *ff* and *p*, and a treble staff with a dense chordal texture. Pno2 has a treble staff with a melodic line and a bass staff with a rhythmic accompaniment. Pno3 has a treble staff with a melodic line and a bass staff with a simple accompaniment. The score includes various musical notations such as slurs, accents, and dynamic markings.

54

Pno1

p *7:6* *p*

Pno2

p *7:6*

Pno3

p *5*

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55

Pno1

Pno2

Pno3

The musical score is divided into three systems for three pianos.
Piano 1 (Pno1) consists of a treble and bass staff. At measure 55, the treble staff has a whole note chord with three flats (Bb, Eb, Ab). The bass staff has a rhythmic pattern of eighth notes with various accidentals.
Piano 2 (Pno2) consists of two treble staves. The upper staff has a whole note chord with three flats. The lower staff has a rhythmic pattern of eighth notes with various accidentals.
Piano 3 (Pno3) consists of a treble and bass staff. The treble staff has a whole note chord with three flats. The bass staff has a rhythmic pattern of eighth notes with various accidentals.
Dynamics: Pno1 and Pno2 have *mf* markings. Pno3 has *p* and *mf* markings.

56

Pno1

Pno2

Pno3

p

f

mf

6:5

6:5

6:5

p

p

mf

58

Pno1

Pno2

Pno3

f 3

p

f 3 *f*

f 3 *f*

f 11

f 11

59

Pno1

Pno2

Pno3

f

f

f

Musical score for measures 60-61. The score is divided into two systems. The first system (measures 60-61) includes staves for Pno1 and Pno3. Pno1 has a treble and bass staff, and Pno3 has a treble and bass staff. Dynamics include *mp* and *p*. A double bar line is present at the end of measure 61.



Musical score for measures 62-63. The score continues from the previous system. Pno1 has a treble and bass staff, and Pno3 has a treble and bass staff. Dynamics include *mf*. The score concludes with a final chord in the Pno1 treble staff.

62

Pno1

Pno3

mf

The image shows a musical score for two piano parts, Pno1 and Pno3, spanning measures 62 to 67. Pno1 is written on six staves (treble and bass clefs). The first staff has a treble clef and a key signature of two flats. It features a complex texture with chords and melodic lines, including a large slur over measures 64 and 65. Pno3 is written on four staves (treble and bass clefs). It has a treble clef and a key signature of two sharps. The music is mostly rests, with a few notes in measure 64 marked with a mezzo-forte (*mf*) dynamic. The score is set in a common time signature.

63

Pno1

p

Pno2

Pno3

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64

Pno1

Pno2

Pno3

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). Each system contains two staves (treble and bass).
- **Pno1:** The upper staff has a few notes in the treble clef, with a dynamic marking of *f*. The lower staff has a complex rhythmic pattern in the bass clef. A bracket labeled *15:14* spans a section of the lower staff.
- **Pno2:** The upper staff features a series of chords in the treble clef, with a dynamic marking of *f*. The lower staff has a melodic line in the bass clef, also with a dynamic marking of *f*. Two brackets labeled *15:14* are present, one above the upper staff and one below the lower staff.
- **Pno3:** The upper staff has a few notes in the treble clef, with a dynamic marking of *mf*. The lower staff has a few notes in the bass clef. A bracket labeled *15:14* spans a section of the upper staff.

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). Each system contains two staves. The first system (Pno1) includes a grand staff with treble and bass clefs. The second system (Pno2) and third system (Pno3) each have two treble clef staves. The score features various musical notations including notes, rests, and dynamic markings such as *f*. Rehearsal marks with the ratio 8:7 are placed below the staves. The piece concludes with a fermata over the final notes.

Pno1

Pno2

Pno3

The musical score is divided into three systems, each for a different piano part.
 - **Pno1:** Features a treble clef staff with a melodic line and a bass clef staff with a bass line. It includes a 9-measure rest, a 9:7 ratio marking, and a 5-measure rest.
 - **Pno2:** Features a treble clef staff with a melodic line and a bass clef staff with a bass line. It includes a 9-measure rest, a 9:7 ratio marking, and a 5-measure rest.
 - **Pno3:** Features a treble clef staff with a melodic line and a bass clef staff with a bass line. It includes a 9-measure rest, a 9:7 ratio marking, a dynamic marking of *f*, and a 5-measure rest.
 - **Common Elements:** The score includes various musical notations such as notes, rests, and dynamic markings. The key signature has one flat (B-flat), and the time signature is 9/7. The piece is titled "Galactic Jamboree".

Pno1

Pno2

Pno3

The musical score is divided into three systems, each for a piano (Pno1, Pno2, Pno3). Each system contains multiple staves with musical notation. Pno1 has a grand staff (treble and bass clefs) and includes dynamic markings such as *f* and *mf*. Pno2 and Pno3 also have grand staves. The score includes various musical notations such as notes, rests, and articulation marks. There are also numerical markings (5, 6, 7) and time signatures (19:14, 10:7) indicating specific measures or sections. The overall layout is complex and detailed, typical of a professional musical score.

69

The musical score is for three pianos (Pno1, Pno2, Pno3). It begins at measure 69. The first system shows Pno1 with a treble clef and a 3/16 time signature, followed by a 7/4 time signature. Pno2 and Pno3 also have treble clefs and 3/16 time signatures. Pno1 has a *ff* dynamic marking. Pno2 has a *ff* dynamic marking. Pno3 has a *ff* dynamic marking. The second system shows Pno1 with a *f* dynamic marking and a *ff* dynamic marking. Pno2 has a *p* dynamic marking. Pno3 has a *mp* dynamic marking. The third system shows Pno1 with a *f* dynamic marking. Pno2 has a *f* dynamic marking. Pno3 has a *mp* dynamic marking. The score includes various musical notations such as slurs, ties, and dynamic markings.

Piano score for measures 71-72. The score is divided into three piano parts: Pno1, Pno2, and Pno3.

Pno1: Treble clef. Measure 71 features a melodic line with a dynamic marking of *f*. Measure 72 features a melodic line with a dynamic marking of *f*. There are also some rests in measure 72.

Pno2: Treble clef. Measure 71 features a complex texture with many notes and a dynamic marking of *p*. Measure 72 features a complex texture with many notes and a dynamic marking of *p*.

Pno3: Treble clef. Measure 71 features a complex texture with many notes and a dynamic marking of *p*. Measure 72 features a complex texture with many notes and a dynamic marking of *p*.

There are also two bass clef staves for Pno1 and Pno2. Pno1 bass clef: Measure 71 features a melodic line with a dynamic marking of *p*. Measure 72 features a melodic line with a dynamic marking of *p*. Pno2 bass clef: Measure 71 features a melodic line with a dynamic marking of *mp*. Measure 72 features a melodic line with a dynamic marking of *f*.

Piano score for measures 72-73. The score is divided into three piano parts: Pno1, Pno2, and Pno3.

Pno1: Treble clef. Measure 72 features a complex texture with many notes and a dynamic marking of *f*. Measure 73 features a complex texture with many notes and a dynamic marking of *f*.

Pno2: Treble clef. Measure 72 features a complex texture with many notes and a dynamic marking of *f*. Measure 73 features a complex texture with many notes and a dynamic marking of *f*.

Pno3: Treble clef. Measure 72 features a complex texture with many notes and a dynamic marking of *f*. Measure 73 features a complex texture with many notes and a dynamic marking of *f*.

There are also two bass clef staves for Pno1 and Pno2. Pno1 bass clef: Measure 72 features a melodic line with a dynamic marking of *f*. Measure 73 features a melodic line with a dynamic marking of *f*. Pno2 bass clef: Measure 72 features a melodic line with a dynamic marking of *f*. Measure 73 features a melodic line with a dynamic marking of *f*.

73

Pno1

Pno2

Pno3

7:6

3:2

5

7:6

3:2

5

7:6

3:2

9

9

p

p

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). Pno1 has three staves: a treble clef staff with a melodic line and a large slur over the final notes, and two bass clef staves with accompaniment. Pno2 has a single treble clef staff with a melodic line. Pno3 has two staves: a treble clef staff with a melodic line and a bass clef staff with accompaniment. The score includes various musical notations such as notes, rests, and dynamic markings like 'p'. There are also numerical markings like '7:6', '3:2', and '9' which likely refer to specific rhythmic or harmonic patterns.

74

Pno1

Pno2

Pno3

p *f* *f* *f*

9 9 9

9 9 9

9 9 9

f *f* *f*

75

Pno1

Pno2

Pno3

The musical score consists of three systems, each for a different piano (Pno1, Pno2, Pno3).
 - **Pno1:** The top staff (treble clef) begins at measure 75 with a triplet of eighth notes. The middle staff (treble clef) contains a series of sixteenth-note chords, some marked with a *p* dynamic. The bottom staff (bass clef) features a melodic line with a *p* dynamic. The lowest staff (bass clef) has a simple bass line.
 - **Pno2:** The top staff (treble clef) has a series of sixteenth-note chords, some marked with a *p* dynamic. The bottom staff (treble clef) has a melodic line with a *f* dynamic and a triplet of eighth notes.
 - **Pno3:** The top staff (treble clef) has a series of sixteenth-note chords, some marked with a *p* dynamic. The bottom staff (bass clef) has a simple bass line, ending with a *f* dynamic.

76

Pno1

Pno2

Pno3

The musical score is divided into three parts: Pno1, Pno2, and Pno3. Pno1 consists of four staves (treble and bass clefs). It begins at measure 76 with a treble clef staff that is mostly silent, followed by a complex texture of chords and triplets in both hands. Dynamic markings include *ff* and *p*. Pno2 consists of a single treble clef staff with a melodic line starting at measure 76, featuring dynamic markings *f* and *ff*. Pno3 consists of a grand staff (treble and bass clefs) with a sparse accompaniment, including a dynamic marking *f*.

77

Pno1

Pno2

Pno3

ff

p

ff

ff

Galactic Jamboree

78

Pno1

Pno2

Pno3

The musical score for three pianos (Pno1, Pno2, Pno3) begins at measure 78. Pno1 features a complex texture with chords and a melodic line, marked with *ff* and a slur. Pno2 has sustained chords and a melodic line, marked with *ff* and a slur. Pno3 has sparse accompaniment, marked with a slur and a *5* fingering. The score includes various musical notations such as slurs, accents, and dynamic markings.

79

Pno1

Pno2

Pno3

3:2

5:4

5

3:2

ff

80

Pno1

Pno2

Pno3

mp

ff

5:4

9

The musical score is divided into three systems, each for a different piano (Pno1, Pno2, Pno3). Pno1 features a complex texture with multiple staves, including a grand staff with a 5:4 ratio and a 9-measure phrase. Pno2 has a similar structure with a 9-measure phrase and a 5-measure phrase. Pno3 is simpler, with a 5-measure phrase. Dynamics range from mezzo-piano (mp) to fortissimo (ff). The score includes various musical notations such as accents, slurs, and performance instructions.

Galactic Jamboree

81

Pno1

p

Pno2

ff

Pno3

ff

9 9 9 9 9 9 9 9 9 9

3 5 5:4

9 9 9 9 9 9 9 9 9 9

3 5 5:4

9 9 9 9 9 9 9 9 9 9

5 5:4

5 5:4

Galactic Jamboree

82

Pno1

Pno3

f *mp* *ff* *p* *f*

Galactic Jamboree

84

mp

p

p

mp

p

f

f

Pno1

Pno2

Pno3

5

5

5

5

85

Pno1

Pno2

Pno3

f *p* *f* *f* *p*

5 3 3 6:5 5

Detailed description: This page of a musical score, numbered 85, features three piano parts labeled Pno1, Pno2, and Pno3. Pno1 is written in a grand staff (treble and bass clefs) and includes a complex melodic line with triplets, a five-measure rest, and a series of sixteenth-note chords. Dynamics range from *f* to *p*. Pno2 is in a grand staff and features a melodic line with triplets and a six-measure rest, ending with a *p* dynamic. Pno3 is in a grand staff and consists of a five-measure rest followed by a series of chords. The score includes various musical notations such as slurs, accents, and dynamic markings.

86

Pno1

Pno2

Pno3

f

f

f

f

f

p

Galactic Jamboree

Detailed description: This page of a musical score, numbered 68, contains three piano parts labeled Pno1, Pno2, and Pno3. The score begins at measure 86. Pno1 consists of four staves: two treble clefs and two bass clefs. It features a complex rhythmic pattern with many sixteenth notes and rests, including a five-measure rest in the first treble staff. Pno2 consists of two staves: one treble and one bass clef. It has a more sparse texture with some chords and a five-measure rest in the treble staff. Pno3 consists of three staves: two treble and one bass clef. It features a five-measure rest in the first treble staff and a triplet in the second treble staff. Dynamics include forte (*f*) and piano (*p*). The title 'Galactic Jamboree' is centered at the bottom.

87

Pno1

Pno2

Pno3

p *f* *p* *f* *f* *f*

5 5 5 5 5

Galactic Jamboree

88

Pno1

f

5

9

Pno2

mp

9

5

f

f

Pno3

mp

9

5

f

f

ff 5

89

Pno1

Pno2

Pno3

ff

ff

5

9

9

f

90

Pno1

Pno2

Pno3

f

5

5

5

5

5

Musical score for *Galactic Jamboree*, measures 91-94. The score is arranged for three piano parts: Pno1, Pno2, and Pno3. Measure 91 begins with a treble clef and a key signature of one flat. Pno1 features a complex melodic line with many sixteenth notes and rests, with five-fingerings indicated by brackets and the number '5'. Pno2 and Pno3 provide harmonic support with chords and bass lines. Pno2 has a treble clef and Pno3 has a bass clef. The dynamic marking *ff* (fortissimo) is used throughout. The score concludes with a double bar line at the end of measure 94.

Galactic Jamboree

92 73

Pno1

Pno2

Pno3

ff

mp

93

Pno1

Pno2

Pno3

ffff

ff

f

p

ff

9

9

5

11

11

9

95

Pno1

Pno2

Pno3

fff

mf

ff

ff

fff

ff

fff

fff

fff

11

5

5

98

Pno1

5

5

p

Pno2

p

mf

5

5

5

Pno3

p

5

5

5

Pno1

Pno2

Pno3

The musical score is for the piece "Galactic Jamboree" and is divided into three piano parts: Pno1, Pno2, and Pno3. Each part consists of a grand staff (treble and bass clefs) in 3/4 time. The score is marked with various dynamics including *fff* (fortissimo), *ff* (fortissimo), and *ff* (fortissimo). It features numerous slurs and articulation marks such as accents and staccato. Fingerings are indicated with numbers 1-5. Rehearsal marks are present, with "11" appearing frequently above the staves and "5", "10", and "10 11" appearing below. The piece concludes with a final measure marked with a double bar line and a repeat sign.

Galactic Jamboree