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La Monte Young

The Well-Tuned Piano (1964)

Extract from PhD qualifying
examination paper in composition at UCSD

San Diego, May 28, 2019

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La Monte Young: *The Well-Tuned Piano* (1964)

The Magnus opus of La Monte Young is an ever-growing improvisatory work that lasts more than five hours at the moment and in which new material is added in every new performance. There is no conventional score for this piece. Instead, a large book of themes, scales, patterns, chords, and transcriptions of performed passages is used by Young as a memory aid for his performances.

It reflects two fundamental points of his compositional thought, the extension of time and the negation of the concept of the traditional concert hall. The latter has the goal of creating alternative performance environments that change from performance to performance, and that may also include color light projection and/or incenses. It began in 1964 as a 40-minute improvisation played on an old upright piano that was tuned to a special just intonation system.¹ Because of the practical requirements of the piece and the challenges that these requirements created, the piece had to wait for a decade before having an opportunity for a live performance. The piano needs to occupy a climate-controlled performance space for up to two weeks, while being adjusted to its highly precise tuning. After its premiere in Galleria L'Attico in Rome in 1974, it is always performed at its original Bösendorfer grand piano.

¹ Mentioned quite often with the abbreviation JI, this tuning system is based on pure interval ratios of frequencies. Intervals and chords derived from this system are aggregates comprised by harmonic partials that share a common fundamental.

1. Tuning

All octaves of the Bösendorfer piano are tuned in a 7-limit just intonation system, in 12-pitches, with a low Eb as its fundamental.² Despite the conceptual simplicity of this system, the numerical ratios that are produced are complex and are based on multiples of 2, 3 and 7. In general, Young avoids intervals derived from the 5th harmonic of the overtone series³ and prefers the pure P5 (3:2 interval ratio) and m7 (7:4) instead. The scale of the piece, which was created on this tuning, can be seen in Fig. 1 (appx., p. 12) (tuning expressed both in ratios and cents). The singularity of this scale lies in the fact that G# and C# sound lower than G and C respectively.

From this scale 66 possible dyads can be derived, or 132 if their complements are also counted.⁴ All these dyads can be viewed in Fig. 2 (appx., pp. 13-14). As we can see, their ratios are characterized by increasing complexity. There are 19 possible intervals among them. Almost half of the total of dyads (32) are expressed by numbers smaller than 16 and these comprise the intervals that Young used in the themes⁵ of the piece.

Through this highly precise tuning, Young derives a wide variety of tiny intervals, that sound exotic, and a lot of flexibility in harmonic modulation potential.

² In a 7-limit tuning system all prime numbers that are used as factors are equal or smaller to seven. The fundamental on which Young based the tuning is impossible to be heard. It is a low Eb that lies 10 octaves below the bottom range of the piano. For the explanation of this phenomenon see fn. 8, p. 8.

³ These are the M3 (5:4), m3 (6:5) and their complementary m6 (8:5) and M6 (5:3) respectively.

⁴ For example, a m2 and a M7.

⁵ Small motives that play a significant role in the structure of *The Well-Tuned Piano* and are analyzed in 2.iii, pp. 6-7.

2. Structure

The piece oscillates between two different states: a sparse inactivity of sustained chords and a very intense activity where massive tone-clouds are emerging from the piano. These clouds are created by the harmonics that surround each chord and also by the fact that the sustained pedal is pressed nearly throughout the whole performance. The structure of the piece functions in two levels: themes and clouds, both derived from static harmonies. These two levels are not totally separated, as when the themes thicken, they become clouds, and when the clouds thin, out they create themes. However, themes can be occasionally heard in the middle of clouds.

i. chords

Young constructed a number of chords from the 12-pitch scale as mentioned before and named them with imaginative titles (i.e. “magic chord” or “romantic chord”). According to Kyle Gann,⁶ there are nine major harmonies in the piece, two of which are central: the “opening” and the “magic” chord. These are formed by the 10 most-used pitches of the scale, without duplication. We can see these two chords in Fig. 3 (appx., p. 15). Whenever a chordal area combines the material of two chords, their names are also combined, i.e. a chord that will include all notes of Fig. 3 will be called “magic opening chord”.

Inside these harmonic areas (or “fields”) the material that appears can be divided in three categories: clouds, themes and harmonic or contrapuntal formulas. The third category

⁶ Gann, Kyle (1993). “La Monte Young’s The Well-Tuned Piano”, *Perspectives of New Music*, Vol. 31, No. 1, p. 142.

includes two sub-categories, as these formulas may either be a cadence or a sequence. Similarly to the nine used chords, the sections of the piece are also nine and they are each one based on a different pool of pitch classes, which is derived by the chords. In Fig. 4 (appx., p. 15) we can see the overall plan of the recording that was made in the “6 Harrison Street Dream House concert” in New York (1987), with La Monte Young performing at the piano. The labeled transitions are less harmonically stable than the sections. The first transition adds new pitches gradually but relatively fast, as by arriving at 13:15 we have already heard the 10 pitch classes that will sound in the first four hours of this performance.

ii. clouds

The clouds cannot be accurately notated, as they are pitch groups derived by a static harmony for improvisation purposes. Because of the nature of the scale’s tuning that includes intervals of very diverse width, whenever Young realizes a fast melodic passage we tend to hear it as a series of clusters. Also, this is partly because some notes between very small scale steps are not perceived as separate entities but rather as tiny shifts on one pitch. These two features enable the clouds to blend their elements perfectly.

iii. themes

Themes, in the form of short motives, are spread out throughout the whole work and contribute to its structural complexity as they can be traced or recalled in various harmonic areas. Young uses themes in a way that creates anticipations and reminiscences in the form. This aspect of the piece is crucial both for the identity of its structure and for the temporal repercussions on the listener. The coexistence of harmonic stasis for very large time spans,

an extreme limitation of material and this particular use of the themes, creates a “hybridic” form that fuses Eastern with Western music philosophies. I will elaborate on this particular aspect in 4, pp. 9-10.

In the themes, intervals smaller than a m3 are frequently used as dissonances that create transitions, resolving their lower note downwards by step. On the contrary, whenever they appear isolated they are saved for expressive effects.⁷

iv. cadences and sequences

These two types of material play quasi-thematic roles but their function is a bit different than the themes. Cadences are more focused on creating a sense of underpinning finality, so that a new music event starts afterwards. They are mainly found in the “magic chord” section (Fig. 4, appx., p. 15). On the other hand, the sequences create chains of music material that is organized around dyads of interval ratios of 9:7 or 7:6.

In total, about 51 themes, sequences and improvisation patterns are included in *The Well-Tuned Piano*. These elements are developed in each new performance, for example new themes can be added.

⁷ This applies for all highly dissonant intervals of the piece.

3. Psychoacoustics with a metaphysical background: the Indian connection

Throughout the years of his life, Young developed a compositional method that explores the basic acoustic qualities of sound and their effect on the listener's perception. His interest in psychoacoustics, the scientific study of sound perception, includes a further metaphysical aspect. According to his opinion, both the human ear and brain are very sensitive to the pure interval ratios of the just intonation tuning. The virtual pitches⁸ that can result by these ratios are called *combination tones* and are produced when particular (accurate) vibrations are combined inside our ears.⁹ Their production is not possible in the equal-tempered system because the sound wave curves of its interval frequencies do not have a relation that allows their exact periodic alignment, as it happens with the just intonation intervals. As a result, the vibrations that are necessary for the combination tones to emerge are not created. This is one of the main reasons that Young, from very early on, rejected the equal temperament.

Similarly to some ideas that were discussed in the chapter on *Stimmung* (see III.1, p. 80),¹⁰ Young refers to a "drone state of mind," a psychological state that is associated with particular frequency relationships. The sensations that we experience during this state enables us to recognize fundamental vibration principles of the universe. According to him,

⁸ When two pitches sound together, their *virtual pitch* (more commonly called as *virtual fundamental*) is a third pitch that may be audible one octave lower than the lowest of the sounding two. In some cases, such as in the low Eb of *The Well-Tempered Piano*, this third pitch cannot be heard as it stays out of the range of human audibility. In such cases it is called *missing fundamental*.

⁹ Grimshaw, Jeremy (2011) "Draw a Straight Line and Follow It. The Music and Mysticism of La Monte Young", Oxford University Press, New York, p. 150.

¹⁰ This refers to the paper which this chapter was extracted from.

the intervals based on the harmonic series resonate with the macrocosm and awaken our possibilities for our evolution, a kind of transcendence towards the divine.¹¹

This kind of transcendence is not only relegated to Young's work but also shares common ground with the music and religious traditions of India. For example, in this traditional music, the purity of the singer's intonation to the drone of the tambura¹² enables his proximity to God.

Apart from that, the performance aspect of this music shares common principles with the way of Young's improvising at the piano. His use of the themes, the creating of clouds, etc., are very close to the function of a raga,¹³ where notes are gradually added as they spread out inside their modal field.

4. Temporal repercussions and comparisons with other composers/works

Young has openly expressed a strong interest in temporal stasis. He quotes on this:

*One of the aspects of form that I have been very interested in is stasis. The concept of form which is not so directional in time, not so much climactic form, but rather form which allows time ... to stand still.*¹⁴

In *The Well-Tempered* piano this predilection is more than obvious. Its long tones and sustained harmonies are the first element we perceive during the listening experience. Its

¹¹ Grimshaw, Jeremy (2011) "Draw a Straight Line and Follow It. The Music and Mysticism of La Monte Young", Oxford University Press, New York, p. 148.

¹² Stringed instrument of the traditional music of India, and of many other eastern cultures, played with a plectrum.

¹³ A melodic framework for improvisation in the form of a mode that is typical in the traditional music of India.

¹⁴ Grimshaw, Jeremy (2005). "Music of a More Exalted Sphere: The Sonic Cosmology of La Monte Young", *Dialogue: A Journal of Mormon Thought*, Vol. 38, Issue 1, p 4.

permanent focusing on a continuous present creates time dilation, at least in the sparse sections with the static harmonies. In these sections, contours that develop over time are completely absent. Neither tensions that need resolution, nor directional goals that need to be reached, can be found.

On the other hand, the idea of *vibration*, inherent to the work because of its tuning, includes the concept of periodicity and of the *pulse*, which may be interpreted as a kind of “breath”. The static harmonies of Young are not dead entities. Even when they seem inactive, they start to pulsate after a while. In addition, the way that Young handles the huge sonic clouds in the temporal domain and in relation to the form, creates cyclic results: the first impression of the large form through listening is this cyclic behavior of the clouds that come, depart, and after an amount of time return.

Last but not least, what was briefly mentioned in 2.iii, pp. 6-7, merits attention because it is more typical in this particular work of La Monte Young and less in others. The themes in the way that appear create antecedent-consequent features of classic development, in which earlier melodies return altered in different transpositions and this is something that the listener cannot easily forget. In this respect, the piece works as a kind of “hybrid” time that can be experienced in two ways simultaneously: in an “Eastern” way, through focusing on timelessness and the tuning, and in a “Western” way as a directional experience through focusing on the themes.

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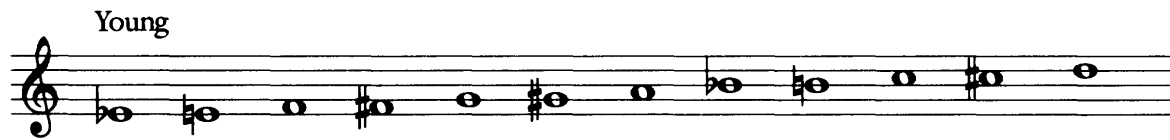
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Appendix



ratio:	$\frac{1}{1}$	$\frac{567}{512}$	$\frac{9}{8}$	$\frac{147}{128}$	$\frac{21}{16}$	$\frac{1323}{1024}$	$\frac{189}{128}$	$\frac{3}{2}$	$\frac{49}{32}$	$\frac{7}{4}$	$\frac{441}{256}$	$\frac{63}{32}$
cents:	0	177	204	240	471	444	675	702	738	969	942	1173

Fig. 1: The scale of The Well-Tuned Piano¹⁵

¹⁵ Gann, Kyle (1993). "La Monte Young's The Well-Tuned Piano", *Perspectives of New Music*, Vol. 31, No. 1, p. 137.

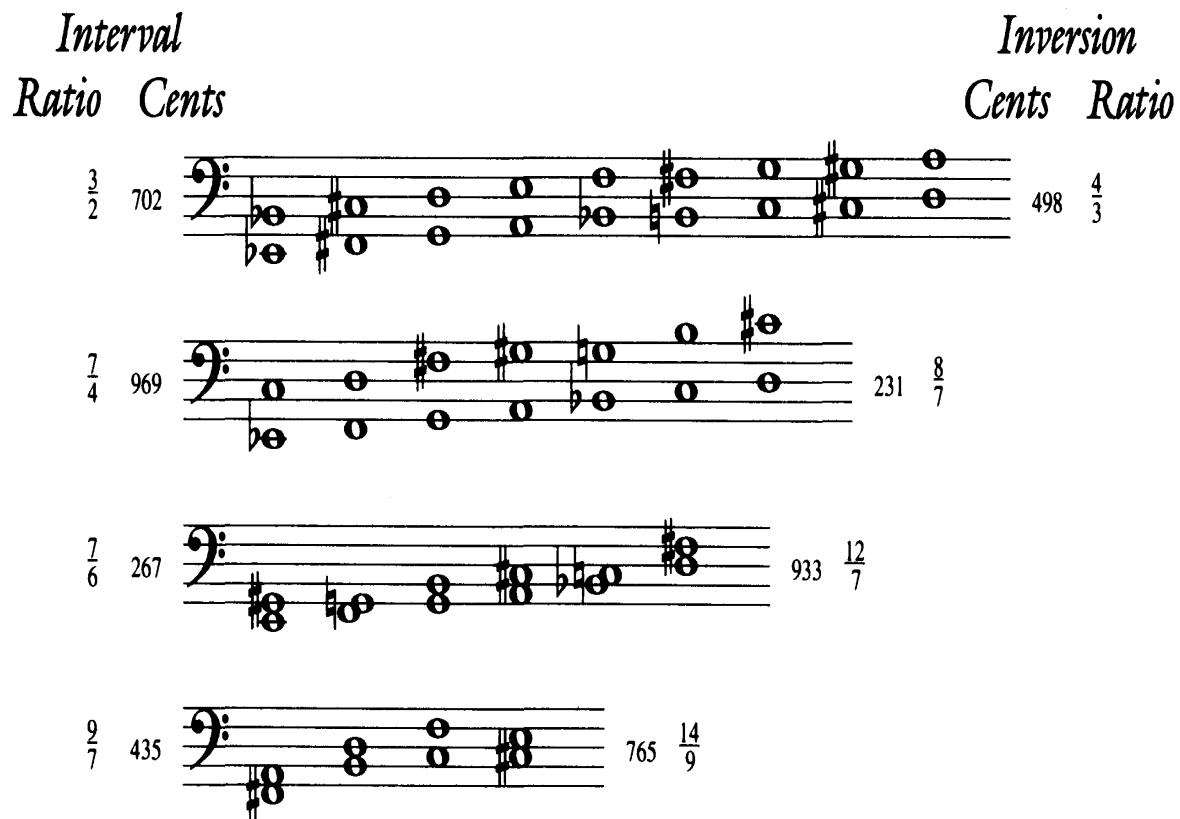


Fig. 2: The 66 possible dyads of the scale of the piece¹⁶

¹⁶ Gann, Kyle (1993). "La Monte Young's The Well-Tuned Piano", Perspectives of New Music, Vol. 31, No. 1, p. 138.

$\frac{9}{8}$ 204 $\frac{996}{9}$
 $\frac{21}{16}$ 471 $\frac{729}{21}$
 $\frac{27}{14}$ 1137 $\frac{63}{27}$
 $\frac{27}{16}$ 906 $\frac{294}{27}$
 $\frac{49}{32}$ 738 $\frac{462}{49}$
 $\frac{49}{36}$ 534 $\frac{666}{49}$
 $\frac{49}{48}$ 36 $\frac{1164}{49}$
 $\frac{63}{32}$ 1173 $\frac{27}{63}$
 $\frac{81}{56}$ 639 $\frac{561}{81}$
 $\frac{81}{64}$ 408 $\frac{792}{81}$
 $\frac{147}{128}$ 240 $\frac{960}{147}$
 $\frac{189}{128}$ 675 $\frac{525}{189}$
 $\frac{441}{256}$ 942 $\frac{258}{441}$
 $\frac{567}{512}$ 177 $\frac{1023}{567}$
 $\frac{1323}{1024}$ 444 $\frac{756}{1323}$

Fig. 2 (cont.): The 66 possible dyads of the scale of the piece¹⁷

¹⁷ Gann, Kyle (1993). "La Monte Young's The Well-Tuned Piano", Perspectives of New Music, Vol. 31, No. 1, p. 139.

The Opening Chord The Magic Chord

4 : 6 : 7 : 8 : 9 : 12 81 : 84 : 108 : 112 : 144 : 162 : 192 : 216

2 : 3 27 : 28 27 : 28 8 : 9 8 : 9

2 : 3 7 : 9 7 : 9 27 : 32

Fig. 3: The two central chords of the piece¹⁸

<i>Sec.</i>	<i>Timing</i>	<i>Pitch Classes Present</i>						<i>Name</i>
1	0:00:00–0:09:38	E \flat	F		B \flat	C		Opening Chord
2	0:09:38–0:21:47	E \flat	E	F	F \sharp	G	A B \flat B C	D [Transition]
3	0:21:47–1:02:29	E	F \sharp	G	A	B		D Magic Chord
4	1:02:29–1:21:54	E \flat	E	F	F \sharp	G	A B \flat B C	D Magic Opening Chord
5	1:21:54–2:06:06	E \flat	F	G \flat (G)		B \flat	C	Magic Harmonic Rainforest Chord
6	2:06:06–3:01:15	E \flat	E	F	F \sharp	G	A B \flat B C	D [Transition]
7	3:01:15–4:01:51	E	F \sharp	G	A	B	C	D Romantic Chord
8	4:01:51–4:59:41	E	F \sharp	G	A	B	C C \sharp	D Elysian Fields
9	4:59:41–5:01:22	E \flat	E	F		G	B \flat B C	Ending

Fig. 4: The overall structure of the piece, based on the recording of the “6 Harrison Street Dream House concert” in New York (1987)¹⁹

¹⁸ Gann, Kyle (1993). “La Monte Young’s The Well-Tuned Piano”, *Perspectives of New Music*, Vol. 31, No. 1, p. 143.

¹⁹ Gann, Kyle (1993). “La Monte Young’s The Well-Tuned Piano”, *Perspectives of New Music*, Vol. 31, No. 1, p. 146.