

**Mamoru Fujieda's Hybrid Approach to Composing for Koto and  
*When I Think of the Crab Fields...* 蟹原楽を考えたら。。。 (*Kanibarugaku wo  
kangaetara...*) an Original Composition for Traditional Japanese Instruments and Voice**

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2023

## Mamoru Fujieda's Hybrid Approach to Composing for Koto

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University of Pittsburgh, 2023

Mamoru Fujieda (b. 1955) has carved out an intercultural musical world that encompasses his artistic language. Fujieda's work is informed by electrical activity emitted from plants and its translation into sound, American experimental minimalism and microtonality, Gamelan, and traditional Japanese musics. Drawing on research by Indonesian, American, and Japanese scholars, my dissertation analyzes the Third Collection "*Koto-Gamelan Set*" (1996; KGS) from his ongoing *Patterns of Plants* (1995-present) for three kotos.

KGS is inspired by La Monte Young's *Well-Tuned Piano*. Using Young's tuning schema, Fujieda employs a unique musical scale that approximates gamelan tunings. This is done in the same spirit as many American composers of the 1970s who appropriated gamelan as a means of self-expression focusing on tunings to the neglect of other facets of Indonesian music. This is part of an American/East Asian cultural feedback loop that has reached such a level of sophistication that the loop has become a cultural phenomenon with its own language, values, and style. As such, Fujieda's work demands an intercultural analytical framework; frameworks of conventional Western musical analysis are insufficient.

Despite Fujieda's claim "[KGS] has nothing to do with the style... of gamelan directly," (Fujieda 2021) this work is constructed from reimaginings of Japanese, Indonesian, and American musics and should be analyzed from these vantage points. I first compare Young's *Well-Tuned Piano*, median Indonesian slendro and pelog scales, traditional Japanese scales, and KGS' tunings. I then compare typical forms of gamelan degung and slendro works, and Japanese music

with Fujieda's to show how he draws from each source. I then show that Fujieda uses end-weighted structural chords that function similarly to gongs used in gamelan music, ultimately creating structures that resemble the cyclicity of gamelan and gagaku compositions.

It is imperative to analyze musical works like KGS from angles that encompass non-Western modes of listening. Doing so creates greater artistic flexibility and forces musicians and scholars to rethink the concept of art music in the 21<sup>st</sup> century. Fujieda's KGS represents a problematic but unique hybridized approach to writing for non-Western instruments that, despite issues of cultural borrowing and identity, remains worthy of analysis.

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## Preface

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## 1.0 Introduction

Japanese composer Mamoru Fujieda (b. 1955) has created and refined his intercultural musical language by drawing on melodic patterns extracted from translating the electrical currents of plants into sound waves. Having composed for a variety of instruments from many cultures over the past thirty years, his ongoing magnum opus *Patterns of Plants* (1995–, hereafter referred to as PoP) represents a provocative approach to writing for Japanese instruments. As musical communities become more globalized and interconnected, the issues regarding appropriation, agency, borrowing, and the feedback loops that they produce challenge artists to create new works for non-Western instruments in contexts that honor their existing traditions while simultaneously recontextualizing them for new artistic environments. Fujieda’s Third Collection from PoP, *Koto-Gamelan Set* (1996, hereafter referred to as KGS), presents an intellectually and sonically provocative composition that, through using microtonal tuning systems and subtle rhythmic devices, creates an “atmosphere of Indonesian gamelan” (Fujieda, 2009). This “atmosphere” is an appropriation of Indonesian music and is part of a feedback loop that presents perceived ideas of Indonesianness through the lens of just intonation.<sup>1</sup> This is done in the same spirit as some American West Coast composers in the 1970s through 1990s by neglecting other aspects of Indonesian music and culture. Fujieda claims that beyond the tuning, “KGS bears no direct similarity in style or method of gamelan directly.” He was first introduced to gamelan music by Lou Harrison in the late 80s, and prior to composing KGS in 1996 had little experience with gamelan music (Fujieda, 2021).

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<sup>1</sup> For a detailed discussion on just intonation, please see Gann, 2019.

My experiences as a performer of shakuhachi in *jiuta-sōkyoku* music, study of gamelan, and microtonality informed my many listenings of this piece. I am convinced that to best appreciate this work -despite Fujieda's claim- is to analyze this work from the vantage point of the borrowed source musics from the US, Japan, and Indonesia. KGS structural elements in particular feature hallmarks common to both Indonesian and Japanese music and are a key element in my comparative analysis.

As described in David Novak's 2013 book *Japanoise*, cultural exchanges similar to this have evolved to the point where the borrowing and trading of musical sounds, ideas, and the merging of cultures and cultural objects have become its own self-generating feedback loop (Novak 2013). This exchange of cultures and its objects applies to issues of cultural identities and particularly the ways in which aspects of identities and cultures are fragmented to help form new identities, and alter existing ones, is particularly salient to this paper (Oh 2017, Utz 2021). Through integrating multiple techniques from Japanese, Indonesian, Indian, and American music traditions, Fujieda has synthesized a musical composition that attempts to transform Eastern and Western source materials into a new hybridized world, situated within this US-Southeast Asia feedback loop (appropriation of gamelan). This can be traced back to composers such as John Cage (1912-1992)<sup>2</sup>, Lou Harrison (1917-2003), and Harry Partch (1901-1974). In KGS, Fujieda has redeployed this American reimagining of gamelan music to explore unique tunings related to just intonation in a way that is in dialogue with the Indian-inspired works of La Monte Young (b.1935-). These influential composers explored tuning systems to express their musical ideals and beliefs, and this

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<sup>2</sup> Japanese composers such as Toru Takemitsu said his meetings with Cage allowed him to “recognize the value of my own tradition.” For more on this and Takemitsu's relationship to composing for Japanese instruments, see Burt, 2001.

exploration often included drawing inspiration from and appropriating East Asian cultures.<sup>3</sup> Fujieda is part of this feedback loop, but on the opposite side of the Pacific Ocean.

I believe KGS fits the criterion for “synthesis” as described in Yayoi Uno Everett’s 2004 article “Intercultural Synthesis in Postwar Western Art Music: Historical Contexts, Perspectives and Taxonomy.” Fujieda’s work, through incorporating these various fragmentations of techniques and concepts from different cultures, “effectively transform[s] the cultural idioms and resources into a hybrid entity” (Everett 2004). However, to a musical insider of Japanese and Indonesian music, vestiges of the source materials are audible - despite Fujieda’s claim - something that is in direct conflict with Everett’s theory of synthesis. It is because of the complex overlapping of all these unique facets of KGS that this multi-tiered syncretic approach becomes a new kind of hybrid global art music.

Indonesian gamelans were brought to the US as early as the 1950s by scholars like Jaap Kunst at UCLA. They were later appropriated and reconfigured by American composers such as Lou Harrison beginning in the 1960s and 1970s in order to explore their own interests in intonation and instrument building (Miller and Lieberman 1999). Composers such as Barbara Benary (1946-2019) initially tried to create instruments to teach and perform traditional repertoire in the US. Ultimately Benary’s gamelan, later known as Gamelan Son of Lion, became a laboratory for composers to explore new music for these instruments (Arms 2021, Clendinning 2020). Gamelans first appeared at Tokyo University of the Fine Arts in 1974 (Benary and Deguchi 2010).

Concurrently, composers like Fujieda became deeply interested in gamelan tuning and would similarly use this as a jumping off point to create new works, as Harrison did. For Fujieda,

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<sup>3</sup> In the case of Partch, this included interest in and appropriation of Japanese stories and instruments and the theatrical traditions of *Noh*, most notably in the first act of his opera *Delusion of the Fury*.

the intonational possibilities provided by the slendro and pelog tuning systems in Indonesian music fused with his exploration of the tuning system employed by La Monte Young in his landmark composition *The Well-Tuned Piano* (Fujieda 1998, 2021). However, prior to composing KGS in 1996, Fujieda's only experiences with gamelan had been with Lou Harrison, and he had not yet studied gamelan intimately (Fujieda 2021).

Fujieda received his Ph.D. in Music Composition from the University of California, San Diego in 1988, where he studied with Joji Yuasa, Morton Feldman, Julio Estrada and others. During his time as a student in 1980's, Fujieda discovered the works of the Harry Partch and Lou Harrison whose approaches to microtonality had a profound impact on his thought process. Fujieda writes in John Zorn's 2004 compilation *Arcana IV*:

[I] felt the limitation of the 20<sup>th</sup> century music after I came to know the music of Partch and Harrison...though [it was] not so easy to extricate myself from the constraint of equal temperament...It seems to me that changing the tuning system would have a power that would affect not the exterior but the inward nature of music. A new direction that just intonation suggests has a power to fundamentally convert the forms of music, the ways of listening to and producing sounds... (Fujieda 2004.)

After graduating from UCSD, Fujieda returned to Japan where he continued experimenting with various microtonal tuning systems with a Yamaha digital synthesizer. In the late 1980's and early 90's he conducted improvisational performances on computers and synthesizers to gradually train his ears to hear intervals of "just intervals, delicate intonations, and a diversity of modes." (Fujieda 2004). Fujieda began experimenting with microtonal tuning systems for traditional Japanese instruments in the early 1990's for a just intonation version of Terry Riley's *In Just C* for Japanese musicians, led by Terry Riley. The *koto* players involved in this performance were Miki Maruta and Yoko Nishi, with whom Fujieda would later collaborate with on numerous projects including *PoP*.

Beginning in 1995, Fujieda began a collaboration with botanist Yuji Dogane. Using a tool called the “PLANTRON,” the two recorded electrical fluctuations of the surfaces of the leaves of plants and converted this data into sound. During this process, Fujieda would listen carefully to the different melodic patterns produced by the plants, conversing with the spirits of plants. He created various “collections” for different instrumental ensembles, reminiscent of baroque dance suites (Cahill, 2014). In an interview with Serena Yang, Fujieda described his compositional process:

...I try not to express my inner idea but to find out certain relations (i.e. patterns) in the outer world. My art is not “found object” but “to find something out” from things other than myself. . . . By using patterns to compose, I do not mean that I generate something new from the patterns but rather I transform the patterns into musical materials. . . . Although my music must reflect my own taste, I don’t like the idea of “composing my own music” but prefer composing music that does not belong to me (Yang, 2020).

Yang further writes: “Rather than composing a piece as his self-portrait, Fujieda was more interested in setting up a situation to show in sound the organic processes happening between diverse entities in nature around him.” This fascination with hearing these processes has changed Fujieda’s approach to tuning over the decades. Fujieda has composed a total of 30 different collections<sup>4</sup> for instrumental ensembles including crumhorns, recorders, and harpsichords (18th-23rd Collections), the guzheng (27th Collection), gamelan Degung (10th Collection) and combinations of the *koto* and Japanese mouth organ *shō* (Collections 1, 4, 9, 11, 17<sup>th</sup>, 18<sup>th</sup> collections). The most recent collections in PoP such as Collection 25 no longer indicate specific tunings, reflecting Fujieda’s interest in hearing what kinds of variations emerge when the same work is played on an ensemble of differently tuned instruments. Unlike the other collections, KGS’

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<sup>4</sup> These collections do not include the many different arrangements that currently exist such as piano arrangements of PoP, songbook arrangements, or the clavier arrangements.

distinct tuning in tandem with its intercultural formal underpinnings continues to make it stand out 27 years after its conception.

Including the word “gamelan” in the title is a fraught word choice and may have been influenced by composers like Lou Harrison and others who built their own “gamelans” as an opportunity to create instruments and express themselves through justly intoned tuning systems. However, these instruments, such as Harrison’s Old Grand Dad and traditional Indonesian gamelans vary drastically in terms of construction and tuning and are not at all interchangeable. Later gamelans like Harrison’s Si Betty designed with his partner William Colvig are closer to the original source instruments and have been used to play Javanese repertoire. Like composers experimenting with gamelan and tuning starting in the 1970s and 1980s, Fujieda’s approach to composing for the koto using gamelan-inspired tunings on the surface has much in common with Harrison and likeminded composers, but instead of approximating Indonesianness through the same means as other American gamelan builders (namely Harrison and Daniel Schmidt), he achieves this through appropriating a tuning system employed by La Monte Young, whose compositions are informed by his experiences with Hindustani classical music.

While it is not the only composition in PoP that explores tuning and scales inspired by gamelan music and is not the only Collection<sup>5</sup> for non-Western instruments, KGS represents one of the most harmonically and rhythmically complex of these compositions with an available commercial recording.<sup>6</sup> My comparative analysis examines median tunings of Indonesian slendro and pelog scales in conversation with La Monte Young’s *Well-Tuned Piano* (1964-73, 1981-

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<sup>5</sup> Fujieda refers to each new piece in PoP as a Collection.

<sup>6</sup> There are three CD’s on the Tzadik label that feature Fujieda’s work, two of exclusively showcase different Collections from PoP. Other CD’s have been released in Japan featuring other works of Fujieda’s, however they could be challenging to find for those who do not speak Japanese.



present), from which Fujieda drew inspiration and musical modes typical of traditional Japanese chamber music. By doing so, I shed light on the complex intonational feedback loop that makes KGS so unique both as a critical entry in Fujieda's PoP and as a provocative means of composing for non-Western instruments. Attention will also be paid to some of the major structural hallmarks of *gagaku* 雅楽 (Japanese court music), and the rhythmic language of *jiuta-sōkyoku* 地歌・箏曲 (chamber music for koto, shamisen, and shakuhachi), and Indonesian gamelan music. Despite comments from both performers and critics that compare Fujieda's works to baroque keyboard suites (Cahill, 2014), my analysis reveals that the four movements of KGS more closely resemble *jo-ha-kyū* 序破急 structures found in *gagaku*, *jiuta-sōkyoku*<sup>7</sup> and concepts of pacing and tempo heard in gamelan music.

This paper is divided into three sections. The first "Borrowing – Tuning" examines the tuning systems used in Japanese and Indonesian musics relevant to KGS that might have influenced Fujieda in the compositional process. The second section "Borrowing – Stylistic and Compositional Techniques" examines the unique structural and rhythmic hallmarks of the same source musics that are relevant to analyzing KGS. The third "Implementation – Analysis and Hypothesis" attempts to analyze KGS through some of the ideas illustrated in the previous sections.

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<sup>7</sup> Classical Japanese art chamber music for combination of voice, shamisen, koto, and shakuhachi.

## 1.1 Borrowing - Tuning

### Koto tuning – Hirajoshi

*hirajōshi* 平調子

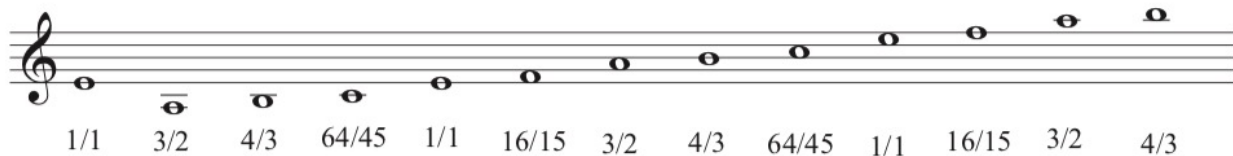


Figure 1: Hira-jōshi 平調子 tuning with ratios, tuned to A. This scale can be adjusted to better fit vocal range of performers, but for the sake of this analysis, I have chosen this scale as it requires no chromatic alterations.

*Hira-jōshi* 平調子 (standard tuning, or lit. everyday tuning, figure 1), is a Pythagorean tuning and is the oldest and most used *koto* tuning, dating back to the 17<sup>th</sup> century (Ando, 1989)<sup>8</sup>. The first string is used as a tuning reference for all others and can be raised or lowered to better accompany the vocal range of the performer. The second string is tuned a perfect fifth lower, the third a perfect fourth lower, and the fifth to a unison. The fourth string is tuned a minor second above the third, the sixth string is tuned a minor second above the fifth, and the seventh string is tuned an octave above the second string. Strings seven through thirteen are tuned in octaves with strings two through six. The left hand can be used to alter the pitch of strings either by depressing the string opposite side of the bridge of the playing area, or by pulling the string to alter the tension thus changing the pitch. The left hand is also sometimes used to pluck strings as well.

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<sup>8</sup> Because much *koto* music accompanies songs, tunings can be adjusted to accompany the range of the singer. For the intents and purposes of this paper, I have decided to use the tuning table presented in Minoru Miki's *Composing for Japanese Instruments* as it shares the same fundamental pitch as heard in Fujieda's KGS.

The intervallic profile of *hira-joshi* is different from the musical modes employed in PoP. Most significantly, the *miyako-bushi* 都節 tetrachord as described by the seminal Japanese ethnomusicologist Koizumi Fumio<sup>9</sup> is on the surface absent from Fujieda’s modal collections, however its influence can be heard in Patterns B & D. Standard *koto* tunings are typically done by ear according to perfect fifth intervals, whereas Fujieda has expanded this tuning lattice to include a series of septimal minor sevenths ( $7/4$ ), creating a more complex scale. While strings 1, 2, 3, 5, 7, 8, 10, 12, and 13 are tuned according to perfect octaves, fifths, and unisons, strings 4, 6, and 11 are tuned in relation to the string directly below it according to  $16/15$  minor seconds. These pitches therefore do not entirely fit the Pythagorean tuning model, and do not produce a  $256/243$ , a 90-cent interval derived from a series of consecutive perfect fifths. Furthermore, according to Ando, these  $16/15$  intervals can vary as much as 10 cents between players even within the same style of koto playing, something that would compromise the melodic integrity of KGS (figure 2; Ando, 1989).

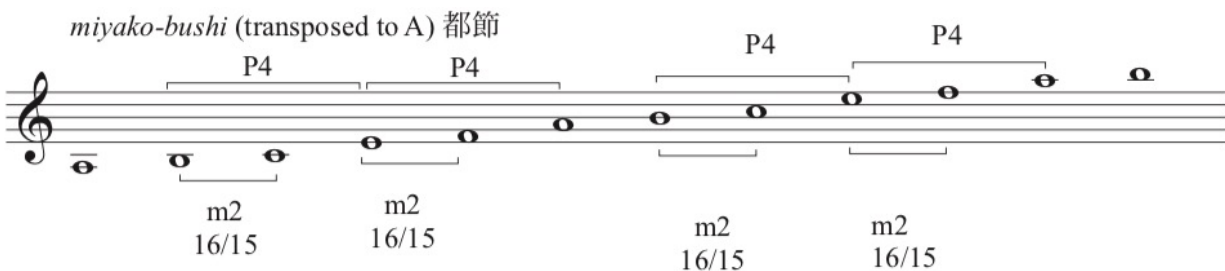


Figure 2: Miyako-bushi 都節 tetrachord.

There are myriad variety of pitches that are typically available to the koto through altering string tension by pressing the left side of the string with the fingertips, or by gently lifting the string in an upwards fashion, but none of these techniques that affect pitch are used in KGS, in order to

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<sup>9</sup> In Koizumi’s modal theory of Japanese music, a tetrachord refers to a gamut of **three** pitches that span the interval of a perfect fourth. The pitch in between the perfect fourth is what determines the quality of the tetrachord.

maintain the intervallic integrity that defines each melody. Techniques that produce inharmonic sounds such as scraping the strings horizontally with plectra, or glissandi are entirely absent from KGS. Were *koto* players required to alter the pitch through the traditional means of pressing *oshide* 押しで or grabbing the string *hiki-iro* 引きいろ, the intervals used in KGS composition would be difficult to replicate precisely and thus ruin the intervallic integrity of the melodies. Fujieda alternates between two different modes of his own design by altering bridge configurations of the *koto* between movements, in effect creating his own types of tetrachords that make strong character distinctions between movements, perhaps even going so far as to create his own versions of *slendro* and *pelog* scales. Furthermore, the Pattern B and D modes, feature two 1/8 tone intervals that I believe serve as a microtonally altered *miyako bushi* inspired tetrachord. While Fujieda had used this scale to approximate the “growl” of a gamelan, I believe it is a subconscious nod to the *jiuta-sokyoku*. Fujieda’s growl, an 1/8 tone, is approximately half the distance of the first two pitches in any given *miyako-bushi* tetrachord, like a distant intervallic cousin. A similar formal schema is heard in large scale *Tembang Sunda*<sup>10</sup> compositions for *kacapi* (Indonesian boat shaped zither), *suling*, and voice. These compositions often last several hours, where one part of a suite will be performed in *pelog*, and later be retuned to *sorog* (Williams, 2001). Fujieda has done something similar but is simply alternating at a comparatively faster rate with tuning systems of his own design (four-minute movements instead of 60+ minute individual movements.)

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<sup>10</sup> A style of classical vocal music that originated in the [Priangan](#) highland of western [Java](#). For more information, see Williams 2001.

## 1.2 Tuning in Gamelan – Slendro and Pelog

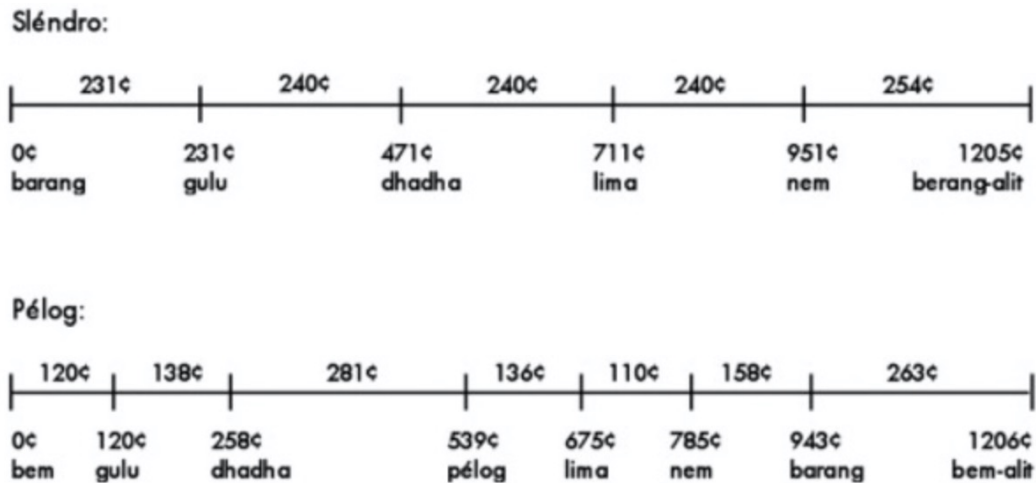


Figure 3: Mean tunings of Javanese gamelans as published by Surjodiningrat, Sudarjana, and Susanto (Gann, 2019).

Composer and ethnomusicologist Michael Tenzer writes in his 2011 *Balinese Gamelan Music* that it is better to consider the slendro and pelog tunings systems as guidelines for tuning rather than scales with specific intervallic distances. Perlman (1994), Tenzer (2011), Gann (2019), Arms (2021), and other scholars have written extensively on the tunings of gamelans in the US and in Indonesia, and all concur that each ensemble, regardless of geographic location, is tuned to be compatible only to instruments within their own group. Each ensemble has a slightly different tuning and therefore possesses a different *embat* (“character” or individual voice) (Arms, 2021).

According to musicologist Kyle Gann in his 2019 *The Arithmetic of Listening*, slendro and pelog tuning schema and the size of intervals change depending on whether the instruments are Balinese or Javanese. Balinese slendro scales feature intervals ranging in size from 80 cents to 450 cents. Javanese scales conversely are more evenly distributed across the octave with steps between 231 and 254 cents (Figures 3). In pelog scales, notes are spread out in uneven intervals ranging from 110 cents to 281. Rather than utilizing all seven pitches available, most pelog works limit themselves to a pentatonic pitch gamut (Gann, 2019). In KGS, Fujieda has derived a lattice of 11

itches, but limits himself to 7 pitches within each movement to differentiate the character of different movements more clearly.

The American gamelan tradition, as initiated by composers like Lou Harrison, Daniel Schmit (b. 1942), and Barbara Benary, represents a curious and distinctly American application of just intonation to Indonesian gamelan instruments. Ethnomusicologist Marc Perlman describes this as unique to 1970s and 1980s West Coast American musical circles (Perlman, 1994). These composers began building their own gamelans in the 1970s using tuning systems that have no precedent in traditional Indonesian music. While Fujieda did not study with Lou Harrison while at UCSD, Fujieda has said on numerous public occasions and written that Harrison's approach to multi-cultural composition and just intonation had a profound impact on him.<sup>11</sup> Instruments like Harrison's "Si Betty" are tuned to the 16<sup>th</sup>, 19<sup>th</sup>, 21<sup>st</sup>, 24<sup>th</sup>, and 28<sup>th</sup> harmonics on D for a slendro mode, and the 12<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup>, 17<sup>th</sup>, 18<sup>th</sup>, and 19<sup>th</sup> harmonics on D for pelog (Gann 2019, Arms 2021). This means of tuning gamelan is unique to American gamelan builders, as demonstrated by its dissimilarity to Gann's 2019 mean measurements of slendro and pelog. While gamelans represent a unique musical world in and of themselves, another interesting musical framework found in the just intonation works of La Monte Young would become central to the creation of KGS.

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<sup>11</sup> The application of just intonation to gamelan instruments has become its own subject of study, and scholars like Perlman (1994), and Arms (2021) have written about the lack of commonality between just intonation tendencies in American gamelan traditions and tuning methods tendencies and traditions in Indonesia.

### 1.2.1 La Monte Young – The Well-Tuned Piano

The composer and performer La Monte Young (b. 1935) has had a profound influence on countless composers. I will focus on his influence on KGS. Young’s ongoing landmark composition, *The Well-Tuned Piano* (WTP), is constructed from a unique pitch gamut that Young improvised around. The composition is informed by his own experiences listening to, performing, and studying traditional Hindustani music with Pandit Pran Nath.<sup>12</sup> WTP’s tuning system is derived from a combination of 3/2 intervals and 7/4 intervals; 5/4 intervals are avoided completely. The pitch gamut used in WTP consists of a 12 pitch non-equidistant spaced scale derived from an E-flat ten octaves below the lowest E-flat on Young’s Bösendorfer piano (Figure. 4, Gann, 1993).<sup>13</sup>

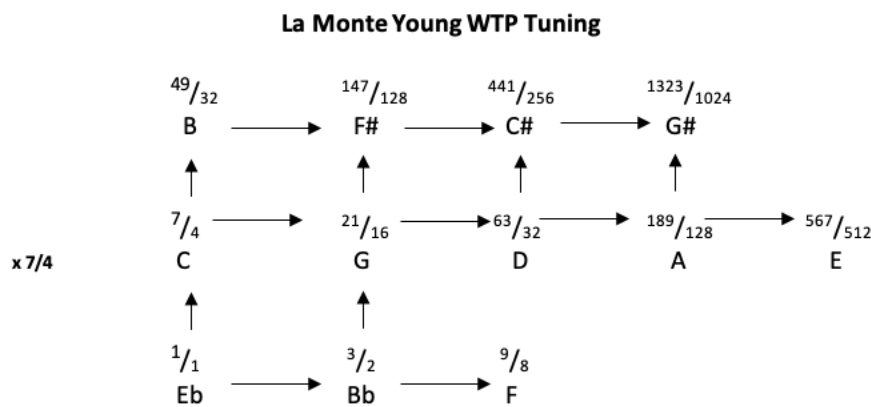


Figure 4: Tonal lattice for Young’s WTP. Pitches shown on the X axis are derived from 3/2 relationships while notes on the Y axis are derived from 7/4 relationships (Gann, 1993).

Fujieda’s pitch derivation is similar to Young’s but includes one significant deviation. Young’s pitch materials are derived only from overtones of a low E-flat, whereas Fujieda’s model seems to

<sup>12</sup> For a detailed analysis of WTP, see Gann 1993.

<sup>13</sup> In both cases of Young’s and Fujieda’s tonal lattices, the names of pitches mapped onto the five-line staff has resulted in an arbitrary mapping of pitch names onto a keyboard. In the case of Young, this was done to facilitate ease of performance of WTP at a keyboard – in the case of Fujieda, it is less clear why he chose this tablature notation system, which may have been notated as an attempt at notational convenience.

employ pitches derived from subharmonics or “undertones”<sup>14</sup> as described by Harry Partch, thus allowing Fujieda to partition his total pitch gamut into two distinct modes. Fujieda designates A as the fundamental (1/1) and the lattice yields two non-equidistant seven-note modes that serve as the melodic and harmonic bedrock for KGS (Figure 5). Four of the pitches in the A and C Patterns are conceptually derived from subharmonics shown in red (8/7, 12/7, 9/7, 27/14) and six are derived from harmonics shown in purple (3/2, 9/8, 7/4, 21/16, 63/32, 189/128). Of the entire pitch gamut used in KGS, there are only three tones in common between melodic patterns: 1/1, 3/2, and 9/8 (Figure 6). In the same way tetrachords in regional Japanese music are named according to inner intervallic content, such as in the *miyako-bushi* 都節 tetrachord,<sup>15</sup> Fujieda also differentiates his patterns by the notes between written “perfect” fourths and fifths (however, sounding pitches can be inaccurate as 133 cents). Furthermore, I iterate that tuning employed in Patterns B and D, due to its unusual intervallic spacing, becomes a unique organizing pattern in the same manner as the *miyako-bushi* tetrachord. In Patterns B and D, the interval between 189/128 and 3/2 (a 63/32, 28 cent) and 63/32 and 1/1 (again, 28 cents), could be considered a reinterpretation and an exaggeration of the *miyako-bushi* chord, influenced by Fujieda’s interest in approximating the “growl” of a gamelan.

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<sup>14</sup> Partch derived his pitches from the overtone series and their inversions. Notes derived from the overtone series were referred to as otonal whereas pitches derived from their arithmetic inversions are called utonal.

<sup>15</sup> In Fumio Koizumi’s theory of Japanese music, most melodic units consist of tetrachords that contain a fundamental note, a perfect fourth above it, and a middle identifying pitch. The *miyako-bushi* tetrachord, with a minor second in-between the perfect fourth, is one of the most commonly heard tetrachords and can be heard in most *jiuta-sōkyoku* compositions. For more, see Blasdel and Kamisango, 2008.



### Mamoru Fujieda's KGS Tuning

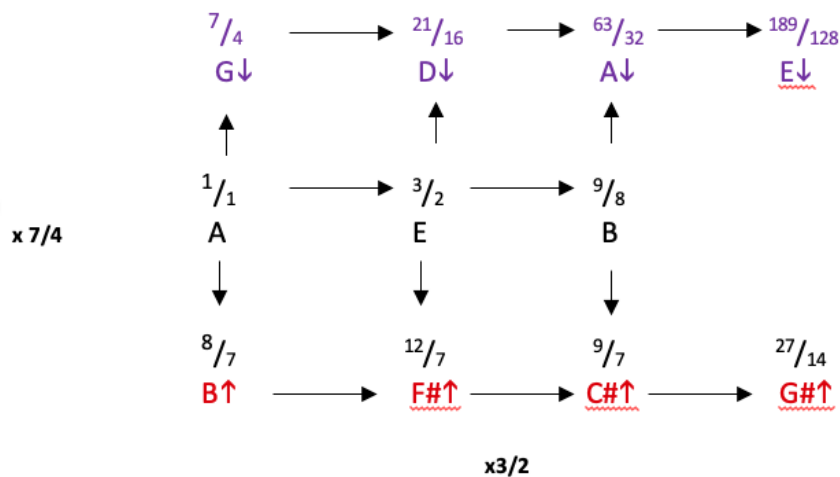


Figure 5: Tonal lattice of tuning relationships in KGS. Pitches in purple are unique to first and third movements and derived from otonal relationships. Pitches in red are derived from u-tonal relationships.

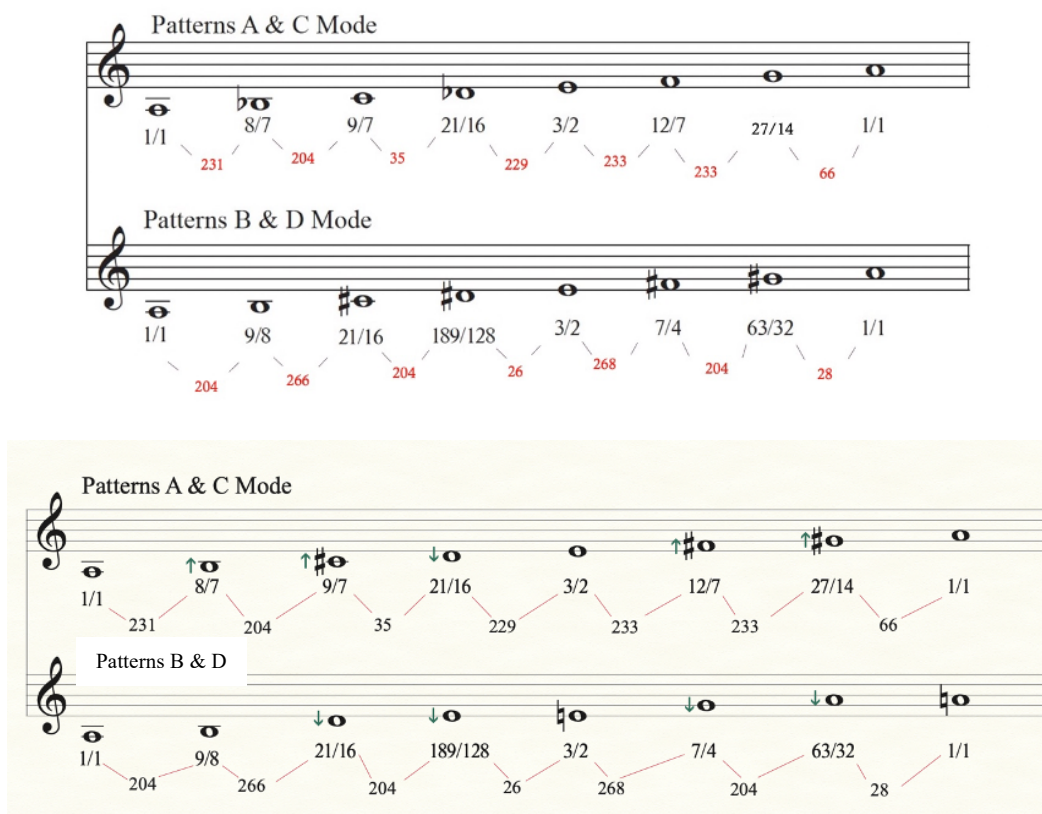


Figure 6: The two modes employed in KGS shown on in staff notation. The scales above without  $1/6^{\text{th}}$  tone accidentals are what Fujieda employs in the staff notation for KGS. The pitches are mapped to twelve tone equal tempered equivalents for ease of performance and do not reflect sounding pitches. The second figure shows the correct sounding pitches.

The intervals used in Fujieda's scale prominently feature intervals of roughly 200 cents, 230 cents, and 260 cents. These are consistent with the mean average slendro intervals of 231 cents, 240 cents, and 254 cents, thereby successfully approximate these Indonesian scales. However, the kotos in KGS are in fact tuned very differently from the gamelan as they are tuned without the stretched or compressed octaves heard in most gamelan.

Although gamelan often have paired instruments that are tuned to produce beats when played together, Fujieda's means of achieving this effect is very different than it is in Indonesian gamelan. Many instruments in a gamelan orchestra function in pairs, such as saron panerus, or bonang rincik and bonang barung. These paired instruments are tuned approximately 7 to 13 cents apart from one another to create beating effects when playing "unison" pitches. This is most apparent when unisons and octaves are struck. This shimmering effect caused by the convergence of near unisons and stretched octaves are considered by Indonesians to be more lively and more interesting to hear than perfect octaves and unisons (Tenzer 2011, Gann 2019, Arms 2021). Although Fujieda's koto tunings are designed to create similar shimmering beats through the gong chords of KGS, the "growls" – specifically the desired difference tones in his melodies/chords that approximate ombak-- are nearly 2 to 3 times wider than most gamelan.

## 1.3 Borrowing – Stylistic and Compositional Techniques

### 1.3.1 Techniques used in Traditional Japanese Repertoire Salient to KGS

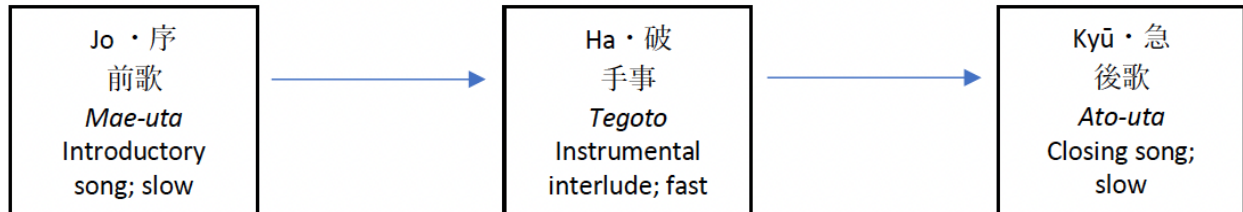


Figure 7: Jo-ha-kyū model of typical *jiuta-sōkyoku* composition. Other tegotomono style compositions may feature more extended tegoto instrumental interludes or extra middle songs. However, the major structural tenets of a tegotomono composition can be broken down into this general tripartite structure.

#### Jo-ha-kyū

*Jo-ha-kyū* is a Japanese aesthetic and structural concept with roots in *gagaku* that is applied to many performing arts. The sections of a typical *jo-ha-kyū* work are divided into an introduction (*jo* 序) and exposition or developmental section (*ha* 破) and a finale (*kyū* 急; figures 7 and 8). In the *tegotomono* 手事 style of *jiuta-sōkyoku* music for shamisen, koto, and shakuhachi, the *maeuta* 前歌 or opening song of a typical composition would be considered the *jo*, followed by a virtuosic interlude *ha* (figure 7; Burnett, 1989, Blasdel & Kamisango 2008).<sup>16</sup> The *atouta* 後歌 or final song of the *tegotomono* serves as the *kyū*.

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<sup>16</sup> For a more in-depth discussion of *jo-ha-kyū* in *tegotomono*, please refer to Burnett 1989 and Blasdel and Kamisango 2008.

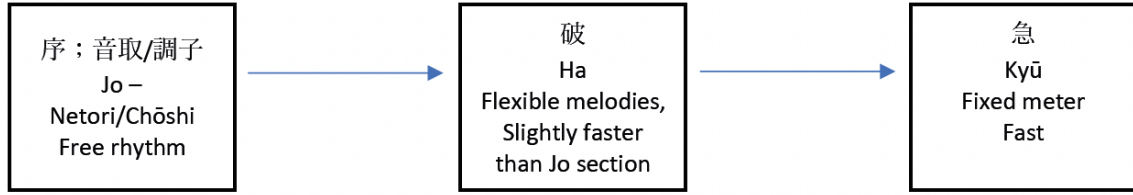


Figure 8: Jo-ha-kyū model of typical gagaku compositions (Tanaka and Koto, 2016).

In the context of *gagaku* compositions, the influence of *jo-ha-kyū* is more obvious (Figure 8). Traditionally, all *gagaku* compositions begin with an opening tuning piece, either a *netori* 音取 or *chōshi* 調子 that serve to establish the tonal mode of the suite and is part of the *jo* section. Once a modality is established a suite or individual piece is performed. The *jo-ha-kyū* structure is most apparent in multi-movement suites like *Goshōraku* 五常樂 or *Sandaien Ichigu* 三臺塩一具, that feature individual movements titled *jo*, *ha*, and *kyū*. *Netori*, *chōshi*, and movements titled *jo* compositions are typically written in free rhythm and performed at a slow tempo. *Ha* sections of a composition are typically faster in tempo and occasionally feature rhythmically ambiguous or free rhythm melodies. The concluding *kyū* section is usually the fastest portion of the composition, serving as the finale. However, even within single movement works such as *Etenraku* 越天樂 and *Bairo* 陪臚, skilled performers will gradually accelerate over the course of the composition, creating a different kind of temporal ebb and flow. Some teachers describe this as *jo-ha-kyū* and will sometimes extend this metaphor to the execution of individual sounds. By extension, each sound has its own energy and natural momentum.

I posit that KGS has a similar structural design to a typical *gagaku* suite. KGS' Pattern A<sup>17</sup> (*jo*) presents two of the structural hallmarks of the composition: gong chords<sup>18</sup> that punctuate the

<sup>17</sup> Fujieda calls each individual movement in a PoP collection a Pattern rather than a movement. Each pattern is labeled alphabetically (Pattern A, B, C, and D).

<sup>18</sup> I refer to large chords consisting of three notes or more as gong chords. These are not always presented in rhythmic unison, but function similarly to large gongs used in gamelan music that punctuate the ends of melodic cycles.

ends of melodies akin to gamelan music and melodies that are rhythmically offset akin to *jiuta-sōkyoku* text setting. Pattern B of KGS (*ha*) thoroughly explores the different melodic and rhythmic permutations available to the three kotos through rhythmic augmentation and diminution. Furthermore, it incorporates the idea of interlocking melodies found in gamelan music through overlapping melodies. Pattern C returns to a slower melodic style of movement, mimicking a second song that might appear in a longer style *jiuta-sōkyoku* work with multiple *uta* sections before a second *tegoto* instrumental interlude (still *ha*). Only after presenting a series of progressively harmonically complex gong chords saturated with more pitches in the first three movements (as well as increasingly intricate interlocking rhythms) does Fujieda present a rhythmically straightforward finale in Pattern D. The fourth movement (*kyū*) features a steady and comparatively easy to discern quadruple pulse that uses the simplest gong chords constructed from perfect fifth intervals, thus resolving all previous dissonant gong chords used in the *jo* and *ha* movements of KGS.

### ***Jiuta-Sōkyoku***

*Jiuta* 地歌 and *sōkyoku* 箏曲 are two genres of traditional Japanese chamber music that developed in Japan's Edo Period (1603-1867). *Jiuta* refers to compositions written for the shamisen 三味線 and voice while *sōkyoku* refers to works originally for koto and voice. These works were composed by blind musicians of the Tōdō guild of musicians. Typically, compositions were conceived as a solo song accompanied for voice and shamisen in the case of *jiuta*, or koto in the case of *sōkyoku*. A secondary string part was typically added by a second composer later. The shakuhachi part would often be added last or appropriated from a *kokyū* part. This type of chamber music would come to be known colloquially as *sankyoku* 三曲 (loosely translated, music of three

parts<sup>19</sup>). The most common form of music written for this ensemble would become known as tegotomono 手事物. This is a primarily vocal form of composition which features two songs (opening and closing songs referred to as *maeuta* 前歌 and *atouta* 後歌) and an instrumental interlude referred to as the tegoto 手事. More elaborate tegotomono compositions such as *Yaegoromo* 八重衣 feature a beginning, middle and ending song, as well as two extended tegotomono instrumental interludes. As in the case of gagaku, jiuta, sokyoku, and tegoto compositions follow the general principles of jo-ha-kyū.

Tegotomono compositions have a distinct way of presenting the song melodies similar in feeling to fourth species counterpoint. These melodies are essentially heterophonic in nature and vary according to the idioms of the instrument on which they are played. Voice and strings are performed in controlled but heavily syncopated relationship wherein the string melody's preceding pitch is then matched by the voice on the following beat/offbeat. This creates a stylized heterophonic relationship between the strings and voice that is a hallmark of jiuta-sōkyoku music. The transcription of *Iso Chidori* 磯千鳥 (figure 9) from Burnett's 1980 "Introduction to Jiuta Tegotomono" helps illustrate this point.

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<sup>19</sup> The name of this genre implies that proper performance requires the presence of all three parts, however this is not the case. Solo performances of jiuta-sōkyoku compositions are not uncommon, nor are duo performances of these works. Similarly, at year end studio recitals, it is not uncommon for an easier jiuta-sokyoku work to be performed by multiple players on the same part.

EXAMPLES 2a & 2b

ISO CHIDORI (MAEUTA)  
 Shamisen & voice by Kikuoka Kengyō  
 Koto by Yaezaki Kengyō

2a  
 Voice (slow)

U - ta ta ne

Shamisen

Koto

Translation: "Half asleep, the morning bell resounds against my pillow..."

(voice) 5 EXAMPLE 2b

no ma-ku

(shamisen)

(koto)

(voice)

ra ni i hi bi ku

(shamisen)

(koto)

Figure 9: Iso-chidori transcription (Burnett, 1980).

The voice enters on a G natural which is then joined by the strings on the downbeat of the first measure. In the first system alone, there are several instances of the pitches in the vocal

melody being traded between the strings and voice, similar to fourth species counterpoint. As mentioned in the previous section regarding gong chords and asynchronous soundings of germinal cadences in *jiuta-sokyoku*, the same phenomena can be witnessed in this example at m.5, beats 1 and 3, and m. 7 beats, 1 through 3 wherein the entire ensemble collectively hovers between C's upper and lower neighbors of Db and A.

There is some interesting surface resemblance to *danmono* 段物 style compositions, a type of theme and variations form. Famous examples of this include works such as *Rokudan no Shirabe* 六段の調, *Godan Ginuta* 五段砧, *Hachidan* 八段、 and *Midare Rinzetsu* 乱輪舌. Compositions like *Rokudan* and *Hachidan* are compositions with a fixed number of beats per variation, typically presented in 26 4/4 measures as standardized by Ikuta Kengyō (Adriaansz, 1970). Traditionally these types of compositions, roughly analogous to Western theme and variations, features a melody, which then undergoes some type of transformation. In *Jiuta-sokyoku*, these variations are 104 beats in length. These works make up a very limited percentage of compositions in the *jiuta-sōkyoku* tradition and are often purely instrumental works as in the case of *Rokudan*, *Hachidan*, and *Midare*, but are often the most widely recognized and well-known compositions for *jiuta-sokyoku* instruments. KGS's large structure bears some resemblance to *danmono* works in that Fujieda presents melodic cells which undergo several mutations and are repeated in a micro-theme and variations. In the same way that Fujieda creates his narrow *miyako-bushi* tetrachords featuring 1/8 tones, I argue that his *danmono* variation technique is equally subtle, wherein “variations” are created by offsetting a melody by as little as an eighth note, or by subtracting or adding a single new pitch to an existing melody.

While Fujieda has not described himself as working within the traditions or format of *danmono* or *jiuta-sōkyoku*, nor has it been mentioned during our correspondence, the hallmarks of



the compositional style have perhaps subconsciously intermingled with the cyclical nature of the generative melodies of KGS. The subtle manipulations of melodic patterns in KGS suggest that each individual Pattern in KGS could be viewed loosely as four separate themes and variations. By adding or subtracting a single eighth note, Fujieda creates a new mutation (variation) on a theme. This would be consistent with existing exemplars of *danmono* works such as *Midare* which is comprised of a theme ten or twelve<sup>20</sup> different variations, all of varying lengths. Alternatively, KGS could be seen as a type of tegotomono composition with Pattern A as a maeuta (opening song), Pattern B as a tegotomono, Pattern C as a nakauta 中歌 (middle song), and Pattern D as a second tegoto. There is no closing song. In addition to the concepts of *danmono*, the concepts of *honte* and *kaede* inherent to tegotomono repertoire are worth exploring.

### **Honte and kaede 本手・替手**

Honte 本手 refers to the principal melody of a composition<sup>21</sup>. This melody is always present in any *jiuta-sōkyoku* performance. The *kaede* 替手 is an optional secondary part that depending on the composition can be played alongside an entire composition (as is the case in works like *Tamagawa* 玉川) or exclusively for the *tegoto* section of a *jiuta-sōkyoku* composition such as *Kajimakura* 楫枕 and *Chidori no Kyoku* 千鳥の曲. According to Bonnie C. Wade in her 1976 *Tegotomono*, there are four kinds of *honte-kaede* relationships relevant to KGS:

- 1) An ornamental part to be played with a basic melody
- 2) Two equally interdependent parts played together
- 3) A second instrument on an ostinato (*kinuta-ji*)

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<sup>20</sup> Number of variations changes depending on what school the string players belong to.

<sup>21</sup> Honte and Kaede can be used to refer to main and secondary melodies in shakuhachi music as well and is typically seen in duo honkyoku compositions like Kumoi Jishi, Azuma Jishi, and so on.

4) A second instrument reiterating and exploiting the base pitch (sugomori-ji)

These types of relationships can be observed to varying degrees in Fujieda's KGS. They are most prevalent within Patterns B and D; however, elements of these relationships also exist in Patterns A and C. As it was not conceived as a tegotomono work, roles of each individual *koto* are not designated as *honte* or *kaede* from the onset, however they can be hypothesized as such (figure 10). For example, within the opening passage of Pattern B, the 20 string koto that has the highest sounding pitches could be considered to have the main melody. The 13 string koto adds tension by rhythmically anticipating the 20 string koto melody in m.2 beat 2, the m.3 pick up to beat 2, and the pick-up to the downbeat of m.4. This notated C# (sounding D↓) in the 13 string koto plucked just before the downbeat of m.4 anticipates the kenong dyad<sup>22</sup> in the 20 and 17 string kotos. This type of koto writing is reminiscent of the vocal and string writing common to jiuta-sokyoku music for shamisen and koto.

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<sup>22</sup> I refer to written dyads of intervals such as P4, P5, and octaves as slenthem dyads. The slenthem is a punctuating metallophone in the gamelan ensemble that helps delineate structural moments in a composition.

Figure 10: Potential honte and kaede readings at the beginning of Pattern B.

### Germinal Cadence in Jiuta-Sokyoku

While there is no precedent for halting melodic momentum as Fujieda does in *Patterns of Plants* in the source gamelan theory, there is precedent for this in traditional Japanese chamber music which makes extensive use of what Henry Burnett describes as germinal cadences. These formulae are meant to help articulate certain aspects of a composition's structure and often feature ornamental instrumental gestures that do not necessarily happen in rhythmic unison. The three examples below (figure 11) are taken from Burnett's 1989 analysis of Minezaki Kōtō's *Zangetsu*. The so-called germinal cadence even in its simplest form makes use of scraping of the strings (indicated by diamond noteheads on pitches C and G), depressing the already sounding strings on the shamisen (small Ab with ヱ character above), and finally, a plucked C in the koto, which is then raised a whole step by depressing the string left of the bridge. The germinal cadences as outlined above do not manifest themselves the same way as in KGS and are instead combined with Fujieda's impressions of Indonesian interlocking melodies.

The Germinal Cadence (9–10)

Musical notation for The Germinal Cadence (9–10). The score is written for Shamisen (top staff) and Koto (bottom staff). The Shamisen part features a melodic line with a trill-like ornament (marked with a '7') on the final note. The Koto part provides a harmonic accompaniment with a similar melodic contour.

Var. I (37–39)

Musical notation for Variation I (37–39). The Shamisen part (top staff) includes a trill-like ornament (marked with a '7') and a 'x' mark above a note. The Koto part (bottom staff) features a more complex rhythmic pattern with multiple beamed notes.

Var. II (45–46)

Musical notation for Variation II (45–46). The Shamisen part (top staff) features a trill-like ornament (marked with a '7') and a 'x' mark above a note. The Koto part (bottom staff) includes a fermata over a note and a 'p' dynamic marking.

Var. III (69–73)

Musical notation for Variation III (69–73). The Shamisen part (top staff) features a trill-like ornament (marked with a '7') and an accent (^) over a note. The Koto part (bottom staff) features a complex rhythmic pattern with multiple beamed notes.

Figure 11: The Germinal Cadence and three variations of it from Burnett's 1989 analysis of Minezaki Kōtō's Zangetsu (1989).

### 1.3.2 Indonesian Gamelan Structural Concepts and Theory

It is important to outline some certain basic analytical guidelines for this comparison between Fujieda's "gamelan" music and Indonesian gamelan music. Within Indonesia, there are a large variety of distinct types of gamelan and the word itself has become a prefix for many different types of Indonesian musical ensembles (eg. gamelan Degung, gamelan salendro, gamelan gong kebyar etc.) My analysis will primarily examine rhythmic structures of the styles with which I am most familiar: West Javanese (Sundanese) gamelan salendro and gamelan Degung Klassik repertoire. Furthermore, the types of scales designed by Fujieda as described in the previous chapter, as well as his interest in the works of Lou Harrison<sup>23</sup>, it seems most appropriate to primarily confine my comparative work to that of Central Javanese music<sup>24</sup>. In addition to Harrison's impact on Fujieda's music, it is also worth noting that on a tuning level, it is typical for a complete Central Javanese gamelan to have two sets of instruments, one in slendro, and the other in pelog. Similarly, in Sundanese *tembang sunda*, the *kecapi* (boat-shaped zither) performer will change the tuning of the instrument two times over the course of a complete multi-hour performance<sup>25</sup>. However, within Balinese gamelan music, notably Gamelan Gong Kebyar, there is no such second set of instruments tuned to slendro. Gong Kebyar works typically use a five-note pelog scale, often omitting tones [4] and [7]<sup>26</sup>. Because Fujieda creates two distinct scales for

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<sup>23</sup> Lou Harrison studied gamelan music with K. P. H. Notoprojo, aka Pak Cokro who was instrumental in teaching Central Javanese music around the world. For more on the relationship between Harrison and Cokro, see Miller & Lieberman, 1999.

<sup>24</sup> Given some of the available literature of the mid 1980's in California where Fujieda did his graduate studies, it is possible he encountered works like Larry Polansky's 1985 article on mean tunings of Javanese Slendro gamelan. Polansky at this time was at Mills College in Oakland CA, but whether Fujieda read this article is difficult to corroborate and only speculation on my part.

<sup>25</sup> Tembang Sunda performances can last up to five hours, and often start in one tuning (usually pelog), transition to a second tuning an hour or so into performance (often sorog), and will often end in a third, different tuning system (usually slendro). For more on Tembang Sunda, see Sean Williams, 2001.

<sup>26</sup> For an extensive discussion of Balinese Gong Kebyar theory, see Tenzer 2000.

Patterns A and C (1/1, 8/7, 9/7, 21/16, 3/2, 12/7, 27/14, 1/1) and Patterns B and D (1/1, 9/8, 21/16, 189/128, 3/2, 7/4, 63/32, 1/1), a parallel to Central Javanese slendro/pelog tuned instrumental sets seems more appropriate (see figure 6, page 12 to review KGS scales.)

### **The Structure of Gamelan Music –Colotomy, and Interlocking Melodies**

Both traditional koto and gamelan music (as well as contemporary musics written today) share heterophonic compositional underpinnings. Gamelan music is typically structured around a *balungan/lagu* (Javanese/Sundanese respectively for “melody) that follows a colotomic structure,<sup>27</sup> that repeats a given number of times and is delineated using gongs to mark the ends and beginnings of phrases (Tenzer 2011). Tenzer writes that perhaps, these gongs are also believed to hold significant spiritual meaning, as the sound calls to mind the Hindu belief of reincarnation:

Time in Balinese<sup>28</sup> *gamelan*, like many other musics through the world, has most often been characterized as cyclic or regenerative – notably by the Balinese themselves...the music normally returns repeatedly to the same ‘point’ like a planet in orbit or the hands on a clock. A cycle is formed in such a way that the last note of a melody is also the first note of its occurrence, as though a circle was being drawn and the final arc closed. That moment of renewal is of primary importance and is signified by a stroke of the large gong. Perhaps...this reflects the importance of reincarnation in Hindu belief. (Tenzer 2011)

Most forms of gamelan music have been described as fundamentally binary in form and meter. The music is cyclical in nature (Becker, 1990). Almost all compositions are played with a duple feeling. Melodic cycles are typically 8, 16, or 32 beats long, and are almost always demarcated by a strike of the largest gong in the ensemble. This is a basic unit of gamelan music and is called a *gongan*. When the final beat in the cycle is reached, the phase is repeated. To quote Judith Becker:

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<sup>27</sup> Colotomy is “an [Indonesian] musical foundation or timeline in which regular time periods are delineated by punctuating sounds.” The term was coined by ethnomusicologist Jaap Kunst (Spiller 2008).

<sup>28</sup> This concept of cyclicity is not exclusive to Balinese gamelan, and this same concept can be observed in Javanese and Sundanese gamelan repertoire.

The fundamental governing principle in gamelan music is the cyclic recurrence of a melodic/temporal unit, which is a musical manifestation of the way in which the passage of time is also ordered. In Java, time is represented as cyclical. Furthermore, time in Java is not represented as a single recurrent cycle, but several concurrent cycles running simultaneously (Becker, 1990).

These melodies are divided into groups of 4 beats units and are end weighted with the most important tone in the melody placed on the last beat.

Figure 12: Banjar Mati (gamelan salendro composition) kenongan (kenong part) (Ashworth 2002).

The kenongan seen above is for the gamelan salendro composition Banjar Mati (figure 12). This melody consists of four four-beat long units, that are separated into two 16 beat phrases. The encircled tones on the final beats of these units indicate a gong ageng strike.<sup>29</sup> All musicians will perform this final note on their respective instrument. Beat four of each unit is given the most stress, and unlike much music notated in 4/4 in the West wherein metrical stress is placed on beats 1 and 3, in Indonesian music metrical accents are almost always placed on beats 2 and 4. Put

<sup>29</sup> Tones in Javanese kepatihan cipher notation are numbered from low to high 123561. In Sunda (West Java), the musicians order the pitches in the opposite direction (543215).

another way, beats 2 and 4 are the strong beats. The kenong will often play on these intermediary beats in tandem with the kenong and other colotomic instruments on beats 2 and 4. In this example saron and panerus here would normally play on every single beat of the balungan (Irama lancer), creating a 32-beat melody. The kenong would play every fourth beat, and the gong ageng on the final beat of the cycle. Each instrument has a corresponding melodic phrase that either focuses on the nuclear tone, or hovers around it.



## 2.0 Implementation of Indonesian and Japanese Musical Concepts in KGS

### 2.1 Use of Gamelan Techniques in KGS

Gamelan influence is apparent in how Fujieda approaches phrasing, particularly in Patterns A, C and D by using large chords that function similarly to the gong ageng in gamelan music. The cyclical nature of gamelan music appeals to Fujieda who has talked about his deep interest in cyclicity and mandalas, themes that he has continued to explore in his recent evening-length works<sup>30</sup>. He has further explored this concept of living mandalas through spatial placement of performers on stage and considers his work on PoP to be part of a conversation with the “spirits of the plants” (Fujieda 2009, 2018). Pattern A features one primary melodic unit that is repeated multiple times in different rhythmic mutations. These different mutations could be considered variations on the same kenongan.

Each Pattern of KGS has a different gong chord that is plucked at the end of phrases like the colotomic structure of much gamelan music. Because the koto players lack an instrument akin to the gong with its substantial overtone spectrum, Fujieda uses large chords of three or more pitches to give the illusion of the presence of inharmonic pitches. In the gong chord in Pattern A, the 13 and 17 string kotos feature pitches derived from different overtone series eg. Pattern A’s gong chord with the E (3/2), from the 1/1 row, B $\uparrow$  (8/7), C $\#$  $\uparrow$  (9/7) and G $\#$  $\uparrow$  (27/14) from the 8/7 row, and a D $\downarrow$  (21/16) from the 7/4 row. Through using these types of chords, Fujieda tries to

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<sup>30</sup> Over the past ten years, Fujieda has recently explored making metaphorical mandalas and cycles more obvious to the audience by carefully placing performers in circles to mimic the shape of a mandala.

capture the “growl of a gamelan” (Fujieda 2009, 2021). The growl, or beating effects caused by pitches from different overtones being grouped together, become gradually more intense and reaches a climax of harmonic complexity in the final five bars of Pattern C before rushing to resolve all previous dissonant chords through resounding open fifths in Pattern D (figure 13).

Figure 13: Final gong chords in each Pattern. See figure 20, page 38 for complete set of gong chords and sounding pitches in Pattern A, and figure 28, page 50 for Pattern C.

In addition to the use of gong chords, Fujieda attempts to capture the same energy of other colotomic instruments like the kenong, through rhythmic unison dyads, typically notated as “perfect 4ths,” “tritone,” “perfect 5<sup>th</sup>”, unisons or octaves. The colotomic instruments such as the kenong (standing gong) in gamelan salendro, and instruments like the jenglong (small hanging gongs) in gamelan Degung are hit at the ends of gatra. Fujieda has transplanted a similar technique into KGS, and I will refer to these demarcating plucked chords as kenong dyads. These melodic demarcations serve to add rhythmic and harmonic interest. In Pattern A, three common spellings of kenong dyads are written as “A” and “Db” (figure 23, m.1) “Db” and “G” in (m.3) and “Bb” and “F” (m7). These spellings converted to sounding pitch are A-D↓ (470 cents, 30 cents flat of a perfect fourth), D↓-G#↑ (a 21/16, 695 cents, 7 cents flat of a perfect fifth), and B-F# (3/2, 702 cents, one cent flat of a perfect fifth).

The structural gong chords of KGS follow a subtle seesaw like trajectory, with the **root** notes of the gong chords descending during Patterns A and C and rising in Patterns B and D (figure 13.) This is analogous to Fujieda’s approach for conceptually deriving pitches from subharmonic

and harmonic series to create ebb and flow between Patterns (see figure 6, pg. 12). Individual movements in KGS do not modulate. Variation is instead created through subtle rhythmic alterations. Through changing the tunings in-between movements rather than during movements, Fujieda maintains the specific intervallic integrity of each melody.

The gong chords in Fujieda's work function similarly to the colotomic demarcating gongs heard in gamelan music and are presented in four different ways: with all notes plucked simultaneously by all three kotos (figure 14), with one koto anticipating the gong chord (figure 15), one koto plucking after the primary presentation of the gong chord (figure 16), or each koto plucking a different note in immediate sequential order (figure 17). In this manner, Fujieda's punctuating chords seem to have collided with a hallmark of the *jiuta-sōkyoku* repertoire of shamisen and koto, where the vocalist typically performs rhythmically offset figures akin to fourth-species counterpoint. I believe that these interactions between performers could be analyzed both from the standpoint of honte-kaede relations, or gamelan music. For example, the 17-string bass koto serves the role of colotomic instruments such as the gong, and kenong, and the 13 and 20 string kotos fill in the other beats of the melody. In Patterns B and D, the main honte and kaede melodies are traded back and forth between the 13 and 20-string kotos. Furthermore, gong chord types also often approximate the germinal type cadences as described by Burnett. Melodic sequences are rarely compounded, but gong chords are almost always orchestrated throughout the entire ensemble, though often not in strict rhythmic unison as in the case of gong chord types 2~4. These types of relationships can be seen extensively in Pattern B, mm. 50-87.

# pattern A

Figure 14 is a musical score for three koto parts: 13-koto, 20-koto, and 17-koto. The tempo is marked as quarter note = 50. The music is in 6/8 time and features a rhythmic unison of gong chord pitches. The 13-koto part is in the treble clef, while the 20-koto and 17-koto parts are in the bass clef. The dynamic marking is *mp*. A blue box highlights the final measure of the excerpt.

Figure 14: Gong chord type 1 – rhythmic unison sounding of gong chord pitches, Pat A mm. 5-6

Figure 15 is a musical score for three koto parts: 13, 20, and 17. The music is in 6/8 time. The 17 string koto plucks its string before the rest of the ensemble. A blue box highlights the first measure of the excerpt.

Figure 15: Gong chord type 2 – rhythmic anticipation of one voice. In this example, the 17 string koto plucks their string before the rest of the ensemble, Pat. B, m.97.

Figure 16 is a musical score for three koto parts: 13, 20, and 17. The music is in 6/8 time. The 20 string koto is delayed in relation to the other kotos. A blue box highlights the first measure of the excerpt.

Figure 16: Gong chord type 3 – delayed plucking of notes by multiple voices. This example shows the 20 string koto is delayed in relation to the other kotos, Pat B, m.50.



Figure 17: Gong Chord Type 4 – rhythmically staggered sounding of a gong chord. Pat. B, m21.

The gong chords in KGS - particularly in Patterns A and C - typically pause the forward momentum and allow the different vibrating strings and their pitches to resonate and die out before players begin a new phrase. This is very different from most traditional forms of gamelan music. In these works, reaching the final note of a *balungan* with the ringing out of a gong does not mean that the music pauses. On the contrary, in much Indonesian music, regardless of composition and regional style, the final note of a *balungan* often maintains forward momentum rather than acting as a moment of cadential tension and release. Lysloff writes in his 1985 article:

A peculiar feature of balungan is that it never actually stops. This is especially apparent in Solonese [gamelan music]. The balungan of a piece may rest at certain points, but only as a sustained tone. The balungan really stops only when the piece stops. In other words, the balungan of a piece is a never-ending cycle, as is the underlying meter. Balungan tones may be sustained through stroke rests, but generally there are no sound rests (i.e., rests in the Western musical sense); a tone is sustained either through rests or reiteration, and it continues to sound until the next tone is played (Lysloff 1985).

In Pattern A gong chords are typically sustained for up to two full 6/8 measures in the first movement, two to four beats in Pattern B, and one to two and a half beats in Pattern C. The four previous figures also illustrate that unlike in a typical gamelan melody, momentum halts so the koto chords can ring for their full duration. Pattern D is the only one that seems to break this pattern of momentary rest and thus seems to have the most in common with the rhythmic profile of traditional gamelan music.

## **2.2 Gong Chords in KGS Pattern A – Opening, Intermediary, and Release Chords**

As mentioned in the previous chapter, KGS uses chords of three or more notes to create the feeling of end-weighted structures like those heard in Indonesian gamelan music. Just like in gamelan salendro and gamelan degung compositions, the composite sound of the gong is influenced by the specific tones that are surrounding the sound of the gong itself. For example, a gamelan salendro that plays the pitch 4 on top of a gong ageng strike will sound and function very differently than when the gong ageng is accented by the pitch 3. A similar effect can be felt in gamelan degung music when a gong ageng is paired with the pitch 2 instead of 5. Fujieda achieves a similar effect within KGS through using specific pitch collections to create a sense of tension and release. Within degung and salendro music (and unlike jiuta-sōkyoku music), it is very rare for a single instrument to carry an entire melody and as a result, melodies are usually played by multiple instruments.

# pattern A

Mamoru Fujieda 1996

The musical score for Pattern A consists of three staves: 13-koto (top), 20-koto (middle), and 17-koto (bottom). The tempo is marked as quarter note = 50. The music is in 8/8 time. The 13-koto part features a main melody (honte) with walking eighth note sequences and floating gong chords. The 20-koto and 17-koto parts provide accompaniment (kaede) with their own separate parts. Red boxes highlight gong chords, with arabic numerals 1-4 above them indicating the type. Green boxes highlight kenong dyads. The score shows alternating walking eighth note sequences and floating gong chords.

Figure 18: opening 16 measures of Pattern A showing gong chords and kenong dyads. Chords in red boxes are gong chords, and arabic numerals 1-4 above the boxes indicated which type of gong chord they are. Green boxes indicate kenong dyads.

Pattern A alternates between walking eighth note sequences and floating gong chords (figure 18). It could be argued that the 20-string and 17-string kotos are performing the roles of colotomic instruments used in gamelan ensembles and could even be theoretically described as their own take on gatra, with core notes  $F\uparrow D\downarrow A G\uparrow$ . Here the 13-string koto is performing the main melody (honte) and is accompanied by the 20 and 17-string kotos with their own separate parts (kaede). Green boxes indicate kenong dyads.

Within Pattern A (and C), gong chords serve one of three functions: sounding the beginning of a melody or Opening Gong Chord; serving as an intermediary chord, and a closing chord that signals the end of a phrase. Within the A section, gong chords occur every 5 to 20 beats with type 1 chords being the most common. Sections A and A' can loosely be divided into "gongan" that -

depending on the melodic mutations at play - are approximately 6 measures long or between 35 and 42 beats. While not always equidistantly placed, kenong dyads can usually be heard in the A and A' sections in between gong chords of any type typically 2 to 10 beats after a gong chord. Additionally, gong chords typically follow a pattern of opening, intermediary, and release (figure 19 and 20). Named according to where they appear in melodic phrases, "opening" and "release" chords contain pitches from 7/4 derived both overtonally and utoonally. These opening and closing chords typically use pitches derived from different overtone/series and therefore create inharmonic beatings that would not exist if they were directly related to one another. For example, the opening chords of mm. 7, 13, and 19 consist of pitches  $D\downarrow$  (21/16),  $F\#\uparrow$  (12/7), A (1/1) and  $C\#\uparrow$  (9/7). These notes are derived from three different overtone/undertone series. Intermediary chords like those at mm. 10, 14, 20, and 39 consist primarily of tones  $C\#\uparrow$ (9/7), E (3/2), and A(1/1). Release chords such as those at mm. 5, 17, and 30 consist of pitches  $B\uparrow$  (8/7),  $D\downarrow$  (21/16), and  $G\#\uparrow$  (27/14). Opening chords and Intermediary chords have both the 1/1 and 9/7 as core tones, with the  $D\downarrow$  (21/16),  $F\#\uparrow$  (12/7) coalescing into E (3/2). The  $D\downarrow$  (21/16) is a common tone between the opening and release chords, allowing for a smooth cyclical rotation throughout Pattern A.

The opening chords following a "release" chord are often approached with all voices moving downwards (e.g., mm. 5-7, mm. 11-13, and mm. 23-25) with the preceding intermediary chord being higher than the previous gong chord (e.g., mm. 1-2, mm. 7-8, mm. 13-14, and mm. 19-20.) The harmonic profile of section A' is a truncated and more embellished version of A. The pitch trajectory of the gong chords is shown in figure 21. Roman numerals 1-4 above the chords indicate which of the four styles the gong chord is heard: 1) all pitches sounding simultaneously; 2) one koto anticipates the other voices; 3) one koto plays their chord tones late in comparison to



the other kotos; 4) kotos play a gong chord in near rhythmic unison. In the case of gong chords 2 and 4, late/early pitches are placed next to the gong chord number.

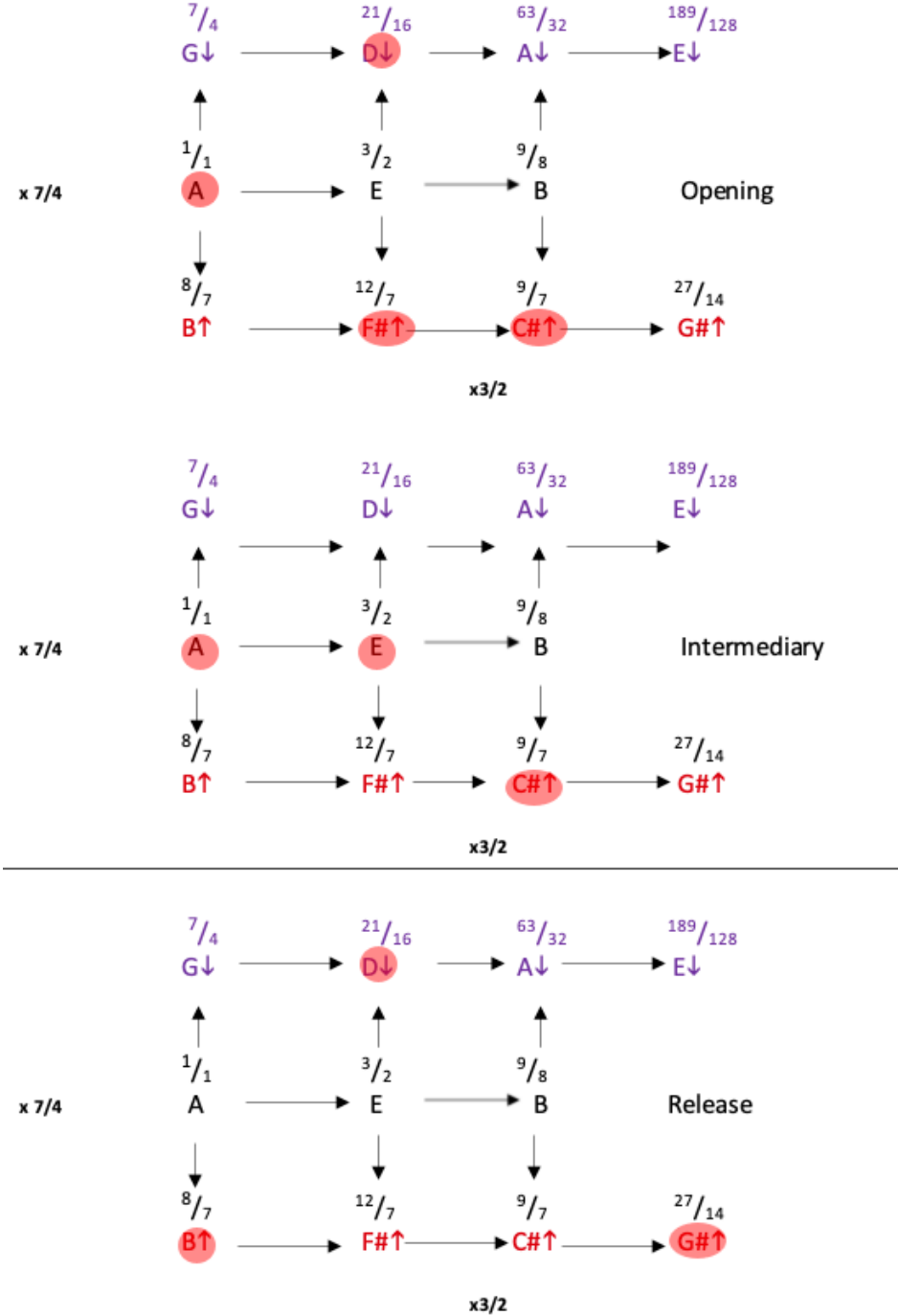


Figure 19: Gong chord rotation for Pattern A shown on tonal lattice.

Score **A**

ong chord reduction

2

**A**

**B**

coda

©

Figure 20: Five line staff reduction of gong chords in Pattern A, sounding pitches.

The B section (mm.37-65) features dense, energetic clustering of successive gong chords and serves as the climax of the movement, both in terms of pitch density as well as melodic voice leading. Note that the first two chord rotations between mm. 37-48 end with a pronounced leap from E4 (3/2) to C#↑ (9/7) which then precedes to the melodic high point of the entire composition between mm. 49- 54, before returning to essentially the same melodic registers of the rest of the piece. Most of the chords throughout this section essentially maintain the same general construction as those in the A and A' sections.

### 2.3 Mutations – Variation in Pattern A

Most phrases in Pattern A are between 36 and 42 beats<sup>31</sup> in duration. Phrases in the A and A' sections last between 36 and 39 beats. Phrases within the B and B' sections are between 36 and 42 beats. Phrases in the A sections are primarily rhythmically active (consecutive eighth notes) whereas the rhythm in the B section features more pauses with shorter individual melodic mutations. Although the time signature is 6/8 - suggesting the strongest accents should fall on beats 1 and 4 - much of Pattern A's phrasing is rhythmically ambiguous. The beaming of the primary motive played by the 13 string koto also suggests that beats and 1 and 4 will be emphasized. However, the low point of the first melodic unit (figure 21 written Db, beat 5) coincides with the 17 string kotos plucked A (approached from a E/Db dyad) places a strong phenomenal accent on beat 5, and is followed by a type 2 gong chord on beat 3 of m. 2, again going against the implied

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<sup>31</sup> For the rhythmic analysis section of the dissertation, I favor analysis by counting beats rather than measures. As patterns become offset by single beats such as in Pattern A mms. 25, 31, 37 etc, it is simply easier to quantify variations.

structural accents of most 6/8 phrasing. This rhythmic ambiguity of simple triple meter, or complex duple permeates Pattern A. This is further heightened by the performers' interpretation of the movement, which is rhythmically more fluid than the notation suggests. The 6/8 meter of the work – a meter that is absent from the majority of *jiuta-sōkyoku* and gamelan works – and Pattern A's melodic mutations further complicate the intercultural nature of this work. The opening 16 measures of pattern A presented below features possible phenomenal accents in each koto part that disrupt the typical flow of strong/weak structural accents in typical 6/8 phrasing.

## pattern A

*Mamoru Fujieda 1996*

The musical score for Pattern A consists of two systems of staves. The first system covers measures 1 through 8, and the second system covers measures 9 through 16. Each system includes three staves: 13-koto (top, treble clef), 20-koto (middle, bass clef), and 17-koto (bottom, bass clef). The tempo is marked as quarter note = 50. The key signature has one flat (B-flat). The score includes dynamic markings such as *mp* and *1*. Blue oval accents are placed over various notes in all three parts across both systems, indicating possible phenomenal accents.

Figure 21: Possible phenomenal accents in the opening of Pattern A.

The primary theme of Pattern A undergoes several mutations throughout the movement (figure 22.) The first iteration of it is repeated three times before being offset by a single eighth at m. 17, thereby offsetting the 13 string koto from the rest of the ensemble at m. 19, creating a

substantial metrical displacement. Additionally, an extra pitch is added to the main melody, becoming mutation B. Two pitches are then removed to create mutation C. One more pitch is removed in mutation D, and the written Db's length is doubled. Mutation E removes the long Db and instead adds a 3 beat long F before its final sustaining pitch. Mutations G, H, and I, which occur during the B section of the work are the shortest and coincidentally occur during the densest gong chord section of the piece (figure 23). Through freely elongated and shortening the primary melodic unit Fujieda creates a danmono through subtle rhythmic changes that upset the overall 6/8 metrical flow of the music.

The figure displays six staves of musical notation, each representing a different mutation (A through L) of a 13-string koto melody. Each staff begins with a boxed letter label. Above the final note of each phrase is an eighth note with a number (8, 9, 7, 7, 9, 6, 6, 9, 9, 8, 9) indicating the total length of the melodic cell. The notation includes treble clefs, stems, beams, and various note values (quarter, eighth, and dotted notes).

Figure 22: Melodic transformation of 13 string koto melody in Pattern A. Eighth notes above final notes of the phrases indicate the total length of a melodic cell.

Gong chords 2 and 3 also present further complications. Mm. 57-64 contains 9 gong chords, 4 of which are not type 1 chords. The first three type 1 chords all fall on accents that could be considered more common of  $\frac{3}{4}$  structural accents than  $\frac{6}{8}$ . Type 2 and 3 gong chords feature rhythmically offset presentations of chords. Intermediary pitches in the case of type 2, and late notes in the case of type 3 are almost always at least a written 3<sup>rd</sup> away from the last heard pitch (eg. mm. 59-60 13 string koto; 17) further obfuscating the sense of a proper feeling of  $\frac{3}{4}$  or  $\frac{6}{8}$ . With each iteration of a type 2 or 3 gong chord, this type of rhythmic ambivalence persists. Fujieda continues to play with this rhythmic ambivalence throughout Pattern A.

The image shows a musical score for three staves: 13 string koto (top), 20 string koto (middle), and 17 string koto (bottom). The score covers measures 57 to 64. Red boxes are drawn around specific chords in each staff, with numbers 1, 2, 3, and 4 written above them to indicate gong chord types. Green boxes are drawn around pairs of notes in the 20 and 17 string koto staves, indicating kenong dyads. The notation includes various note values, rests, and accidentals.

Figure 23: Gong chords between mm57-64 (Pat A). Gong chords and their types are in red and kenong dyads are in green.

In contrast to this, mutations in the 17 string koto pattern are extremely subtle (figure 24). For example, mm. 1-12 (A section) and mm.66-77 (A' section) have a similar rhythmic and pitch profile. The difference between these two mutations is how the phrase begins (e.g. descending high eighth note on beat 1 landing on a strong off placed beat 2 dyad in m72 compared to m1). Mm.13-18 presents another six-measure phrase that, instead of being repeated similarly to mm.66-77, is truncated into a five-measure phrase that leads into the coda. This same thing can be seen in the first 30 measures of Pattern A, as well as mm. 66-82 of the 20 string koto (figure 25). When the three parts are deconstructed and laid out comparatively, it becomes clear that the 17 string and 20 string kotos are functioning as a secondary part (kaede) to the 13 string koto which carries the

main melody of Pattern A, either as an ostinato or exploiting base pitches (type 3 and 4 kaede relation).

Pattern A - Gesture Transformation of Individual Parts

17 String Koto

Pattern A - Gesture Transformation of Individual Parts

3

Figure 24: 17 string koto part, notated using Fujieda’s notation style that does not reflect sounding pitches. This chart shows each melodic pattern played by the 17 string koto, renoted to start with the downbeat of a measure. Number in parentheses indicate where the beat on which a phrase would start in a given measure.



20 String Koto

49 (b6)

57 (b3)

66

72

78

83 (codata)

89

4

7

13

19

25 (b2)

31 (b3)

37 (b5)

43 (b6)

Figure 25: 20 string koto part, notated using Fujieda’s notation style that does not reflect sounding pitches. This chart shows each melodic pattern played by the 17 string koto, renoted to start on the downbeat of a measure. Numbers in parentheses indicate where the phrase would start in a given measure.

## 2.4 Rhythmic and Metrical Mutations in Pattern B

The rest of the Patterns in KGS from this point on are notated in 4/4 time; however, this does not mean the works are operating on the assumption that beats 1 and 3 - or 2 and 4 in the case of gamelan music – are where the metrical emphases lies. This is very much the case in Pattern B, wherein regular metrical emphasis is avoided to create a constant sense of push and pull. Gong chords are plucked at irregular intervals, but because of the nature of the mode used in Pattern B and D, they lose the same sense of opening, anticipation (intermediary chords), and closing that are hallmarks of Patterns A and C. The gong chords in this pattern will be called clang, after James Tenney’s 1988 *Meta / Hodos*. Clang is defined by Tenney as: “[something] to be understood to refer to any sound or sound-configuration which is perceived as a primarily musical unit – a singular aural gestalt (Tenney, 1988.)” Fujieda’s tunings in Patterns B and D are not interested in creating feelings of opening and closing or anticipation, but rather in what kinds of beating patterns emerge from creating subtle variations in nearly identical melodies.

The general feeling of Patterns B and D could be described as a modern take on the *danmono*<sup>32</sup> form from *jiuta-sōkyoku* works, inspired by interlocking melodic patterns used in gamelan music. The general shape of the movement is a gradual 49 bar crescendo in the form of increasing rhythmic and contrapuntal density. Mm. 50-78 explore some of the melodic and harmonic possibilities inherent in the tuning and explores melodies that exploit the 28 and 26 cent intervals in the scale employed. These near 1/8 tone intervals are meant to approximate the sound of stretched octaves found across gamelan instruments that produce beatings when unisons and

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<sup>32</sup> It is not uncommon for larger form tegotomono works to feature a small danmono section. One such example, *Onoe no Matsu* 尾上の松 features a three part danmono after it’s maeuta.

octaves are heard. It is followed by a coda from mm. 87 to 99 which gradually decreases in rhythmic and dynamic intensity. This structure mimics a typical danmono structure like *Rokudan* or *Midare*, and given the increased rhythmic syncopation between mm. 50-78, successfully emulates the same type of *jo-ha-kyū* structure inherent to that music.

As previously mentioned, gong chords within Patterns B and D do not maintain the same function of opening, intermediary, or closing and instead serve as a series of moving harmonic goal posts. Their respective sounding styles (rhythmic unison, one pitch early, one pitch late, or all pitches sounded in close rhythmic proximity) approached in tandem with the germinal cadence approach as posited by Burnett illuminate a possible overlap between Fujieda's music and jiuta-sokyoku music. Germinal cadences in Pattern B typically manifest themselves as unisons, near perfect octaves, or near perfect fourths and fifths. Within this movement, Fujieda makes regular use of these intervals as cadential points (eg., mm. 4, 7, 14, 16, 17, 22, 23, 33, 35, 43, 44, etc.) This general sense of cadences, tension (through use of intermediary), and specifically release is explored extensively between mm. 50-72 as the frequency of successive clangs throw into question the listener's sense of where the on and off beats are (figure 26).

The figure consists of three systems of musical notation, each with three staves (13, 20, and 17 string koto). The first system covers measures 53-60, the second covers 57-64, and the third covers 61-68. Red boxes enclose groups of notes representing gong chords, while green boxes enclose pairs of notes representing slenthem dyads. Fingerings (1, 2, 3) are marked above various notes throughout the passage.

Figure 26: Pattern B mm53-63 showing occurrence of gong chords in red and slenthem dyads in green.

The gong chords shown in figure 26, due to their density and harmonic complexity, serve as a series of repeated phenomenal accents that shift focus from the on beat towards the offbeat. This creates a consistent forward moving syncopation, again not unlike those heard in the tegoto sections of many jiuta sōkyoku works. Several of the early/delayed pitches in gong chords 2 and 3 are functioning as a type of kaede melodic embellishment (eg., mm. 57 and 59, 20 string koto) or possibly an approximation of interlocking gamelan melodies (eg., mm. 54, 13 string koto, mm. 59, 13 string koto). It is not uncommon for gong chords 2, 3 and 4 to resolve or hover around pairs of pitch centers, especially E↓ and E (eg., 13 string koto mm. 53-65), and A↓ and A (shared between 20 and 17 string kotos, mm.53-65.)

It is in Pattern B (and D) where Fujieda's "growl of a gamelan" becomes audible to the listener. Again, gong chords and kenong dyads serve to highlight the end of sections as in a balungan, but also are used here extensively for melodic embellishment. The gamut of pitches used in Pattern B focuses more on subtle harmonic and melodic alterations that arise from integrating 1/8 tone melodic steps into the texture more than on the unfolding of a specific progression as in Pattern A.

Individual instrument parts are again assigned melodic cells that mutate frequently and subtly to create interest. The 13 and 20-string kotos take turns exchanging the primary melodic materials (*honte*) with the 17-string bass koto playing mostly an accompanying part (*kaede*). The 13 and 20-string kotos in Pattern B fulfill the first two styles of *honte/kaede* as described by Wade: an ornamental part to be played with a basic melody, and two equally interdependent parts played together. Viewed through another lens, these two individual parts combine to become a new compound melody. Mm.1-32, the 17-string bass koto acts according to the fourth *honte/kaede* style outlined by Wade: a secondary instrument reiterating and exploiting the bass pitches. The opening 32 measures show that the 17-string koto serves as a bassline, while also presenting punctuating gong chords and kenong dyads that frame the 13 and 20 string koto melodies.

Fujieda discusses KGS in his only English language publication, an article in John Zorn's *Arcana* Vol. 4. In it, he talks about an 1/8 tone interval inherent in the scales in KGS, and they are most audible in the bass koto reduced melody (see figure 27.) This is audible in passages of lower activity such as mm. 5-7, mm. 8-12, and mm. 67-86. In the latter extended passage, the 17-string bass koto starting on the D#/E dyad, begins playing a melodic passage that changes the type of "E" that is heard. Note that the notated D# here is in fact an E↓ and not an E, which becomes a focal point for the melody to return to, a unique mutation on the 4th type of *kaede* relations, *ostinato*

patterns. This in turn changes the overall harmony that is produced by all three kotos. An exemplar of this is audible between mm. 74-86 (figure 27). This type of writing in the 17-string koto occurs several times throughout the movement.

The figure displays musical notation for measures 73-86. The top section shows Fujieda's notation for three koto parts (13, 20, and 17 strings). Red boxes highlight specific melodic lines, and green boxes highlight others. Fingerings (1, 3, 1, 3, 2/4) are indicated above the notes. The bottom section shows a gong chord reduction with chord symbols: m74b3, 4, m75, b4, m76b2, m77b2, m78b2, b4, m81b3, m82b2, b4, m83b4, m85, m86.

Figure 27: Pattern B mm73-80 in Fujieda's notation and gong chord reduction of mm74-86.

### 2.5 Pattern C and Pattern D

Pattern C while nearly identical in tempo to Pattern B has a slower and more relaxed feeling than the previous movement. The honte role is filled by the 13 string koto and is accompanied by

the 20 and 17 string koto in the form of slenthem dyads and gong chords, that return to a pattern of opening, intermediary and release chords. Like Pattern A, Fujieda places phenomenal rhythmic accents in places that disrupt the typical sensation of a piece notated in 4/4 time. Gong chords often fall on offbeats of 2, 4, and the offbeat of 3, perhaps a nod to the gamelan source material that typically features its strongest rhythmic accents on beats 2 and 4. Pattern C's primary melodic material consists of a scalar melody that ascends and descends over the course of the movement. The 20 and 17-string kotos collectively explore the fourth type of kaede relationship, exploiting a base pitch, often moving in near parallel motion exploring non 12TET "perfect" fourth intervals inherent in the tuning system. The chords at mm. 3 and 4 (figure 28) are the most commonly heard in Pattern C. The regular progression of chords in stacked fourths allows a natural buildup of tension into Pattern D which returns to the Pattern B tuning that exploits the 1/8 tone interval in its scale.

Written

Gong chord reduction

m3 m4 m11 m18 m24 m33 m35 m43 m46 m52 m57 m58

Sounding

m3 m4 m11 m18 m24 m33 m35 m43 m46 m52 m57 m58

Figure 28: Gong chord reduction of Pattern C showing both Fujieda's notation (top system) and sounding pitches (bottom system).

Figure 29: opening of Pattern D showing germinal cadences at mm 4, 8 and 12.

Pattern D is the fastest and shortest of movements in KGS and can be broken down into six nearly equal sections labeled A, B, C, D, E and A'. These sections can be combined into a *jo-ha-kyū* structure, wherein A is *jo*, B C and D are *ha*, and E and A' are *kyū*. As in Pattern B, gong chords function more as phrasing goal posts and therefore can be identified as clangs. However, rhythmically this piece has the most in common with the gamelan source materials as momentum remains constant in comparison to the previous patterns. Most moments of pause or rest come on plucked dyads at the ends of phrases, almost always as non 12TET fifths or fourths. These are germinal style cadences that occurs on mm. 4, 8, 12, 16 (figure 29), 58, 62 and 65. The notated “G#” is a low A natural, approximately an 1/8 tone lower than the 1/1 fundamental of the piece. Similarly, the notated D# is a low E natural, also approximately an 1/8 tone away from the 3/2, in effect acting as the ultimate harmonic resolution to all previous gong chords in the piece. (see figure 13, page 27). The final gong chords that punctuate the A melody of Pattern D end with



plucked E's and A's, approached in parallel motion from 1/8 tone neighbor tones. Most of the phrases presented in Pattern D are end weighted, with perfect intervals as intended goal posts. This is particularly observable in the presentation of melodies in section A and A' (mm. 2-4 and mm. 62-65), in section B (mm. 17-19), and in section E (mm. 54-55).

The same end-weighted goal posts appear in sections C and D with some deviations. The primary melody (honte) is presented on the 20 string koto with an equally important supporting melodic line (kaede type 2) in the 13 string koto part. Fujieda's melodies are presented in parallel harmonies, typically with the 13 string koto performing melodies in parallel motion with the 20 string koto, producing a series of fourth-like intervals and representing the moments of greatest harmonic and rhythmic tension in the movement. Section C in particular serves as a transitional bridge to the D and E sections, wherein the entire ensemble begins harmonizing the melody presented in the 20 string koto (mm. 39-57).

	Jo 序	Ha 破			Kyū 急	
Section	A	B	C	D	E	A'
Measures	1-16	17-29	30-36	36-47	48-57	58-65
Phrase duration and occurrences	Even phrases 16 q : 4x	Uneven phrases 14 q : 3 11 q : 1	Uneven phrases 11 q 15 q	Uneven phrases 10 q 19 q 17 q	Even phrases 8 q : 5x	Even phrases 16 q : 41
Total Beats per section	64	66	26	46	40	32

Figure 30: Table showing the jo-ha-kyū structure of Pattern D. q= quarternotes.

### 3.0 Neither Kimono nor Batik – Conclusion

KGS’s compositional world is one that doesn’t exist in any traditional Indonesian or Japanese music. In this situation, KGS and by extension Fujieda wear neither a kimono nor an Indonesian Batik-patterned shirt. In his effort to convey an “atmosphere of gamelan music,” Fujieda created a complex intercultural listening environment. However, his compositional choices are not consistent with the stylistic tenets associated with this genre, and any similarity to *jiuta-sōkyoku* and gamelan music seems to be accidental rather than intentional. During our email correspondence, Fujieda informed me that one of his primary interests when composing KGS was to explore the tonal implications of the seven-limit just intonation mode employed by La Monte Young in his WTP, rather than attempting to directly emulate gamelan music. “[KGS] has nothing to do with the style or method of gamelan directly” (Fujieda 2021). Despite this, my analysis reveals the structural parallels that I believe disproves Fujieda’s statement.

Other issues about PoP, especially around intonation in Fujieda’s music exist, particularly about his deep interest in transcribing different existing Collections from PoP. This represents a striking shift from earlier works in PoP—including KGS—where very specific tunings were chosen for particular instrumental ensembles. In the liner notes to *Marie Nishiyama plays Patterns of Plants* (2018) Fujieda writes: “transcription [and arrangement] is also important. A piece (pattern) is not restricted to a fixed instrument (or instrumentation), so the same melodic pattern transforms itself in various ways through a free transcription of the instruments that can perform the piece” (Fujieda 2018). I feel that because of the unique harmonic materials from seven-limit derived materials, KGS has not been transcribed like other collections in PoP and therefore retains

a unique harmonic identity compared to other collections. Similar to how a gamelan's tuning changes over time and its own *embat* will gradually emerge, KGS—like an older gamelan—has maintained its singular identity in comparison to other Collections in PoP. However, few of the other PoP transcriptions by Fujieda leave the confines of Pythagorean or well-tempered tunings, perhaps suggesting it is the instruments and not the tuning that instills character in a piece. Within the last ten years, instead of exploring the possibilities presented by a single tuning system as in KGS, Fujieda seems more interested in a flexible approach to choosing tuning systems (e.g. Werckmeister III, Pythagorean, and even twelve-tone equal temperament). This shows that Fujieda seems to be more interested in observing the variations that occur when the same melody is presented on a different instrument and/or tuning system.

To that end, Fujieda has gone on to transcribe other collections from PoP for the gamelan *degung* ensemble, such as the 19<sup>th</sup> Collection “The Olive Branch Speaks” (オリーブの枝が話す) and the 27<sup>th</sup> Collection. Other compositions such as his 2020 *Gamelan Mandala* written for Paraguna Group, a Japanese gamelan ensemble, feature the same compositional method employed in PoP. He has an ongoing curiosity in borrowing techniques from gamelan music and applying to them to other instrumental ensembles. However, I would argue that KGS's fluid means of adopting gamelan and *jiuta-sōkyoku* techniques in tandem with its unique tuning that is neither Japanese nor Indonesian is what produces this compelling world more so than Fujieda's recent works for actual gamelan instruments.

Fujieda's own interest in transcribing different patterns for different instrumental ensembles is something that does to some extent happen in gamelan settings. For example, the *Degung Klasik* repertoire and certain *gong kebyar* works might be performable on a large variety of ensembles across the world, even though each set of instruments will have its own *embat* and

thus leave its own signature on a composition. Perhaps through each new transcription, Fujieda allows instrumental ensembles to imbue each transcribed Collection with its own character and feeling using different tuning systems chosen in conversation with performers.

What emerges as more problematic is Fujieda's continued borrowing of gamelan techniques in certain compositions like the the 25<sup>th</sup> Collection (2012) containing movements titled "Gamelan Cherry" and "Gamelan Arabesque." These movements are composed with melodic patterns extracted from cherry plants and use pentatonic melodies with end-weighted cyclical materials, like Indonesian music. However, when performed on a twelve-tone equal tempered instrument such as the piano, much of the charm and intrigue of the composition is lost, lacking the nuance provided by just intonation tunings. This specific type of appropriation resembles an act of musical syncretism as described by Yayoi Uno Everett in her 2004 article "Intercultural Synthesis in Postwar Western Art Music: Historical Contexts, Perspectives and Taxonomy." In this instance, pentatonic melodies reminiscent of Indonesian music are employed on an equal tempered instrument, "transplant[ing] specific timbral or scalar elements of Asian instruments onto their Western counterparts." (Everett 2004). Given Fujieda's extensive experiments in microtonal musics and other hybridized PoP Collections, the use of equal tempered instruments to play these works is challenging for me to accept. Fujieda's most compelling works explore unique tuning systems that explore new harmonies that as shown in KGS *cannot* exist in equal temperament. Should Fujieda's work inspires someone to further investigate the source musics (jiuta-sōkyoku, gamelan etc) and in the process, audiences can learn about more non-Western traditional music, I would invite those audience members to investigate the source repertoire so that they could create their own opinions on such equal tempered versions of PoP.

On the other hand, I believe that opportunities like those presented to us in Fujieda's KGS represent critical moments where if we approach the composition and the intercultural individuals that borrow from other cultures to create their own identities, there is a possibility for us as scholars, performers, and listeners to learn more deeply about other musical cultures outside of Western art music. This will further strengthen intercultural connections that are becoming increasingly critical in our expanding globalized musical community. This enables us to create truly effective musical hybridization and synthesis wherein truly new and unique works of art are made manifest.

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## Dissertation Composition

When I think of the Crab Fields... (Kanibarugaku wo kangaetara...蟹原楽を考えたら。。。)