

## **Temporal and Density Flow in Javanese Gamelan**

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## PREFACE

Compared with theory of other musics such as Chinese and Indian music, gamelan theory has a short history. It began to emerge only in the late 19th century with the writing of Dutch scholars, such as the work of Groneman and Land (1890). The writing expanded in the early to mid-20th century with the work of both Dutch and Javanese scholars, such as Djakub and Wignyaremeksa (1913), Radèn Bagoes Soelardi (1918), Jaap Kunst (1973[1949]), Ki Hadjar Dewantara (1930), and Ki Sindusawarno (1955).

It is worth noting that some of the concepts developed by gamelan theorists are not used by musicians, or are used differently. In some cases theorists who were not gamelan practitioners, such as Sindusawarno (see below), had close relationships with musicians. There are also important differences in perspective between conservatory-trained musicians and those with traditional training, although nowadays traditional musicians intermingle closely with conservatory-trained musicians.

As a consequence of the burgeoning of ethnomusicology, in the mid-20th century gamelan theory was gaining momentum. Concurrently, more and more cross-cultural and interdisciplinary approaches to gamelan theory developed. For example, Judith Becker's work on the melodic structure of *gendhing* (gamelan composition) was inspired by the study of Albert Lord (1960) on Serbo-Croatian epics singing. Becker's research, in collaboration with Alton Becker (1979), draws on linguistics. For another example, Sutton (1993) asserts a parallel in musical processes between gamelan melody and Gregorian chant.

Also in the mid-20th century, there was a tendency for Western scholars to search for indigenous gamelan theory. The prevalence of a Western perspective in the production of gamelan theory ("outside looking in") might have been the reason for this trend. The most crucial aspect in indigenizing gamelan theory has been the search for the musicians' perspectives. Their perspectives were seen to represent "insider" or "emic" understanding of the music—"inside looking in."

In light of the above development, I suggest that the study of gamelan theory should not be only about "outside looking in," but also "inside looking in and out," or, better yet, "inside and outside looking in and out." In any event, this challenging emic-etic consideration should be part of the investigation of gamelan theory.

To a certain extent, Indian musical concepts have given impetus to the development of gamelan theory. We learn from history that Indonesian culture has long been heavily imbued with Buddhism and Hinduism, starting in the early centuries before the Islamization of Javanese people in the 15<sup>th</sup> century. Many aspects of Hinduism were synthesized into Indonesian culture. For example, stories from the Indian *Mahābhārata* and *Rāmāyaṇa* epics have been told in the Javanese shadow puppet show (*wayang*) until today. The hand gestures of Indian dancers, *mudras*, can still be found in Javanese dance, although they have lost their meaning. A few Javanese musical terms that can be traced back to Indian terms are still used in gamelan theory, for example *kekawin*, from *kawya* (poetry); *laya*, from *lay* (tempo); and *irama*, from *wirama* (pauses).

In spite of the significance of Indian cultural influence on Indonesia, Indian music has only marginally impacted gamelan and gamelan theory.<sup>12</sup> One of the Indian terms stands out, however, namely *irama*. The term became an important concept in gamelan rhythm, although its original meaning has been localized.

#### IRAMA AND RHYTHM

As Indonesia has long been exposed to Western music, Western musical terminology is not alien to many Indonesian gamelan theorists, although traditional gamelan musicians have only a limited or no understanding of them. Use of the term rhythm (Indonesian, *ritme*) is very limited. As Supanggah states in his recent book (2011, 104), the concept of rhythm is not too well-known in *karawitan* (the art of Javanese gamelan and vocal music). I must say, however, that his understanding of “rhythm” is rather ambiguous.<sup>13</sup> In any event, he feels that *irama* encompasses everything about time and space in gamelan; hence the term *irama* represents the term rhythm as well.

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<sup>12</sup> For a possible historical link between Indian music and gamelan during the *Nāṭyaśāstra*'s time, see Richard Widdess's “*Sléndro* and *Pélog* in India” (1993).

<sup>13</sup> It seems that to him a rhythm consists of repetitions and regular rhythmic patterns: “The concept of rhythm is not too well-known in *karawitan*, although when playing together or individually, each instrument uses fairly complex, even irregular, rhythms. Rhythm is a part of melody; this means that a melody is created because there is pitch and rhythm. Perhaps only the *bonang barung*, *bonang panerus*, and *siter* play repetitions of regular rhythmic patterns” (Supanggah 2011, 104).

Writing in the late 1950s, a theorist at the gamelan conservatory, Ki Sindusawarno,<sup>14</sup> begins his discussion of *irama* by stating that

Nowadays, the word *irama* is commonly used to translate "rhythm." However, originally, the term used in karawitan is *wirama*, the meaning of which has never changed. The term *wirama* has its specific meaning. *Irama* in European music, in the sense of rhythm, has a different meaning. *Irama* also has another meaning in every day conversation (Sindusawarno 1955, 31-32).

Sindusawarno then uses the term *matra* (Indonesian) to indicate meter in music and literature. The Javanese term *gatra* is preferred when referring to a unit of four notes in gamelan composition; *matra* is used when discussing music generally. According to Sindusawarno, *matra* or *gatra* is the ordering of alternating moments perceived as light-heavy-light etc., or soft-loud-soft, etc. He then explains the meaning of *wirama*. Implying the same meaning as the Indian term, he defines *wirama* as pauses between the pulses, the absence of activity, or the moments of silence. This means that *wirama* refers to the length of pauses between the pulses during the movement of a *gatra*. In playing a *gendhing* (gamelan composition), the moment of silence between the pulses is filled with the forms of playing intended to fill in the pauses. Thus, *wirama* is a musical process in which certain instruments fill in the pauses in between the basic pulses.

Sindusawarno goes on to say that the determining factor to fill in the pauses is a change of the *laya* (tempo) of the piece. I should mention that although Indonesian gamelan theorists use the term *laya*, musicians don't use this term. *Laya* (from *lay*) is also an Indian term, usually referring to temporal flow. Clayton (2000, 75-92) points out however, that *lay* actually encompasses both temporal and density flow, similar to the concept of *irama* in gamelan. In any event, the tempo

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<sup>14</sup> Sindusawarno was a student at the Bandung Institute of Technology. He was also affiliated to the indigenous Javanese educational system (Taman Siswa). Moving to Solo, he became the head of the Central Department of Culture. He was one of the founders of the gamelan conservatory in Solo, which was founded in the 1950s. I don't know what literature he read about Indian musical culture, but occasionally his writing refers to Indian music and uses a few Indian musical terms. He read and spoke Dutch and English. Most likely he read Jaap Kunt's *Music in Java*. He befriended Mantle Hood, who did his research in the late 1950s and early 1960s. As a student at the conservatory taught by Sindusawarno for three years, I know that he was not a gamelan practitioner. It is important to mention, however, that his knowledge about gamelan came from his close relationship with musicians and gamelan teachers at the conservatory, mostly Javanese but also Balinese and Sundanese musicians.

itself is one of three different speeds (fast, medium, and slow), but the density of the pulses that fill in the pauses stays constant. Only when the density level of some instruments changes, can one say that a *wirama* has changed. In other words, two processes are working hand-in-hand in *wirama*: temporal flow (the duration of the successive pulses) in coordination with the changes in density level of certain instruments. Benamou (2010, 225) argues convincingly that *irama* is one of the most confusing concepts in Javanese gamelan, with no equivalent in Western music.

The closest analogy in Western music to a section of a *gendhing* played in multiple *irâmâs* might be a set of variations in different time signatures but with all variations having the same number of measures and a fairly constant eighth-note value, so that the variations would take varying amounts of time to perform. The *irâmâ*, in this case, would then correspond to the ratio between the density of the melodic figuration and the length of the measure (or, say, the harmonic rhythm). Imagine, for instance, a 2/2 variation with eighth-note figuration going to a 4/4 variation with sixteenth-note figuration: the “theme” would be twice as long in 4/4 as in 2/2, but the figuration would be going by at about the same speed in both.

In gamelan conversation and in subsequent writings on gamelan theory, the word *wirama* used by Sindusawarno is not common; instead, the term *irama* becomes the encompassing term for both temporal flow and density changes. In other words, within the context of a conversation, musicians will know whether one is talking about the change of temporal flow or the change of density level.

The change of temporal and density flow—the changes of pulses in relation to the basic beats—explains *irama* only on a technical or mechanical level of analysis; change in melodic aspects of the piece is actually more essential to the concept of *irama*.

#### IRAMA AND MELODY

As I mentioned earlier, Sindusawarno asserts in passing that *irama* in gamelan differs from rhythm in Western music. However, in the same work he also says that *irama* could have a sense of a Western rhythm, though he admits that it is difficult to explain. He illustrates this point by first

showing a lively song for accompanying a deer dance in a scene of the *Rāmāyaṇa* dance drama staged in front of the Prambanan temple (although he does not mention this source). This lively song is full of syncopated beats (see Example 7.1a below). He explains:

Some of the tones in this melody are low; others are high. Some are loud and some are soft....The tones are alternating in an orderly manner (*bergilir-ganti*), going up and down, coming and going. The tones move in the *matra*. Against the *matra*, some tones fall precisely on the beat, slip about the beat, going slightly ahead of, or behind the beat. There are moments when the tones crowd together in an orderly manner like stringbeans (*urut kacang*); there are times when they are dispersed. They move, they flow, they are alive, because of *irama* (Sindusawarno 1955, 39, as translated by Hatch in Becker 1987, 356 with a few modifications).

So to him rhythm is a lively, irregular phrasing, and unsteady pulses of the movement of tones against *matra* (meter). To prove his point, he eliminates the syncopated rhythms in the piece, resulting in only the skeletal melody of the song on steady pulses (Figure 7.1b). Then he asks his readers to compare them. He suggests that the second melody has lost its rhythm; hence, rhythm is a patterned configuration of beats conceived and perceived against meter.

It seems that this definition resonates with the definition of rhythm in a general sense of Western rhythm: rhythm is the pattern of movement in time, inextricably linked with meter and tempo. Furthermore, rhythm “is necessarily a part of the pitch and textural aspects of music, and one can speak of durational rhythm, accentual rhythm, textural rhythm, harmonic rhythm, melodic rhythm, or timbral rhythm, depending on which aspect is to the fore in any particular context” (Powers 1986, 701). I would say that one can discuss gamelan rhythm in terms of all of these, except harmonic rhythm.

| 6 6 | . 5 5 6 1̄ 6 | . 0 1̄ 2̄ 1̄ | . 65 2 . (

| 2 2 2 3 2 | . 6̣ . 51̄ 2 6̣ | . 0 2 3 1 | . . 0

| . 1̄ 5 3 2 | . 6̣ . 51̄ 2 6̣ | . . 5 6̣ 1 2 |

| . 3 5 2 3 2 2 1 | 6̣ 1 2 1 6̣ | . 5 1 6̣ 5 | . 0

Figure 7.1a A song for accompanying a deer dance: the original song.

| 6 6 | 5 5 6 1̄ | 6 1̄ 2̄ 1̄ | 6 5 2 2 | 2 2 3 2 |

| 6̣ 5̣ 1 2 | 6̣ 2 3 2 | 5 6 1̄ 5 | 3 2 6̣ 5̣ | 1 2 6̣ 5̣ |

| 6̣ 1 2 3 | 6 2 3 2 | 2 1 6̣ 1 | 2 1 6̣ 5̣ | 1 6̣ 5̣ ||

Figure 7.1b A song for accompanying a deer dance: Sindusawarno's version of the melodic skeleton of the song.

Returning to gamelan, *irama* in the sense of the coordination of temporal flow and density adjustment brings about a processual dynamic of rhythmic and melodic interplay among the multiple layers of a gamelan ensemble. What follows is an elucidation of how *irama* works and in what ways it has an impact on the melodies and the ensemble's interplay.

There are four levels of *irama*: *tanggung*, *dadi*, *wilet*, and *rangkep* (see illustration for the density level of the elaborating instruments in relation to the pulses of the melodic skeleton).<sup>15</sup> A transition from one *irama* to another is led by the drum. First, the drum leads the ensemble to gradually speed up or slow down the tempo. In the case of changing to a more expansive *irama*, when the elaborating instruments reach a point where playing their instruments is uncomfortably too slow, then they have to make an upward adjustment of their tempo, accompanied by expanding

<sup>15</sup> Sindusawarno identifies one more *irama*: *irama lancar*, the ratio of which is one beat of elaborating instruments per one beat of the *balungan*. But this *irama* is only used in passing, for example the piece has to go through this *irama* briefly after the *gong* of the *buka* (introduction) and *suwuk gropak*, ending the piece in a fast speed. The only sustainable *irama lancar* is the playing a piece in the *lancaran* structure (eight pulses per *gongan*) in which the elaborating instruments play two beats per one beat of the *balungan*.

the number of pulses within the *gongan* structure of the piece. In essence, when an *irama* changes, the tempo returns back to the same tempo before the change, but the piece becomes more expansive since the *gongan* structure is expanded.

The change of *irama* has wider musical implications than the change of temporal and density flow alone. As Becker (1981) rightly pointed out, it allows a single piece to assume different lengths, different degrees of instrumental or vocal embellishment, different playing styles of some instruments, and therefore, a different mood. Here is where the identity of the melody of a *gendhing* becomes a moot question. Focusing on only one of the multiple-lines of gamelan composition, namely *balungan* (melodic skeleton), previous gamelan scholars paid less attention to this identity of melody of *gendhing* and the interactions between the instruments in the ensemble. Recent works have explored the interconnection and interplay of the instruments in this multi-layered ensemble (Sumarsam 1995, Sutton and Vetter 2006, Perlman 2004) and the melodic sources from which a *gendhing* is composed (Sumarsam 1995). Regarding the latter, my research leads me to conclude that the original identity of the melody of most *gendhing* resides in *irama dadi* or *wilet*.

It is beyond the scope of this essay to say more about this topic, but it is important to mention it, as we cannot ignore the aspects of melody in discussing *irama*. What is clear is that the interaction, interconnection, or interplay among the instruments is the heart of gamelan playing; hence, the execution of melody in coordination with *irama*. That is, a shift in one musical domain can both trigger idiomatic changes in instrumental performance style and produce a change in the entire ensemble's interplay. A shift in *irama* means a process of change in temporal and density flow, a transformative renewal, bringing about the change of the elaboration, the moods, and the identity of the melody.

In his article on "Temporal Transformation in Cross-Cultural Perspective," Tenzer (2011c, 170) refers to this temporal transformation as musical augmentation. He asserts that "The moment of augmentation is often a goal of the individual composition, while the clarity it confers is a goal of musical perception itself." According to him, in Bali, this musical augmentation attains a strong association with the sacred.

The moment of augmentation in Javanese gamelan, especially in a composition with an expansive structure, brings about a different kind of aural disposition. As Keeler (1987, 225) observes, "As one passes from *wirama* one to two to three to four, which is like shifting gears, the



strokes on the *saron* and *slenthem*, which play the skeletal line, become rarer. This permits the other ‘inner’ or embellishing instruments—the *gendèr*, *gambang*, *clempung*, and *rebab*, each of which has a highly distinctive tonal quality—plus the female singer (*pesindhen*), to superimpose increasingly long and complex variations.”

It is true that the augmentation in the more expansive *irama* brings about a greater aural richness, but less aural clarity (*ibid.*). However, to the musicians, this does not mean that the melody becomes less clear. Unlike in Balinese music as explained above by Tenzer, the expansive augmentation does not necessarily signify deeper spiritual experience. On the contrary, it could bring about lively, animated musical moods, such as in the augmentation that happens when a composition is performed in *irama wilet* and *rangkep*.

Now I would like to explain *irama* in the context of the interaction between instruments, especially the impact of drumming style in the ensemble’s play. Different styles of drumming affect the rhythmic and melodic configuration of other instruments. There are four drumming styles, each corresponding generically to the mood of a *gendhing* (or a section of it), the character of a dance, or the mood of a theatrical performance. These drumming styles consist of rhythmic patterns ranging from the repetition of a simple pattern with an underlying regular beat (*kendhang satunggal* and *kendhang kalih*) to elaborate patterns with an underlying regular but elusive beat (*kendhang ciblon* and *kendhang wayangan*). In playing a *gendhing* or in a medley presentation, two or more *kendhang* styles may be employed. For example, in playing the first section of *ladrang Pangkur*, *kendhang* plays a less elaborate configurative rhythmic pattern of the *kendhang kalih* style; *gendèr* plays in the *lomba* technique (See Figure 7.2a and b; Audio.7.1) and *bonang* plays *pipilan*—the player plays each pair of the notes in moderate tempo, anticipating and guiding the melodic skeleton (*balungan*). When the drum cues the ensemble to change to *irama wilet* (by guiding the ensemble to slow down, using the more lively *kendhang ciblon* style), the *gendèr* will change its playing from *lomba* to *rangkep* style; and the *bonang* playing changes from *pipilan* to *imbal* (interlocking) technique (Audio 7.2), an excerpt of *ladrang Pangkur*, from the introductory movement to *irama tanggung*, *dadi*, and *wilet*).

### Listening guide I to [Audio 7.1](#)

Recording of *ladrang* PANGKUR *Sléndro Sângå*, focusing on the *gendèr*—see the earlier discussion and musical examples of this piece.

- 0:00 – 0:07 *Senggrèngan*, a brief melodic cue from the *rebab*, announcing the tuning system of the piece.
- 0:07 – 0:16 *Buka*, an introductory movement of the piece played on *rebab*. *Gendèr* and *kendhang* join in. At the end of the *buka*, on the stroke of the large *gong*, the other instruments join in.
- 0:17 – 0:25 The piece begins in *irama tanggung*. Immediately, the drum cues the ensemble to slow down gradually, moving toward *irama dadi* after the stroke of the first *kenong*. During the *irama* transition and in *irama dadi*, *gendèr* plays less elaborate rhythmic configurations in moderate tempo—*lomba* style; *kendhang* plays simple rhythmic patterns in a moderate tempo, using two drums—*kendhang kalih* style.
- 0:25 – 0:54 The piece stays in *irama dadi*. On the stroke of the third *kenong* the drum switches to an animated *ciblon* style.
- 0:54 – 1:13 The *ciblon* drumming signals the ensemble to slow down gradually, moving toward *irama dadi* on the *gong*. After the stroke of the *gong*, the piece enters *irama wilet*.
- 1:13 – 3:11 During the playing of *irama wilet*, *gendèr* plays lively and elaborate rhythmic configurations in fast tempo—*rangkep* style; *kendhang* plays animated rhythmic patterns in faster tempo—*kendhang ciblon*—based on the patterns that accompany lively movements of *gambyong* dance.
- 3:11 ----- If you continue listening to the piece past 3:11, you will hear another transition from *irama wilet* to *irama rangkep*, with a number of *andhegan* (a stop in the middle of the piece, which resumes again after a *pesindhèn* singer sings an interlude), back to *irama wilet* until the end of the piece.

### Listening guide II ([Audio 7.2](#))

The same recording but focusing on the *bonang*.

- 0:00 – 0:07 *Senggrèngan*, a brief melodic cue from *rebab*, announcing the tuning system of the piece.
- 0:07 – 0:16 *Buka*, an introductory movement of the piece played by *rebab*. *Gendèr* and *kendhang* join in. At the end of the *buka*, on the stroke of the large *gong*, the other instruments join in—you can hear clearly both *bonang barung* (middle-range *bonang*) and *bonang panerus* (high-range *bonang*).
- 0:17 – 0:25 The piece begins in *irama tanggung*. Immediately, the drum cues the ensemble to slow down gradually, moving toward *irama dadi* after the stroke of the first *kenong*. During the *irama* transition and in *irama dadi*, *bonang* plays less elaborate rhythmic configurations in moderate tempo—*lomba* style (the player plays a pair of notes, anticipating and guiding the skeleton of the melody, *balungan*).
- 0:25 – 0:54 The piece stays in *irama dadi*. On the stroke of the third *kenong* the drum switches to an animated *ciblon* style.
- 0:54 – 1:13 The *ciblon* drumming signals the ensemble to slow down gradually, moving toward *irama dadi* on the *gong*. After the stroke of the *gong*, the piece enters *irama wilet*.
- 1:13 – 3:11 During the playing of *irama wilet*, two *bonang* play animated interlocking patterns (*imbal*), with lively rhythmic configurations performed at cadences.
- 3:11 ----- If you continue listening past 3:11, you will hear the piece making another transition from *irama wilet* to *irama rangkep*, with a number of *andhegan* (a stop in the middle of the piece, and resuming again after a *pesindhèn* singer sings an interlude), back to *irama wilet* until the end of the piece.

The fact that a single piece can be played in different *irama* implies the fluidity of its melodic identity. As I suggested earlier, the original melodic identity of most pieces resides in *irama dadi* and *irama wilet*. This means that the other *irama* have particular performative functions. In most cases, *irama tanggung* is a temporary *irama* used for particular purposes: (1) to make a transition from one section to another or from one piece to another; (2) to accompany a section of dance which requires lively drumming in a repeated short cyclic structure; and (3) to be applied to a section of a piece, such as the *sesegan* section in an instrumental piece *gendhing bonang*, a section that should be performed in loud-style playing as the conclusion of the piece.



Figure 7.2 b

balungan	.	2	.	1	.	6	.	5
gendèr right hand	.5..35.6	.3.5.6.5	.6.656.1	.6.6.65	.3.5.3.2	.3.5.3.2	.3.23.5	.6.6.65
gendèr left hand	.12.161	2.165.5.	.6.6.5.6	.1.2.16.	1.16561.	1.16561.	.3.3.2.3	.5.6.1.5
bonang barung	.6.2.6.2	.6.2.6.2	.6.2.6.2	.6.2.6.2	.6.2.6.2	.6.2.6.2	.5.6.1.2	.216.1.5
bonang panerus	1.3.1.3.	1.3.1.3.	1.3.1.3.	1.3.1.3.	1.3.1.3.	1.3.1.3.	5i56i6i2	22i656i5
kendhang	.p̣ḷ°p̣kṭp̣	ṭp̣ḷ°p̣kṭp̣	.ḳp̣ṭp̣ḷḍp̣	ḷḅḍḅḍḅ	.°ḅḍḅḍ.	ḅ.p̣p̣ḷḅḍ.	ḅkṭḅ.ḅḶḳ	ḅ.p̣ṭp̣p̣.p̣

Figure 7.2 (a) Example of the melodies of elaborating instruments (*rebab*, *gendèr*, *bonang*) and *kendhang* (drum) in *irama dadi*. (b) Example of the melodies of elaborating instruments (*rebab*, *gendèr*, *bonang*) and *kendhang* (drum) in *irama wilet*: *gendèr rangkep*, *bonang imbal*, *kendhang ciblon*.

#### Key to Figure 7.2a and b: the strokes of the kendhang drum

ḅ = dhe	ṭ = tak	p̣ = thung	ḷ = lung	ḍ = dang
Ḷ = lang	ḅ = dhet	° = tong	ḳ = ket	. = rest

Believed to be the most recent invention, *irama rangkep* gives rise to the most lively melodies and moods. *Irama rangkep* does not transform a single pattern to become two patterns, however, but doubles the density level of the existing melodic patterns by repeating sections of a pattern and adding more whimsical melodic ornamentation. Since this *irama* does not change the melodic content of the piece—that is, the players of an elaborating instrument only whimsically repeat different sections of each pattern—*irama rangkep* might not be considered as an *irama*, but a “treatment” (Supanggah 2011, 295). In fact, any piece in whatever *irama* can be performed in *rangkep*. In any event, in *irama rangkep* the drum plays animated rhythmic patterns associated with dance movements, repeating and extending each pattern, and playing them in a faster tempo than that of *irama wilet*.

Other common practices which contribute to the lively moods of the performance of *irama rangkep* include the following: (1) *andhegan* (a stop in the middle of the piece, which resumes again after a *pesindhèn* singer sings an interlude); (2) highlighting certain evocative melodies or rhythms of elaborating instruments and singers, an occasional jocular pattern created by elaborating instruments and *kendhang*; and (3) male singers performing playful *senggakan* (stylized cries) while doing interlocking rhythmic claps.

To recapitulate: The rendering and shaping of melody and rhythm in gamelan music are determined by the changes in temporal and density flow. This makes gamelan rhythm distinctive from that of other music. On the face of it, according to Powers (1986, 724), the “Javanese concept of *irama* (temporal density) seems more complex than Hindustani *laya* (tempo) or European rhythm (patterned succession of attacks), not only because tempo is always coordinated with *irama*, but also because two layers of attack pattern are explicit, a primary sequence moving faster perceived against a secondary sequence moving slower. But in fact, both tempo (*laya*) and rhythm (in the sense of ‘a rhythm’) also imply at least two layers of motion even where only one is explicit.”

Powers also emphasizes the necessity of understanding rhythm as a part of the pitch and textural aspects of music; hence one can speak of durational rhythm, accentual rhythm, textural rhythm, harmonic rhythm, melodic rhythm, and timbral rhythm. I would say that durational and accentual rhythms are directly connected to the rendering of melody. That is, musicians can vary the duration and pulsation of the succession of notes to express a certain rhythmic play. In this regard, a gamelan theorist and composer, Supanggah, offers us a concept called *rampak-rempeg*.

Unity and synchrony (*rampak-rempeg*) is a concept which involves working together and togetherness but not sameness. In karawitan, when the musicians play together, they follow a horizontal line. All of them are moving or oriented toward a particular goal: the *sèlèh* or gong note, not paying much attention to the vertical line....Examples which shows a preference for "non -togetherness" can be seen in the clasing sound of a *sekatèn* performance, in a *suwuk* or ending, and in aesthetical terms or expression such as *nggandul* (playing late: for the gong, *kempul*, *kenong*, *sindhèn*, *gendèr*, *rebab*, and so on), *nungkak* (playing early or anticipating): for the

bedhug and rebab), mbanyu mili (like flowing water, for the gambang), nyelå irama (offbeat, for the handclapping or keplok), and so on . . . (Supanggah 2011, 103).

Supanggah's elucidation parallels Feld's idea of "*simultaneously in-synchrony while out-of-phase*." By "in-synchrony," Feld means "that the overall feeling is of togetherness, of consistently cohesive part coordination in sonic motion and participatory experience. Yet the parts are also 'out-of-phase,' that is, at distinctly different and shifting points of the same cycle or phrase structure at any moment, with each of the parts continuously changing in degree of displacement from hypothetical unison" (Feld 1988, 82). Feld's descriptions suit well the overall processual dynamics of the multi-layered gamelan ensemble, a musical style which is in line with his characterization of the dynamic in Kaluli music that creates "nuances of *textural densification*—of attacks and final sounds; decays and fades; changes in intensity, depth, and presence; voice coloration and grain; interaction of patterned and random sounds; playful acceleration, lengthenings, shortenings; . . ." (ibid.).

As can be seen from the foregoing discussion, *irama* (in the sense of both temporal and density flow) guides the player in the overall rendering of melodies to impart the specific character of a *gendhing* or its different sections. Musicians know that a particular *irama* determines in what way a *gendhing* or section of a *gendhing* should be rhythmically and melodically treated. Supanggah (2011, 134) sees the importance of *irama*; so much so that he thinks of it as the "breath" of gamelan. Furthermore, aside from confirming the function of *kendhang* as the leader of *irama* (*pamurba irama*), he sees the steady and constant pulses of a composition, which are constantly present in the mind of a *kendhang* player (overtly or implied), to analogically represent the beats of human heart, the *keteg*.

### IRAMA, A MACRO FORM

Earlier I mentioned Sindusawarno's point on perceiving *irama* as alternating patterns of tones and/or pulses. He also sees this alternating pattern in the natural world (for example, the occurrence of day and night, the rising and setting of the sun, the appearance and disappearance of the moon, etc.) and in human behavior (for example, sleeping and

walking [wakening], eating and excreting, etc.). This is all connected to a notion that all things have opposites and occur in alternation—that is dualism. He says that this is the rhythm of our life. Therefore, “the creations of man are also rhythmically ordered, for example, darkness and light in painting, movement and stillness in dance, loudness and softness in melody, fastness and slowness in pace,” etc.

It seems that Sindusawarno’s proposition of a macro-rhythm resonates with the meaning of rhythm in general. Hasty observes that rhythm is not limited to phenomena that exhibit periodicity. “We speak of the rhythm of a tickling clock, the rhythm of the seasons, and the rhythm of birth and death, ” but in addition “we can use the word rhythm to characterize phenomena in which periodicity is not apparent: a fluid gesture of the hand, a still life, the course of a narrative, the ‘shape’ of a musical phrase” (1997: 4). Hasty relates this second usage to aesthetic judgment. Sindusawarno explains the same phenomenon as follows: each time an alternation of elements happens, “there is certain to be a difference—perhaps in time, perhaps in form, perhaps in the environment, the atmosphere, or the condition” (357). It is in these “differences” that one of the keys to understanding rhythm lies.

In gamelan, musicians have known the melodic identity and character of the piece, its *gongan* structure, its *pathet* (modal classification), and the idiomatic vocabularies of each instrument and of singing that musicians apply to the piece. All of these are to be made audible and to be manifest in accordance to the kind of interrelationship and interaction between the instruments—the networking that evokes the ensemble’s play, which I mentioned earlier.

Two of the differences constituting the musical processes in gamelan are textural (thick and thin) and timbral (soft and loud) change. Now I would like to illustrate the rhythmic flow as a manifestation of this textural and timbral change by examining a process during which a *gendhing* is performed from the beginning to the end, from the introduction proceeding to different sections, or from one set of *gendhing* to another. With regard to the timbral change, the general practice is as follows: When the piece is performed in a fast temporal flow (say, in *irama tanggung*), the musicians play their instruments (especially the loud-sounding instruments) louder. When the piece is performed in a slower temporal flow, a softer sound of the loud-sounding instruments is required as the softer-sounding



instruments play a central role in the aesthetic. What follows is a description of a performance of the piece called *Jaladara*, from beginning to end). This performance is by musicians of the Institute of the Arts in Surakarta, directed by Rahayu Supanggah, recorded in a CD entitled *Mengenang Empu Karawitan Pasca Merdeka* (Commemorating Post-independence Masters of Karawitan). The piece was composed by the late R.L. Martopangrawit, one of the most prominent musicians, gamelan theorists and composers of Java (Audio 7.3).

### Listening guide III ([Audio 7.3](#))

- I. The piece begins with the *rebab* playing a *senggrèngan* (0:00-0:06), a brief melodic cue, announcing to the musicians what will be the tuning system (in this case *pélog*) of the piece to be performed. Then the *rebab* plays *buka*, the introductory movement of the piece (0:06-0:34). Traditionally, this introduction is the only hint for the musicians to figure out what piece they are about to perform.
- II. In the middle of the introduction, the drum joins in with the strokes of low sound, *dhah* (0:27) and *thung* (0:30); and thereafter the drum initiates a steady pulse. At this moment, the *gendèr* joins in (0:29). As the introduction is about to conclude, the rhythmic play of the whole ensemble begins: the large *gong* is struck with a slight delay from its beat, and the other instruments play the *gong*-tone slightly after the stroke of the *gong* (0:35). This kind of rhythmic play is a standard practice for any piece composed in a longer structure (with 64, 128, or 256 pulses per *gongan*). In the intro, we also notice a textural change: the melody of the solo *rebab* is then joined by the *kendhang* and *gendèr*. The thick textural disposition happens on the stroke of the *gong* when all instruments play simultaneously with their *gong*-tone. The *senggrèngan* and the first half of the introduction is in free rhythm. Then the drum sets the steady pulses of the introduction, a precursor to the pulsation of the piece; this happens in *irama tanggung*, a transitional *irama*.
- III. After the *gong*-intro, the drum cues the ensemble to gradually slow down. At a certain point, after about  $\frac{3}{4}$  of the first *kenongan* (one *kenong* phrase = 32 beats), the *irama* changes to *irama dadi* (*dadi* means "settled in"). This is the *irama* of the rest of the first section (*Mérong*) of the piece, before the drum cues the ensemble

for a transition to the second section (*Inggah*). During the *Mérong*, every time the *kenong* stroke is about to arrive, the ensemble slows down slightly and the *kenong* plays with a slight delay (2:18; 3:28; 5:52; 7:04). When the piece approaches the *gong*, on and after the *gong* stroke (4:34-4:41), the same kind of rhythmic play happens as when the ensemble approaches the *gong*-intro which I mentioned earlier.

- IV. The entire *Mérong* section is repeated. In about one *gatra* after the second *kenong* (7:14) the drummer cues the ensemble to accelerate gradually, a signal for the ensemble to make a transition to the *Inggah*. When the piece reaches a little after the first half of the third *kenong* (7:41), *irama dadi* changes to *irama tanggung*. The piece moves to *Ompak*, a transitional section (7:48). As the piece approaches the *gong* (beginning at 8:08), it slows down and changes to *irama dadi* on the *gong* (8:21).
- V. In the *Inggah*, each stroke of the *kenong* is always slightly delayed, but the ensemble does not slow down as much as in the *Mérong*. When the piece approaches the second *kenong* (11:18), the drum cues the ensemble to slightly speed up, keeping the piece in a moderate tempo. As the piece reaches the middle of the third *kenongan* (15:04), the drum once more cues the ensemble to slightly speed up. The drum-cues them to speed up again before the *kenong* (15:18). The piece continues in this moderate tempo, but gradually speeds up. Three *gatra* before the *gong* (15:50), the piece changes to *irama tanggung*. After the *gong* (16:01), all soft-sounding instruments (*rebeb*, *gendèr*, *gambang*, and *suling*) drop out. After the gradual speed up occurs, the ensemble gradually changes to louder sonic presentation. After the *gong*, the piece is in the fast and loud style of playing—the *sesegan*. Here the interlocking of *demung*, which started earlier, becomes prominent. In the meantime, the *slenthem* changes from playing a regular *balungan* to a form of abstraction of the *balungan*—it plays on every other beat.
- VI. The *sesegan* is the climax of the piece. It is a treatment of the *Inggah*, in which the musicians are playing from moderately bright (16:01-17:00) to extremely loud (17:18-18:58) as this section goes through different tempos. The intense, percussive sound of the bronze becomes the focus of the enjoyment.

- VII. At a certain point in the *Inggah*, when the piece approaches the third *kenong* (i.e., in the middle of that *kenongan*), the drummer cues the ensemble to slow down (19:56)—a signal for *suwuk*, ending the piece. The ensemble responds by playing the loud-sounding instruments softer—the timbral change. As the tempo slows down more, on the stroke of the *kenong* all soft-sounding instruments resume. Toward the end of the piece, the tempo continues to slow down gradually. The final *gong* (19:51) is struck on an extremely delayed beat, followed by the stroke of the *gong*-tone by all of the instruments in the ensemble (19:52).
- VIII. As a postlude, a free rhythmic and non-metric *pathetan* is played by a small ensemble of *rebab*, *gendèr*, *gambang*, and *suling* (19:56-22:28)—a textural and timbral change from large ensemble to small ensemble.

The changes of *irama* can be seen as a rhythmic flow of the composition from the beginning to the end; metaphorically it is like the rhythm of life. All sorts of rhythmic configurations come to the fore as the drummer changes the *irama* of the piece.

## CONCLUSION

Musical time exhibits two complementary aspects. One is periodicity, regularity, and recurrence, corresponds to the domain of metre, and gives rise to the concept of cyclicity. The other is gestural, figural, and (in principle) unpredictable and relates to the domain of rhyth (Clayton 2000, 23).

Ethnomusicologists have noted the importance of the cyclic recurrence of the melodic/temporal unit, the colotomic structure in gamelan composition (*gongan*). The assumption is that the gamelan system always consists of multiple cycles operating simultaneously. When the cycle and subcycles are coinciding, meaning and power are

created (Becker 1979).<sup>16</sup> Another side of the system is a process of interaction or networking of different instruments in the ensemble, resulting in the gestural, figural, and unpredictable transformation that Clayton refers to. *Irama* is a concept that concerns regulating the working process of this binary system, hence the life of the music in continuing transformation of its rhythmic and melodic configurations. In other words, the *gongan* structural system and the networking of various instruments are working in tandem; one provides a subjective or formal reality, the other is the domain of immanence, existential, or practical.

The change of *irama* is the change of density and temporal flow. But most significantly, as I mentioned earlier (quoting Becker 1981), the change of *irama* allows a single piece to assume different lengths and different degrees of instrumental or vocal embellishment. As it usually requires different playing styles for some instruments, it affects melodic and rhythmic content, and thus effects changes in mood. Thus, a shift in one musical domain can both trigger idiomatic changes in instrumental performance style and produce a change in the entire ensemble's interplay. This is a musical process that relies on, in the words of Supanggah, "the importance of dialogue."

The notion of musical dialogue is so deeply engrained in the gamelan system that even the large *gong*—the instrument whose function is limited to marking the end of *gongan* structure—also participates in this dialogue as the *gong* is struck with a slight delay from the beat of the piece. The point of coincidence in gamelan is not only to mark the flow of time toward the point of stasis and stability, but also to tell the listeners the moods of that coincidence as shaped by the playfulness of temporal and melodic treatment surrounding the *gong*. In essence, the cyclic motion in gamelan is not really an absolute "steady state" without any sense of linearity.

This is not to deny that cyclic structure pervades gamelan music, but the music often consists of a series of recurrent cycles. As one cycle move to another, with the alteration of *irama* as well as timbral and textural change, the listeners perceive a sense of

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<sup>16</sup> Contextualizing gamelan in this teleological domain is a thought-provoking and very persuasive argument: human actions are inherent in the rest of nature; the coincidence in the gamelan musical processes parallels the coincidence of two or more different days of Javanese calendrical systems. As I explain below, complementing this notion is a notion that human actions bring about interaction or social networking. In music, this is manifested in the interaction of different parts in the ensemble.

linear motion, as our listening to *gendhing Jaladara* indicates. The sense of linearity in experiencing time is revealed as the instruments are interacting with each other, following the alteration of *irama*, textural and timbral changes, and fashioning the instruments' rhythmic configuration.

Perhaps any musical system allows for both linear and recursive or cyclical experience. It is in the degree of linearity or recursiveness that one system differs from another. In gamelan, the cyclic structure maintains its function as a subjective or formal reality of the music. But as the music passes through a series of recurrent cycles and changing *irama*, bringing about variegated transformation of melodic and rhythmic configurations, the cyclic structure is only conceived as background.

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