Marius Baranauskas

Principles of Structural Organization of Gamelan Orchestra as an Alternative to Orchestra in European Culture

Gamelan and European orchestral cultures underwent the process of development in independent and different surroundings without being interrelated for a long period. These cultures have developed their own unique and diverse principles of structural organization, primarily influenced by a specific mentality, world-view and musical perception.

The fundamental principles of structural organization of the gamelan orchestra are mostly shown as the opposite to the European orchestra; therefore, we are able to draw the essential distinction between the two orchestral cultures. It is revealed in different aspects and at different levels of analysis. The present report aims at investigating the crucial organizational principles of the gamelan orchestra. Comparing them with well-known principles of European orchestra, I will attempt to draw analogies or create alternatives. Taking into consideration the diversity of European orchestras, I will mainly focus on the symphony orchestra as the most highlighted orchestra in European culture that universally reveals its main principles.

Cultural aspect

In both cultures we can distinguish three essential principles that are revealed at all levels of analysis and reflect the main sources of gamelan and European orchestras. They constitute a specific axis around which the rest of principles are formed.

1. The gamelan **principle of binary[1] opposites** is conditioned by the mythical world outlook. It is revealed in the presence of two juxtaposed, polar and coexistent elements: masculine/feminine, celestial/earthly and the like. It is reflected not only in cultural but also in musical moments: the existence of an orchestra of dual tuning *pelog-slendro*, the tuning of instruments in pairs (male/female instruments), the division of orchestra into soft (female) and loud (male), etc.

The European **principle of monocentrism** is opposite to the gamelan principle of binary opposites. This principle evidently originated from the Christian theocentrical world outlook. The existence of one significant and central source that all criteria conform to and are converged into is indispensable to the said principle. Therefore, it is focused on one main centre, not two as in gamelan. We can see this in music, for instance, in a tonal system which is based on one main sound - tonic, in the logic of the form of a piece when music advances towards one central point of culmination and the like.

2. The Gamelan **principle of recurrence** is determined by a canonical culture and testifies to the conservation of cultural traditions, the existence of universal rules, canons as well as their constant recurrence. Accordingly, though the gamelan orchestra has undergone several important historical changes, the orchestra itself has not been modified greatly up to the present. It has been grounded on the traditional attitude of the gamelan culture towards the musical composition. H.Susilo writes: "Unlike Western composers, Javanese composers of traditional music do not have the freedom to vary their musical functions beyond this traditional range".[2] Therefore, we can see the tendency towards the openness of a piece, which is not strictly determined and a limited freedom of improvisation is allowed.

The European **principle of non-recurrence** is conditioned by the individualized culture and it highlights constant renewal, development and alternation of norms and rules. Due to this, we see that a piece of music is strictly fixed by means of notation, reflects an inimitable unique moment and constitutes in itself a covert and complete dynamic system. Hence we can maintain that a piece of music in European culture has a closed structure. It is a product of individual expression; composers are treated with great respect and their names live on for centuries. In addition to this, we can see musical systems, styles and notation undergoing constant changes in the course of history.

3. The gamelan **principle of syncretism** is directly connected with non-differentiated mentality. It encompasses an organic and indissoluble interrelationship between all spheres of life, as well as between the levels of orchestral analysis and theoretical concepts.

---

1 A more comprehensive analysis of the binary principle is offered in R.Janeliauskas article *Binarics as a Common Trait of Composing*. Lithuanian Musicology. – T.2, Vilnius, 2001.

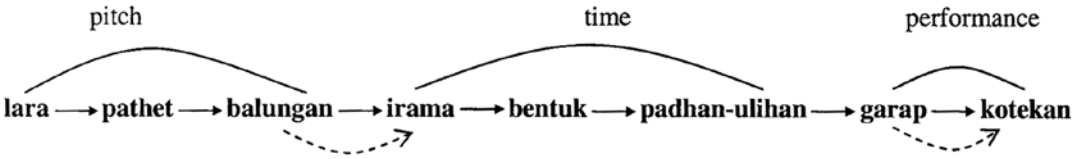
2 Susilo H. Toward an Appreciation of Javanese Gamelan. // www.cba.hawaii.edu/remus/gamelan/uyonuyo2.htm

We see the European **principle of discretion** as an alternative that speaks of the differentiated and autonomous perception of all the spheres of life, theoretical concepts, levels of orchestral analysis, etc. In European culture a clear differentiation of separate spheres of life and separate parameters in music come to the fore. The person is separated, individualized and treated with great importance; a piece of music is abstracted from daily life, from other arts and is demonstrated as an isolated object. Furthermore, the parameters of pitch, rhythm, timbre, form and others are conceived separately; they are marked with different signs in the score and associated with different rules in the system of composition; moreover, they are examined as partly or completely independent domains in the works of musical analysis.

As we can see, these three essential models of world outlook constitute pairs of alternatives. Thus at the very fundamental cultural level the gamelan is revealed as a totally opposite to the European mentality.

Theoretical concepts of orchestras

Both gamelan and European orchestras have significant and well-developed systems of theory, determining the structure of their performed music, as well as the structure of the orchestra. First of all, considering the whole picture of the theoretical basis, we see that gamelan orchestra has a totality of harmoniously connected theoretical concepts, determining the mentioned principle of syncretism:



These theoretical concepts are characteristic of the gamelan theoretical basis of Java Island in Indonesia.[3] I will briefly overview some of the main concepts.

There exist several fundamental points of gamelan musical theory:

1) Two tuning systems (*slendro* and *pelog*) are united in the notion of **lara** and formed by means of binary opposites, typical of gamelan culture. *Lara* conception becomes a central point in the whole gamelan system of pitch. The mentioned tuning systems serving as a sound material assume their concrete shape organized into different **pathet** that can partly correspond to the European term of mode.
2) The main structural skeleton of gamelan works is the ***balungan*** (nuclear melody). Gamelan compositions are created with the help of *balungan* information and certain existing rules. The principles of the form of gamelan music are also worked out on the basis of its further structurisation in time. Neil Sorrell explains it in the following way: "It serves as a central melodic thread from which the parts of all the instruments of the gamelan can be determined, and experienced musicians will know how to relate their parts to the information of the balungan."[4]
3) Two notions are applied to define the concept of form: a) **Irama** notion defines tempo relations between separate orchestral groups. In other words, *irama* is a tempo relation between the pulse of elaborate parts and the nuclear melody *balungan*. This relation can be expressed by different levels of density; b) **bentuk** means the organization of the nuclear melody *balungan* into bigger parts and complete works. There are some different, however, standard forms (*bentuk*) that can ground many works. The forms exploited in the works differently describe the type of melodic line, the structure of phrases, the underlying colotomic structure; they often determine the nature of mood, as well.

It is also very important that a colotomic structure is characteristic of the form of the gamelan work (*bentuk*). This notion created by J.Kunst[5] implies that time is segmented in accordance with a special order of entry of specific instruments and their location; it serves as a waymark to the parts of other instruments. It partially determines the instrumental structure of the orchestra.

It is possible to integrate the theoretical basis of Java gamelan into one chain wherein every element is related to the preceding one (see the scheme above). Moreover, we can see three groups: the notions of pitch (lara, pathet and balungan), time segmentation or the concepts of form (*irama*, *bentuk* and *padhan-ulihan*), as

[3] A more comprehensive description of Java gamelan theoretical systems is offered by Neil Sorrell in the book A Guide to the Gamelan. – London, 1990.

[4] Sorrell N. A Guide to the Gamelan. – London, 1990

[5] Kunst J. Music in Java. Its Hystory, Its Theory, and Its Technique. – T.1,2. The Hague, 1973.

well as the concepts of performance practice – *garap*, *kotekan*. Here the *balungan* conception serves as a bridge connecting the domain of musical time, while the *garap* notion enters the sphere pertaining to the practice of music performance.

The mentioned syncretic relationship between various theories and musical practice once again evidences the mythical way of thinking which is typical of gamelan culture. In addition to it, the fact of theoretical standardisation is evident, i.e. invariability in the course of history. All this organic unity constitutes the stable basis of theoretical rules of gamelan music, substantiating the structure of all compositions of this orchestra.

On the contrary, in European orchestral music we observe the evolution of musical systems and their accentuated variability. It leads to the conclusion that unlike the gamelan, a constant variability of theoretical systems characteristic of European orchestra is determined by the tendency of individualisation of music theories. Moreover, the parameter of discretion is inherent in the perception of systems of European music, which has already been briefly discussed. Here the spheres of harmony, form, rhythm and other musical areas are perceived as more or less autonomous; therefore, separate musical systems and theories are also discreetly perceived.

Nevertheless, we are able to find certain instances of theoretical standardisation not only in the gamelan but also in the system of European orchestral music. For example, we can compare standard forms of gamelan music (the most popular ones are: *lancaran, ketawang, ladrang, ayak-ayakan, srepegan, sampak*) and European forms (rondo, sonata, variations, etc.). The difference lies in the fact that gamelan forms have hardly evolved and undergone major changes throughout history, while European forms have been constantly transformed and therefore only the principle grounding those forms would remain stable, but not the way of realization. Despite constant changes in theories, we can, however, discern the crucial role of the major-minor tonal system in European orchestral music. Also, this system preserving its principle and constantly altering the extrinsic forms, prevailed until the 20th century and determined the aspects of harmony, time segmentation, orchestration and others.

To ascertain it, let us analyze the **essential aspects of harmony and time perception** in the music of both orchestras. We will concentrate mainly on extracts of two scores. Concerning the form, it is attempted to choose passages more or less corresponding to one another. Therefore, the excerpt from L. Beethoven's symphony No. 7 (Example 1) demonstrates one section of the form (beginning with number 3), while in the gamelan extract of *Ladrang Wilujeng* we see its second part *lik* [6](Example 2)[7] , which in a cyclic form of this piece AAB or AABAAB matches B part. Let us have in mind that the central point in every gamelan piece is determined by the nuclear melody *balungan* on the basis of which all melodic lines are created, while its structurisation in time constitutes the form of the piece. It would be hard to find an analogy for this gamelan structural and nuclear melody in the structure of a European piece of music. Here we can notice that the structural foundation of a piece of music is essentially conditioned by a tonal structure; furthermore, the role of theme is important on a melodic plane.

First, we have to observe that harmony introduced in the gamelan piece is based on a five-pitch *slendro* tuning and a five-tone mode correspondingly. We see a modal equivalence of sounds without any of the tones being more important than others. The fragment from Beethoven's symphony is based on a tonal system (A minor), wherein the cord *a–c–e* is a central one (tonic). Considering the structure of verticals (cords), we see a similar picture. In the gamelan score we observe the verticals of sounds of equal value, whereas in the European orchestra the structure of a cord is again centralized and its main sound is emphasized by the bass function. We can also notice that in the presented fragment from the symphony the change of harmony is purposeful, disclosing the alternation of stable and unstable sounds of the mode, leading to modulations. Looking at the gamelan score, we can observe the absence of a purposeful change in its verticals due to which the harmony based on a constant coexistence of five equivalent sounds remains static. Thus, we can principally state that it is a harmonic development of time that is inherent to European orchestral music, whereas the perception of time in gamelan music does not depend on harmonic changes. Moreover, we can note that the form of the European piece purposefully leads to the climax, whereas the gamelan presents the change in static parts of cyclic form.

---

[6] It is necessary to mention that gamelan scores presented in this report have been written down on the basis of European notation, and in respect of the precision of its fixation partly contradict the very essence of gamelan music. Therefore, one should interprete it as one of many possible written down versions of the piece. Nevertheless, these scores are exploited for the study of a more evident comparison with the scores of European orchestra.

[7] Sorrell N. A Guide to the Gamelan. – London, 1990. pp. 108–119.

Of interest is the difference in the specificity of time and form segmentation in both fragments of the presented pieces. The form of the excerpt from L.Beethoven's symphony contains two 8-measure sentences, the second of which is repeated. They make up a section, which in this case is a tonally closed structure (starts and finishes in A minor). Hence, we see that a harmonic tonal logic and cadencies play a decisive role in the segmentation of form. The first sentence deviates to C major and the second ends after a harmonic return to A minor. The measures are also distinctly characterized by the change in tonal functions (m.1 – Tonic, m.2 – Dominant, etc.). Thus, the form of the fragment can be schematically illustrated as follows:

8 measures	**+**	**8 measures**	**+**	**(8 measures)**
A minor – C major		C major – A minor		(C major – A minor)

It is apparent in the gamelan score that the sections of the form are determined by a timbre – ostinatic factor and the beats of colotomic instruments. The limits of the part of the presented form are marked by the beats of the biggest gong *gong ageng* in the very beginning and the end of the fragment. Moreover, the whole part is divided into four smaller sections (compared with two sentences in the previous example), which have an identical length from the structural point of view (8 beats of colotomic instruments) as well as an analogical structure. These smaller sections are marked by the gong *kenong* beats. *Kempul* divides this structure into two (the duration of four colotomic beats). And finally *kempyang* and *kentuk* present the most detailed time segmentation. It can be well seen in the following scheme:

	1	**2**	**3**	**4**	
	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	
Kempyang:	+ + + +	+ + + +	+ + + +	+ + + +	
Kentuk:	+ +	+ +	+ +	+ +	
Kempul:	+	+	+	+	
Kenong:	+	+	+	+	+
Gong ageng:	+				+

One can notice that typical feature of the form in both examples is their segmentation into equal parts. However, the factors determining the division are different. In the fragment form Beethoven's symphony it is a harmonic tonal logic that determines the segments of form, whereas in the gamelan *Ladrang Wilujeng* – ostinatic timbre logic.

Here we can observe the basic features inherent in the systems of both gamelan and European orchestral music:

Gamelan orchestra	**European orchestra**
Syncretism of theories and music practice	Discretion of theories
Standardisation of theories	Individualisation of theories

Principles of timbre-instrumental organization

One of the most important factors determining the timbre-instrumental organization deals with a specific **conceptual approach to orchestra** and its instruments. It is conditioned by the world outlook prevailing in a specific culture. The gamelan culture has a mythical attitude towards the orchestra; the orchestra is regarded to possess a divine nature and is personified; its identity is considered to be much more important than the performers themselves.

In Europe the orchestra is treated quite differently. First, the performers' personality and their professionalism are emphasized; the orchestra is mostly understood as a combination of musical instruments, seeking

to perform a practical function. In Europe neither the orchestra itself nor the instruments are personified the same as the performers in the gamelan orchestra who mostly remain anonymous. European orchestra is a group of personalities, wherein the performers have their own instruments and specialize to play one musical instrument (a discreet point of view), while the gamelan performers are able to play almost all orchestral instruments (a syncretic point of view). Therefore, we can state that the treatment of musical instruments as tools performing their practical function is typical of European culture. The functional attitude towards the orchestra is associated with it as such.

A different perception of orchestra influences **the possibility of standardisation of the instrumental structure**. In this respect, the gamelan orchestras have many types each of which boasts its own instrumental structure; it conditions the differences in their repertoire, because the music played by the orchestra of one type most often cannot be adjusted to the orchestra of another type. Such a non-standardized orchestral structure once again emphasizes the mythical/personified treatment of the orchestra. On the contrary, the standardization is evident in the history of European orchestra. An instrumental structure of the 18th century symphony orchestra was standardized by Mannheim School of composers, which enabled a free change in a repertoire among various orchestras. Therefore, we can speak about the standard symphony orchestra, which requires four instrumental groups (strings, woodwinds, brass and percussion) with clearly defined instruments inside of the group. Although some additional instruments can be added to the said ones or some of stable instruments can be excluded, the symphony orchestra is understood as a standard structure, having its subtypes that are very often associated with the size of the orchestra (double, triple, etc.) as well as with some differences in the structure through the history (e.g.: Classical, Romantic orchestras or Wagner's, Mozart orchestras and the like). Thus unlike the gamelan, the instrumental structure of European orchestra is standardized.

The mentioned principle of binary opposites is crucial to the instrumental structure of the gamelan orchestra. On Java Island, the contemporary gamelan orchestra is mostly twofold; one part of it is tuned as *slendro*, the other – *pelog*. More vivid ambivalence can be seen in the fact that many groups of instruments are also twofold; some instruments are tuned a bit higher (male instruments), the others – slightly lower (female instruments). In this way, the affect of an impure vibrant unison is achieved and the functions of both male and female instruments are separated. Furthermore, according to the instrumental structure and the function of the orchestra, there existed two styles, i.e. soft and loud since the gamelan first appeared. The researcher J.Lindsay states that the first would consist of soft metalophones, xylophones and the flute (gender, gambang, suling), and it was mostly exploited indoors; it was a female orchestra. Whereas the second included big, loud sounding instruments, such as drums, cymbals, various gongs and oboes; it was played outdoors, in open spaces accompanied by processions or trance rituals; it was a male orchestra.[8]

Another important moment in the formation of the orchestral structure deals with basic instruments used in the formation and evolution of the orchestra and the type of instruments exploited to constitute **the instrumental core of the orchestra**. As we know, the gamelan orchestra has been mainly comprised of percussions (pitched idiophones) since its early development, – the first mythical gamelan is believed to have consisted of gongs; moreover, the beginning of the formation of the gamelan is connected with metal instruments of timpani type.

Hence the major gamelan instruments can be shown in the following table:

Percussion	**Gongs**	**Vertical**: gong ageng, gong suwukan (siyem), kempul; **Horizontal**: kenong, kentuk, kempyang; **Gong-bells** (bonang): barung, panerus
	Metalophones	*Saron: demung, barung, panerus (peking), slenthem;* *Gender: barung, panerus*
	Xylophones	*Gambang*
	Drums	*Kendang gending, kendang ketipung, kendang batangan (ciblon)*
Strings		*Siter* (citer), *rebab* (fiddle)
Woodwinds		*Suling* (flute)
Voice		*Pesinden* (female voice), *gerong* (choir)

The said obviously testifies to the prevalence of percussion instruments in the gamelan orchestra. Gongs and metallophones (pitched idiophones) are particularly significant here.

8 Lindsay J. Javanese Gamelan. Traditional Orchestra of Indonesia. – New York, 1992.

The researcher Neil Sorrell puts forward a different idea of the classification of instruments, which is closer to the perception of instruments of the gamelan culture. The researcher suggests dividing instruments into two groups – the instruments that are held by the performer and those which are not. In this case, those instruments that are held serve as a particular continuation of a human body, while those that are not are unrelated to individuality and assume a sacred tone. N.Sorrell writes "The gamelan is in fact hardly touched at all. It is the mallets which make the contact, and only on some instruments are the hands used, usually in the secondary function of damping. […] In all cases the main consideration seems to be the respectful detachment of player from instrument and his subservience, as to an object with sacred or mystical associations or to the spirits of his ancestors".[9]

Taking into account this classification, the core of the gamelan orchestra comprises the instruments that are not held and touched by a human; they implicitly symbolize divinity and highlight the mythical attitude towards the orchestra and instruments.

On the contrary, a different origin of instrumental structure is typical of European orchestra. It was developed on the basis of the strings. Although other instrumental groups became more significant in the course of history, the importance of the strings was not diminished until the 20th century. Only in the 20th century the significance of the winds and percussion instruments would shade the supporting importance of the strings.

An important moment of the timbre – instrumental structure of every orchestra has to do with a description of the **functions of instrumental groups**. Taking a look at the fragment of the gamelan piece (Example 3)[10], we notice three instruments of different nature in the orchestra among a great number of percussion instruments. They include *suling* (flute), *sinden* (voice) and *rebab* (violin). Therefore, the instruments of the gamelan orchestra are mainly grouped according to their function, while in European orchestra the instruments are grouped with reference to their construction and the way they produce sound. Forming orchestral groups according to the function becomes possible due to functional invariability (stability) of the gamelan instruments. Accordingly, we can see that drums such as *ketipung*, *kendang* and *gending* perform a rhythmical function and serve as an audible conductor, whereas gongs – *kapyang*, *ketuk*, *kenong*, *kempul*, *gong ageng* mark time sections and carry out a colotomic function emphasizing the form. We can observe the tendency that the bigger the instrument and respectively the lower its sound is, the bigger parts of the form it denotes. Therefore, the beat of the largest *gong ageng* marks a completely new part of a cyclic form. The third group comprises metallophones such as *saron panerus*, *saron berung*, *demung* and *slentem*; they perform a nuclear melody of the piece (*balungan*). The remaining instruments carry out the function of elaborating melodies of different character. We can see that here a vocal part is not treated as a solo (what is opposite to the European vocal) but as one of the orchestral parts of equal value.

The whole functional structure of the instruments of the orchestra can be shown in the following table:

Melodic function	**Nuclear melody (balungan)**	*Saron, demung, slentem*
	Elaborating melodies	*Bonang, gambang, gender, siter, rebab, suling, human voice*
Colotomic function		*Gong ageng, kempul, kempyang, kenong, ketuk*
Rhythmic function		*Kendang, ketipung, gending*

The function of all instruments is strictly fixed, therefore the functional invariability of instruments is typical of the structure of gamelan orchestra.

In symphony orchestra usually we can distinguish three main functional groups: instruments of melodic function, harmonic function and base function.

It is reasonable to say that the features of musical systems determine the instrumental functions of both European and gamelan orchestras. Tonal system as well as the homophonic texture associated with European orchestra determine the functions of the instrumental groups. Unlike the gamelan orchestra, the instrumental

[9] Sorrell N. A Guide to the Gamelan. – London, 1990.

[10] Kunst J. Music in Java. Its Hystory, Its Theory, and Its Technique. – T. 1,2. The Hague, 1973, pp. 484–485.

groups in European orchestra are not very often explicitly connected with one specific and invariable function; therefore, we can maintain that the functional variability of instruments is inherent in European orchestra.

The logic of development and the consistent movement towards the climax are important to European orchestra, while in the gamelan orchestra the state itself is considered to be of great significance. Orchestration of a European orchestral piece undergoes changes in the form of a piece and its role is very important in emphasizing differences in dynamics, timbre dramaturgy and the like. On the contrary, the gamelan orchestration is more static and we are unable to see its major changes and contrasts during the piece. It only partially varies following the changes of larger sections of the form.

Finally, for a more comprehensive understanding of the orchestral structure one has to compare the function of the leader-conductor and thus to find out how differently the **coordination of performers** is realized. In the gamelan orchestra the conductor's function is performed by the instrument of a rhythmical functional group (mostly drums *bedung* and *kendang*); here we have the acoustic coordination of performers. European orchestra is known to have a separate person performing the conductor's function. Therefore, the performers of European orchestra are guided by a visual coordination. Here follows an interesting observation. It seems that one of the crucial factors differentiating chamber music from orchestral (without quantitative factor) deals with differences in the coordination of performers. We can presume that an acoustic coordination inherent in the gamelan orchestra is close to European chamber music. Since the way of coordination in the gamelan orchestra remains the same without reference to its size (whether four or thirty performers play), we can assume that in this culture the boundary between chamber and orchestral music does not exist. To the contrary, in Europe this boundary is highly emphasized and described not only by the quantitative factor but also by a different way of coordination. Hence in Europe the visual pattern of coordination as well as the separate conductor's function have become a significant determinant in characterizing orchestral playing.

Here the key moments describing the timbre-instrumental structure of the gamelan and European orchestras can be seen:

Gamelan orchestra	**European orchestra**
Mythical understanding of the orchestra	Functional understanding of the orchestra
Non-standardized structure of the orchestra	Standardized structure of the orchestra
Core of percussions (idiophones)	Core of the strings
Functional invariability of instruments	Functional variability of instruments
Acoustic coordination of performers	Visual coordination of performers

* * *

All the discussed aspects highlight the Gamelan orchestra as an alternative to the well-known European symphony orchestra. This alternative broadens and develops our perception of orchestral structure, timbre combinations and relationships, functions and many other aspects. We may also presume that the knowledge of these alternatives can open new possibilities for sharing and integrating different cultural ideas.

Santrauka

Gamelano orkestro struktūrinio organizavimo principai kaip alternatyva europinės kultūros orkestrui

Gamelano ir Europos orkestrinės kultūros formavosi ir gyvavo visiškai savarankiškose bei skirtingose aplinkose, ilgą laiką neturėdamos jokios tarpusavio sąveikos. Jos suformavo savo unikalius ir labai skirtingus struktūrinio organizavimo principus, visų pirma paveiktus savito mentaliteto, pasaulėjautos bei muzikos suvokimo.

Pagrindiniai gamelano orkestro organizavimo principai daugeliu atvejų pasireiškia kaip priešybė europiniam orkestrui – iš to galime spręsti apie esminį šių dviejų orkestrinių kultūrų skirtingumą. Jis atsiskleidžia labai įvairiais aspektais ir įvairiuose analizės lygmenyse. Šiame pranešime aptariami esminiai gamelano orkestro formavimo principai, daugiausia remiantis Javos gamelano pavyzdžiu. Lyginant juos su mums geriau pažįstamais europinio orkestro principais, bandoma rasti analogijų arba suformuluoti alternatyvas.

Kultūriniu aspektu abiejose orkestrinėse kultūrose išskirtini trys esminiai principai, atsiskleidžiantys visuose analizės lygmenyse ir atspindintys gamelano ir Europos orkestrų pagrindinius išeities taškus. Jie sudaro savotišką ašį, aplink kurią susiformuoja visi kiti šiame pranešime aptariami principai:

1) Gamelano binarinių priešybių principas, sąlygotas mitinės pasaulėžiūros ir pasireiškiantis dviejų sugretintų, poliarių ir kartu koegzistuojančių pradų buvimu (vyriškas/moteriškas, dangiškas/žemiškas) bei jam priešingas Europos monocentrizmo principas, išeinantis iš krikščioniškos teocentristinės pasaulėžiūros ir pagrįstas vieno svarbiausio, centrinio atskaitos taško buvimu.

2) Gamelano kartojamumo principas, nulemtas kanoninės kultūros ir atspindintis kultūros tradicijų saugojimą, visuotinių nekintamų taisyklių, kanonų egzistavimą ir jų nuolatinį kartojimą, bei Europos nekartojamumo principas, sąlygotas individualizuotos kultūros ir pabrėžiantis nuolatinį atsinaujinimą, tobulėjimą, taisyklių ir normų kaitą, nesikartojimą.

3) Gamelano sinkretiškumo principas, tiesiogiai susijęs su nediferencijuota mąstysena, atspindintis visų gyvenimo sferų, taip pat orkestro analizės lygmenų, teorinių sąvokų organišką ir neatsiejamą ryšį, ir Europos diskretiškumo principas, pabrėžiantis visų gyvenimo sričių, muzikos parametrų, teorinių sąvokų, orkestro analizės lygmenų ir kt. diferencijuotą ir autonomiškai savarankišką suvokimą.

Šie trys pagrindiniai pasaulėžiūros modeliai sudaro alternatyvų poras, taigi jau pačiame esmingiausiame kultūriniame lygmenyje gamelanas atsiskleidžia kaip priešybė europietiškam mąstymui.

Orkestrų teorinių koncepcijų analizė atskleidžia daug reikšmingų bruožų bei tarpusavio skirtumų. Tiek gamelano, tiek Europos orkestrai turi ištobulintas teorijų sistemas, grindžiančias jų atliekamos muzikos struktūrą bei iš dalies paties orkestro sandarą. Gamelano orkestras turi labai organiškai susietą teorinių koncepcijų visumą – tai patvirtina jau minėtą sinkretiškumo principą. Teorinę Javos gamelano bazę galime sujungti į vieną grandinę, kurioje kiekvienas narys susijęs su prieš tai buvusiu. Be to, matomos trys grupės: garso aukščio koncepcijos (*lara, pathet* ir *balungan*), laiko dalijimo, arba formos, koncepcijos (*irama, bentuk* ir *padhan-ulihan*) bei atlikimo praktikos koncepcijos (*garap, kotekan*). *Balungan* koncepcija užima jungiamąją grandį, išvedančią į muzikinio laiko sferą, o *garap* sąvoka išveda į muzikos atlikimo praktiką.

Šis glaudus skirtingų teorijų ir muzikavimo praktikos ryšys išreiškia sinkretinį mitinį mąstymą, būdingą šiai kultūrai. Be to, akivaizdus ir šių teorijų standartizavimo faktas, nekintamumas istorijos eigoje. Visa ši organiška visuma sudaro stabilų Javos gamelano muzikos teorinių taisyklių korpusą, pagrindusį visų šio orkestro kompozicijų struktūrą.

Europos orkestro muzikoje randame muzikos sistemų evoliuciją ir ryškią jų kaitą. Todėl galime teigti, kad, skirtingai nei gamelanui, Europos orkestrui būdingesnė nuolatinė teorinių sistemų kaita, nulemta muzikos teorijų individualizavimo tendencijos. Be to, Europos muzikos sistemų suvokimui būdingas parametrų diskretiškumas. Čia harmonija, forma, ritmas ir kitos sritys dažniausiai suvokiamos kaip daugiau ar mažiau autonomiškos, todėl atskiros muzikos sistemos bei teorijos taip pat suvokiamos diskretiškai.

Tembrinis-instrumentinis abiejų orkestrų organizavimas taip pat pagrįstas gana skirtingais principais. Gamelano kultūroje gyvuoja mitinis požiūris į orkestrą, orkestras yra laikomas dieviškos kilmės, personifikuojamas, jo asmeninis identitetas yra sureikšminamas kur kas labiau nei jame grojantys atlikėjai. Europoje matome visiškai kitokį orkestro traktavimą. Pirmiausia čia sureikšminama atlikėjų asmenybė, jų meistriškumas, o orkestras suprantamas daugiausia kaip muzikos įrankių (instrumentų) rinkinys, turintis atlikti praktinę funkciją. Europoje nei pats orkestras, nei jo instrumentai nesuasmeninami, panašiai kaip gamelane orkestro atlikėjai, kurie dažniausiai lieka anonimiški. Europos kultūrai būdingas muzikos instrumentų kaip įrankių, turinčių savo praktinę funkciją, traktavimas. Su tuo susijęs funkcinis požiūris į orkestrą.

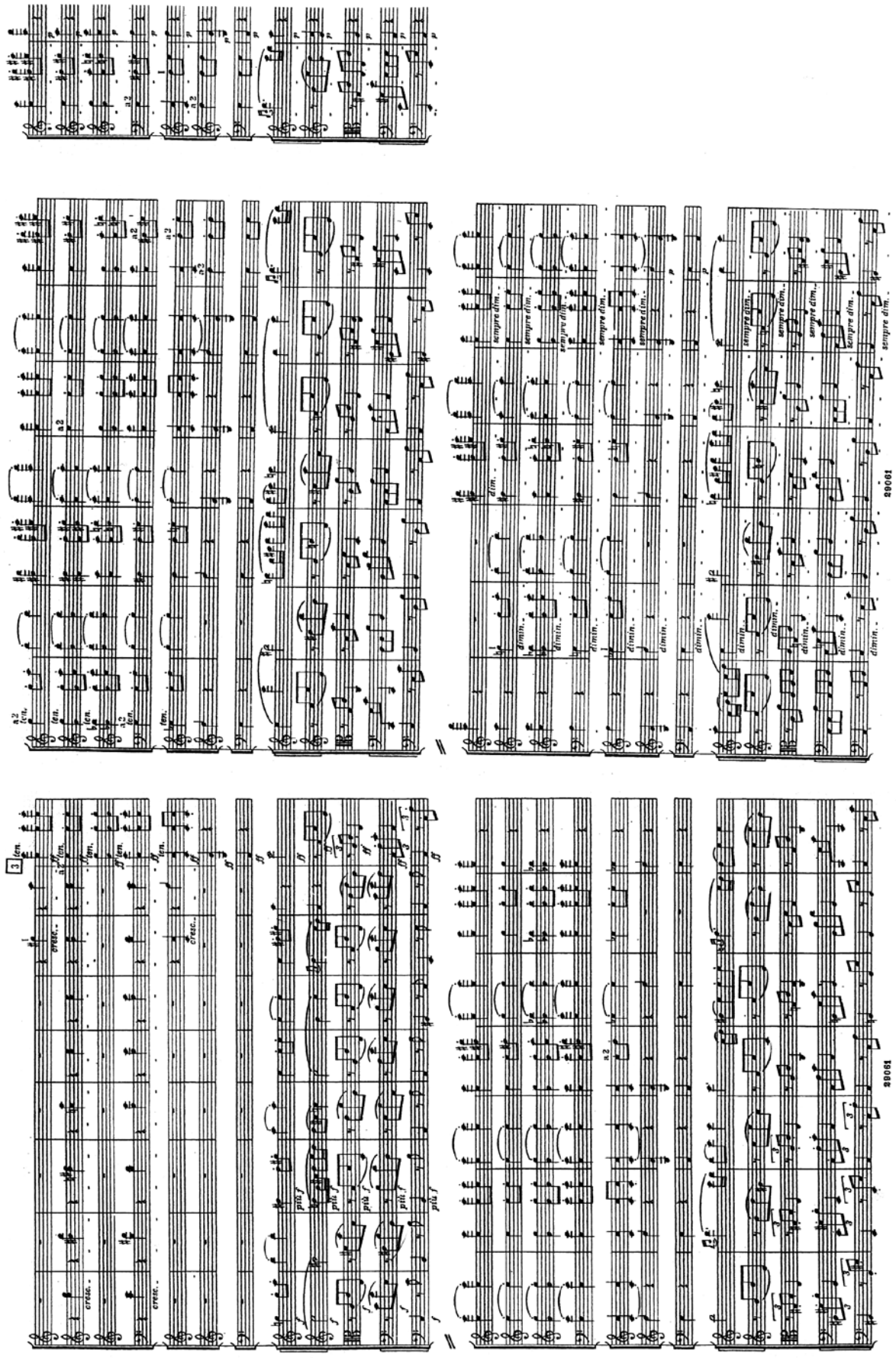
Orkestro suvokimo skirtumai tiesiogiai veikia ir vienoje kultūroje egzistuojančių orkestrų sudėties standartizavimo galimybę. Šiuo aspektu gamelano orkestrai turi daugybę tipų ir kiekvienas jų pasižymi individualia instrumentine sudėtimi. Tokia nestandartizuota orkestro struktūra dar kartą pabrėžia mitinį suasmenintą orkestro traktavimą. O europinio orkestro istorijoje ryškus struktūros standartizavimo faktas. Todėl mes galime kalbėti apie standartinę simfoninio orkestro sudėtį, kuriai būtinos keturios instrumentinės grupės (styginių, medinių pučiamųjų, varinių pučiamųjų ir mušamųjų) su aiškiai apibrėžtais instrumentais grupių viduje. Taigi, skirtingai nei gamenalo, europinio orkestro instrumentinė struktūra yra standartizuota.

Dar vienas orkestrų struktūros formavimuisi svarbus momentas yra tai, kokių instrumentų pagrindu susikūrė orkestras ir kokie instrumentai sudaro orkestro instrumentinį branduolį. Gamelano orkestre randame vienareikšmį mušamųjų instrumentų dominavimą. Čia ypač išsiskiria gongų ir metalofonų grupės (toniniai idiofonai). Be to, orkestro branduolį sudaro žmogaus nelaikomi ir neliečiami instrumentai, tie, kurie netiesiogiai simbolizuoja dieviškumą ir taip pat išryškina mitinį požiūrį į orkestrą ir instrumentus. Europos orkestrui būdingos visai kitokios instrumentinės struktūros ištakos. Jis formavosi styginių (daugiausia strykinių) instrumentų pagrindu. Nors laikui bėgant kitų instrumentinių grupių reikšmė vis labiau augo, styginių grupės reikšmingumas nesumenko iki pat XX amžiaus.

Reikšmingas kiekvieno orkestro tembrinės-instrumentinės sandaros momentas yra jo instrumentinių grupių funkcijos. Gamelano orkestre instrumentai yra grupuojami labiau remiantis jų funkcija nei sandara ir garso išgavimo būdu, kaip Europos orkestre. Jungimas į orkestrines grupes pagal funkciją tampa įmanomas dėl gamelano instrumentų funkcinio nekintamumo. Galime sakyti, kad tiek Europos, tiek gamelano orkestrų funkcijas lemia muzikinių sistemų specifika. Tad europinio orkestro instrumentinių grupių funkcijas dažnai formuoja tonacinė mažoro-minoro sistema ir su ja susijusi homofoninė faktūra. Skirtingai nei gamelano orkestre, čia orkestro instrumentinės grupės dažniausiai nėra tiesiogiai siejamos su viena konkrečia ir nekintama funkcija, todėl galime sakyti, kad Europos orkestrui būdingas instrumentų funkcinis kintamumas.

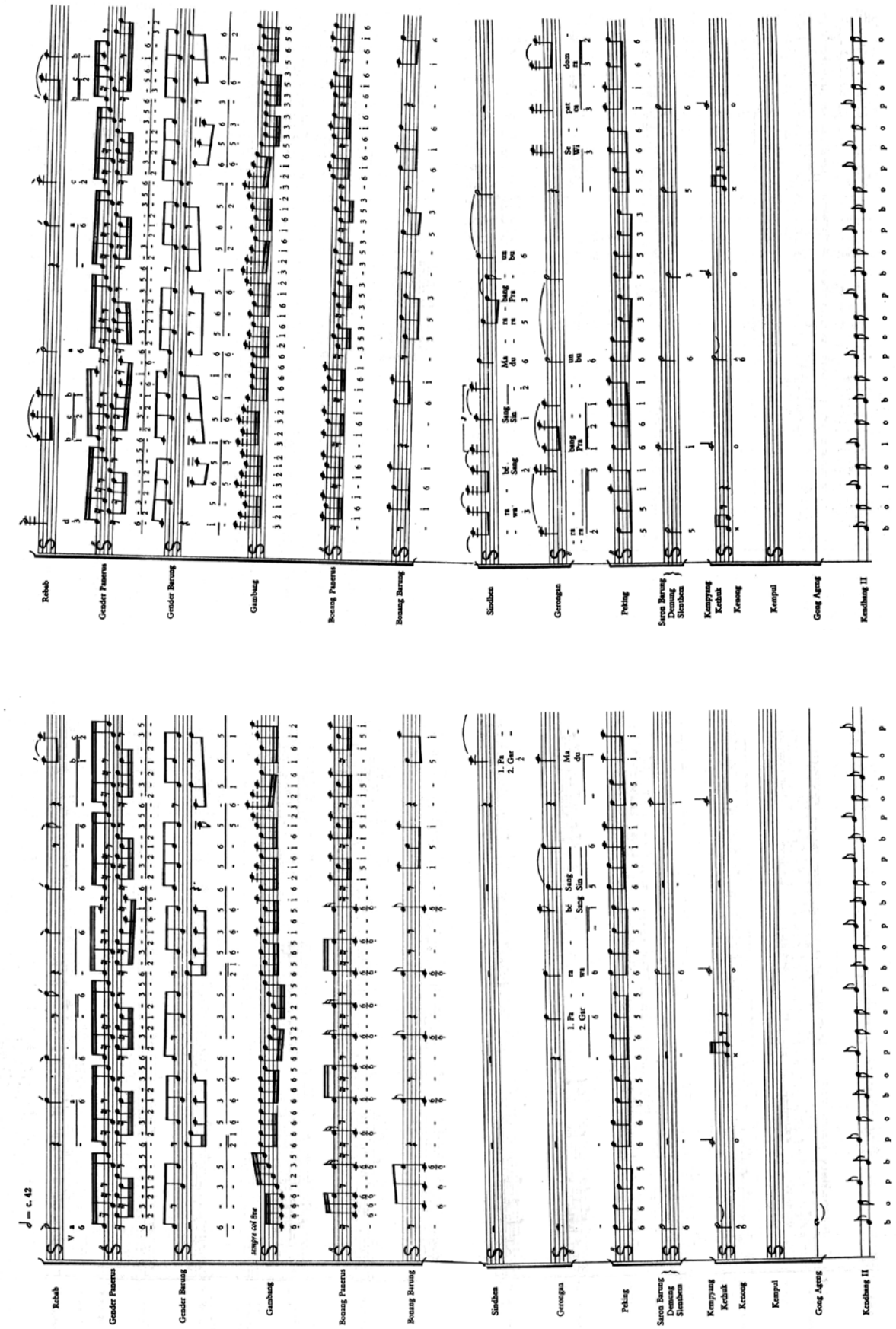
Norint išsamiai pažinti orkestro struktūrą, būtina aptarti dirigento funkcijos specifiką ir taip išsiaiškinti, kuo skiriasi atlikėjų tarpusavio koordinavimasis. Gamelano orkestre girdimo dirigento funkciją atlieka ritminės funkcinės grupės instrumentai (dažniausiai būgnai *bedug* ir *kendang*), todėl darnų orkestro grojimą užtikrina akustinis atlikėjų tarpusavio koordinavimasis. Europos orkestras, kaip žinoma, dažniausiai turi atskirą dirigento funkciją atliekantį asmenį. Galime tvirtinti, kad europinio orkestro atlikėjai daugiausia vadovaujasi vizualiniu tarpusavio koordinavimosi būdu.

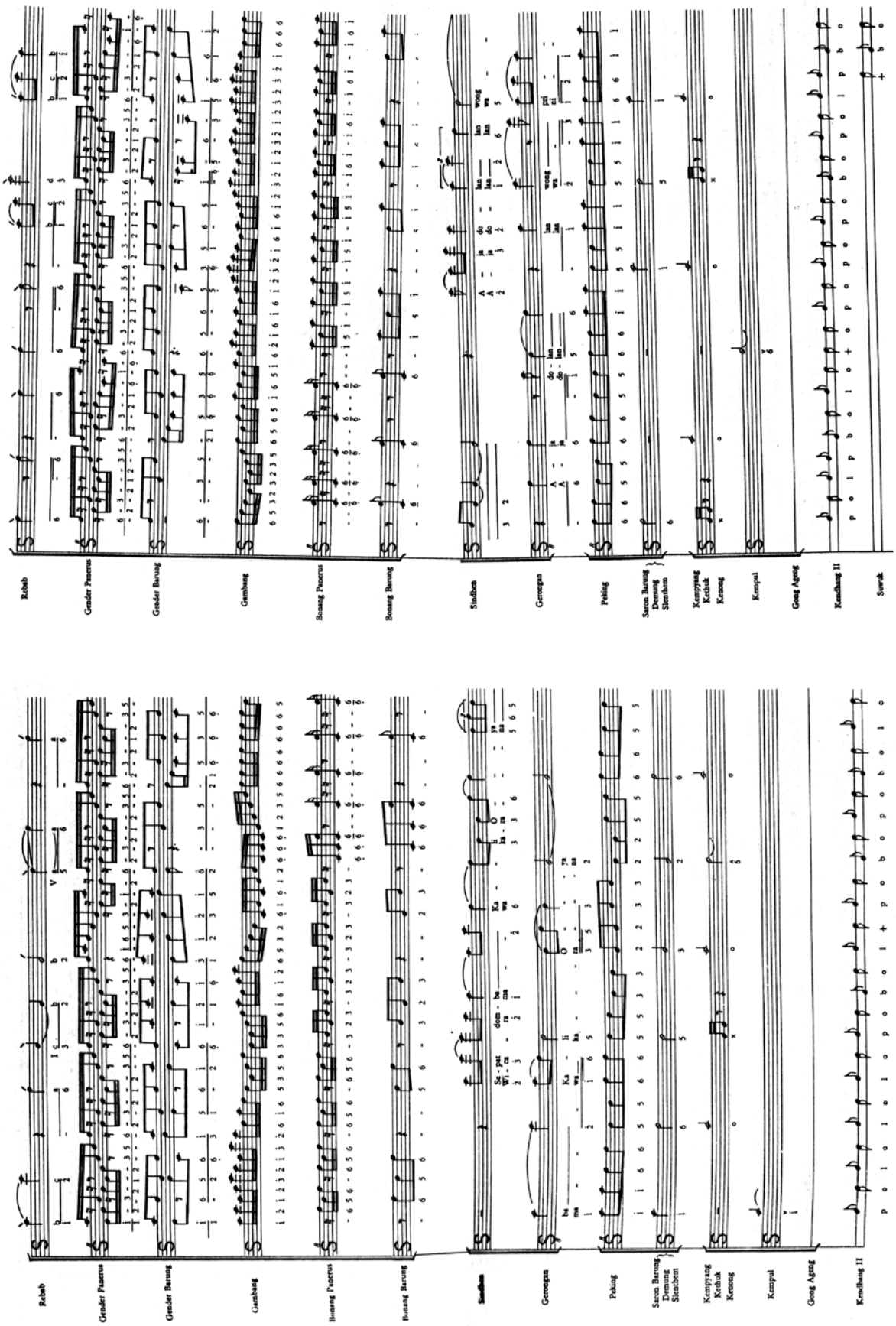
Visi minėti aspektai išryškina gamelano orkestrą kaip alternatyvą mums įprastam europinės kultūros orkestrui. Alternatyvą, kuri praplečia, o kartais ir sulaužo mūsų supratimą apie orkestro struktūrą, tembrų derinimą, funkcijas bei daugelį kitų aspektų. Tad galime manyti, kad šių alternatyvų pažinimas atveria galimybę skirtingų kultūrinių idėjų sąveikai bei sintezei.



Example 1

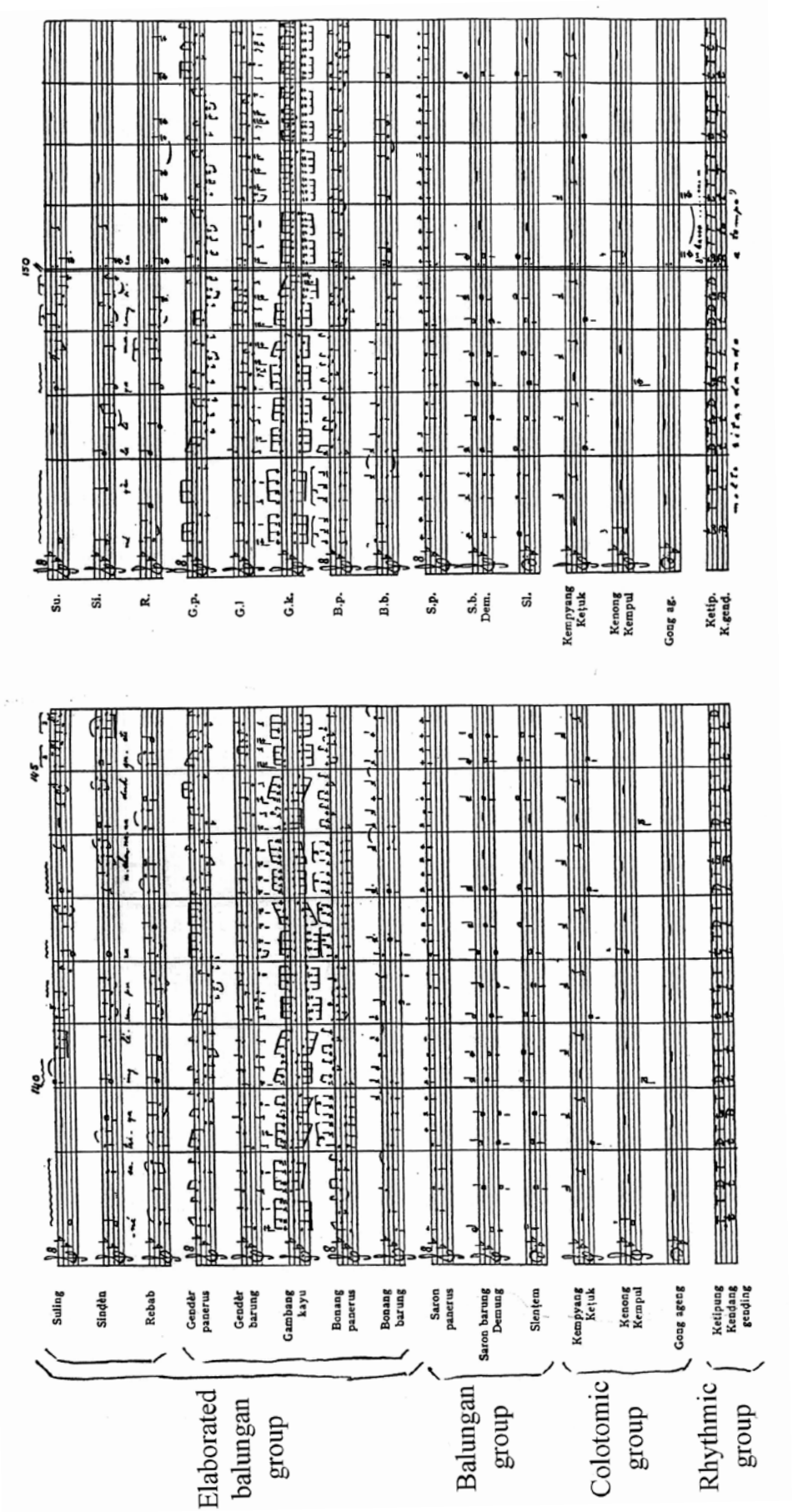
Example 2


Rebab
Gender Panerus
Gender Barung
Gambang
Bonang Panerus
Bonang Barung
Slenthem
Gerongan
Peking
Saron Barung
Demung
Slenthem
Kempyang
Ketuk
Kenong
Kempul
Gong Ageng
Kendhang II


Rebab
Gender Panerus
Gender Barung
Gambang
Bonang Panerus
Bonang Barung
Slenthem
Gerongan
Peking
Saron Barung
Demung
Slenthem
Kempyang
Kethuk
Ketong
Kempul
Gong Ageng
Kendhang II
Suwuk


Rebab
Gender Panerus
Gender Barung
Gambang
Bonang Panerus
Bonang Barung
Slenthem
Gerongan
Peking
Saron Barung
Demung
Slenthem
Kempyang
Kethuk
Kenong
Kempul
Gong Ageng
Kendhang II
Suwuk

Example 3


Suling
Sindèn
Rebab
Gender paserus
Gender barung
Gambang kayu
Bonang paserus
Bonang barung
Saron paserus
Saron barung Demung
Slenjem
Kempyang Kejuk
Kenong Kempul
Goog ageng
Ketipung Kendang gending
Elaborated balungan group
Balungan group
Colotomic group
Rhythmic group